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2013 COLLECTOR'S EDITION



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Great time to be a geek

December for most is a time for quiet reflection. A time to ponder the successes, contemplate the failures and generally take stock of the events in the year gone by. I, for one, don't indulge in such pursuits. I mean I'm all for learning from the past, but for me this is a time to look forward to the possibilities. And the possibilities that technology presents over the coming year are tremendous. Going by the indicators we saw very recently there are great things in the offing.


Take for instance the recently unveiled Snapdragon 805 SoC. The chip features the Adreno 420 graphics module, which is capable of tessellation and is supposed to be 40 percent faster than the older 330. The memory bandwidth is a staggering 25.6 GB/s! All of this means that the SoC is capable of delivering 4K video. 4K on a phone? Now why on earth would you want that? Sometime ago at an industry event I was attending, this same question popped up in some friendly banter. There's no need for a 4K screen on a smartphone, people argued. Agreed that packing in more and more pixels on screens – small ones at least – will reach a point where the human eye won't be able to tell the difference between varied pixel densities, but that theoretical biowall is still quite far. And who says that the 4K video that such an SoC is capable of processing should only be viewed on the smartphone's screen? With Wi-Fi Direct picking up and the possibility of speeds improving, the day won't be far when you can stream such video directly on to the nearest 4K screen wirelessly.

So much processing power wasn't conceivable on even portable PCs until just a few years ago, but we're seeing tiny smartphones surpass at least the processing hurdles. Really makes your head swirl, doesn't it?

And these are just small indicators of an age to come. From the plateauing in development we've seen in recent times, there seems to be a turning point very much in sight. When the leaders in the technology world leave their comfort zone and try to take on bold experiments, interesting things happen. Look at Apple's iOS 7 (which you'd definitely want to read more of in this month's FT). The

departure from skeuomorphism is daring, and logically a step that was bound to come sooner or later. While the 64-bit mobile architecture in Apple's latest CPU chip may not seem like a big deal right now, it is indeed a long-term enabler of many leaps.

Through bold experiments, technology leaders also gave us a glimpse of future gadgets to expect. Already we have printers that don't require drivers and can be controlled directly from the cloud. Content-oriented devices seem to be getting smarter too. The LG G Flex, for example, apart from impressing us with its self-healing sorcery, displays information to the user in interesting ways just by being rolled on its back. Other devices such as tablets have made it easier for people to access their content. No longer do you have to store files locally, navigate a file system and find appropriate programs to launch said files. You have anytime, anywhere access to your content, especially video. Be it on next generation consoles or smartphones, games, movies, videos and TV shows are all being beamed to you on demand on the device of your choice. Consumers are anticipating a future that's not ruled by a multitude of devices and platforms but rather a synthesis of high performance, interconnected, internet-enabled devices.

All of this makes me feel the technology world is increasingly moving towards a paradigm that aims to serve what you want, where you want, when you want and even how you want – and there's no stopping it. Homes are getting smarter, energy is getting cleaner, bandwidth is getting broader (and hopefully cheaper), cars are driving themselves and so many more exciting things are on the near horizon. In fact you'll likely see some of these things take center stage at the upcoming CES too. This is indeed a good time to be a geek. 



Siddharth Parwatay
Features Editor

siddharth.parwatay@thinkdigit.com

"From the plateauing in development we've seen in recent times, there seems to be a turning point very much in sight."



Got feedback about this column?
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Linux tools

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Movie Trailers

The Wolf of Wall Street

X-Men: Days Of Future Past

and more...

SKOAR! Magazine: The interactive edition

Highlights from

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Paris Games Week 2013

Nasscom GDC 2013

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12 Full games

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Disclaimer

For every Digit contest, there will be only one winner, unless specified otherwise.
In the event of a dispute, the Editor's decision shall be final.

PRODUCTS REVIEWED THIS MONTH

Bazaar

Acer P3
AMD R9 290X 4GB
Amkette Trubeats Metal
ASRock Fatal1ty Z87 Killer
ASUS R9 270X Direct Cooling Top Edition 2GB
ASUS B85 Vanguards
Asus FonePad 7
ASUS R9 280X Direct Cooling Top Edition 3GB
BlackBerry Z30
CM Storm Devastator Combo
Cooler Master Ergostand Lite
Epson EH-TW5200
Gionee ELife E6
HP Chromebook 14-q001tu
Intel Core i7 4960X
Lenovo A1000
Lenovo P780
Logitech G430
Micromax Canvas Turbo A250
MSI R9 270X Hawk Edition
NVIDIA GTX 780 Ti 3GB
Olympus OM-D E-M1
Panasonic Lumix GX7
Plantronics ML2 Bluetooth headset
Sapphire R9 280X Vapor-X

Zero1 Winners

Aspire S7 - 392
ASUS ROG G750JX
ASUS RT-AC68U
BenQ GW2760HS
Bose QC20i
Brother 7065DN
Canon EOS 70D
Corsair H110
Corsair Obsidian 900D
HP Deskjet InkAdvantage 6525
HP ENVY 15 j-001TX
HP Pavilion 21-a255in
Intel Core i7 4960X
iPad 4
Nexus 7 2013
Nikon D5200
Nokia Lumia 1020
NVIDIA GTX 780 Ti
Olympus OM-D E-M1
Samsung 840 Pro
Sennheiser HD 700
Silicon Power Armor A15
Sony RX100 II
Sony Xperia Z1
SteelSeries Siberia V2
Tom Tom VIA 125
Western Digital Velociraptor 1TB

Worthy Mentions

AKG K551
Alienware 17
AMD R9 290X
Apple iPhone 5s
ASUS Transformer AIO 1801
ASUS VK278
Audio-Technica ATH AD500X
BenQ XL2720T
Brother DCP-1511
Brother J6250DW
Canon EOS 700D
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HP Envy TouchSmart Ultrabook 4-1113tu
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Intel Core i7 4770K
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Lenovo IdeaCentre A730
LG Nexus 5 (by Google)
Logitech G230
Logitech UE900
MapmyIndia VX140s Premium
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Nepton 280L
Nexus 7 (First Gen)
Nikon D7100
Noctua NH-U14S
NZXT Kraken X60
NZXT Phantom 820
Olympus Stylus XZ-2
Panasonic GX7
Ricoh Aficio SP200S
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Seagate Desktop SSHD 2TB
Sennheiser Momentum
Sony VAIO Pro 13
Sony Xperia Tablet Z
Sony Xperia Z1
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WD My Passport Ultra
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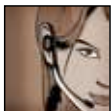
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Windows 8

Buzz

We cover the ups and downs in the tech universe. This month was full of funny moments.

**Software Hipster**

Learn to live without Java, Adobe Flash and Acrobat Reader in today's day and age. Read more at: <http://dgit.in/backtothestoneage>

✉ A very happy Diwali to Team Digit. I've been reading Digit for more than four years now but this is the first time I am writing to you. First of all, I would like to thank you for the wonderful articles you provide in all your magazines and also for the speedy delivery. Since the past six months I've been getting my issues on the first day of the month itself!

I am happy that Siddharth has taken over the editorial. From my point of view I can tell you that we Siddharths are actually very impressive :-)

I love Digit for everything from the latest updates in the tech world to product reviews, and from the excellent articles to all the useful links that you give throughout the magazine. But most of all, I like the Tips and Tricks section. On the second-last page of the issue (in the RSS Feed), Robert Sir has talked about the change to the brand Digit and Siddharth taking charge over the editorial pages. First of all, congratulations sir on becoming father to Lucas Isaac. I have deep respect for every line you wrote and the paragraph in which you mentioned that it's time to give a chance to the fresh blood was the best. And yes, let me tell you sir, you and your team have already done a lot for us and changes with the magazine in the recent past have been simply amazing, specifically:

1. DGT with all the latest products in the tech world – it's simply EPIC!
2. Encyclopedia Technica (my personal favourite) – best for beginners in the tech world.
3. And best of all – SKOAR! in digital format – a boon for fellow gamers, though I am not much of a gamer myself, if you want to survive in the tech world you need to be updated from time to time about everything related to it.

And I am sure #StaticSid will take the Digit brand to new levels. At last I would like to say hats off to the brilliance of your team from all the fellow Digitians. Without a doubt I can say that Digit is the best and most read tech magazine in our country and soon it will be all over the world (I mean it). As my contribution to Digit, I'll try to make people aware of our brand (which I usually do). Very excited

Feedback for the November 2013 issue of Digit



about the special and last issue of the year. Looking forward to meet you someday.

-Siddharth Santwani

✉ A very happy Diwali to you and your family Siddharth, and thank you for those wonderful words. You really made our week! :) I'm sure you'll enjoy this issue. We've got all of your favourites including Encyclopedia Technica. And if you want to drop in the next time you are in Mumbai, feel free to give us a call and come by.

- Robert

✉ This is the very first time I am writing to you. (I know most people start with this line but please don't mind me). Firstly, I want to tell you about my deep relationship with Digit. I am currently 15 years old. I got into computers at the age of five or six. I used to do very basic functions (I am not praising myself) like those good old games and some printing work (I had remembered the shortcut keys).

One day, I was looking for something at my relative's home and I found this great magazine called Digit. The cover was so attractive that I continued just looking at the cover for about 5 minutes. Reading the book was not in my reach because I was too young. But a second look and I found the DVDs. It had some great content and good games. I got

addicted. From that day, whenever Digit came to my relative's home, I always used to ask for it and continued finding good stuff in it.

Last year in December, when I became capable of reading the Digit magazine, I subscribed for it. The first ever issue I got was in fact ironically the "Last Ever Issue"! What an issue that was. Few issues like the Feb and April one did disappoint me. But my overall experience has been great. The product reviews, Tips and Tricks, World View etc. are all great. Fast Track is the best addition to Digit. Since I am a developer, I look forward to a Fast Track on Visual Basic 2013 if you can provide it. It releases on 13th November.

Now, my subscription is expiring in November and I am not subscribing anymore because of my studies. I will subscribe again in April when my exams will have been over.

Few things:

- In November issue, why didn't you feature the new iPads? You should have started the printing work later because that was an important event. Now when will you cover that? By the next issue, the news would have become old.
- Sometimes you cover a lot about cameras in a single issue. Please



Mr. Dutt goes to America

It's his son's 20th wedding anniversary. He has got a DIGISOL NAS for his daughter-in-law, who runs a graphic design studio out there. Since she travels so much, the product solves the problem of accessing her files, through the cloud storage feature. Her vast collection of designs, documents and images can all be stored safely and securely on the 8 TB storage, which can sync her data automatically as well.



GENESIS



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DG-NS5002

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Reviewing the Doctor

The Doctor Who 50th anniversary special: Day of the Doctor was reviewed by Mashable. Read on to see what it has to say <http://dgit.in/drwhoview>



Flying Jellyfish

Is it a bird? Is it a plane? Is it a...Jellyfish?? Read more about the flying robot that moves like a jellyfish <http://dgit.in/jellyfly>

LETTER OF THE MONTH

✉ Hi Team Digit. The cover story last month was really impressive and helpful. The Buzz section brought forth lots of latest news and App Watch was good too. World View's both articles, "The thrill is gone" and the Google one were really true. Tips and Tricks were helpful, especially the "Boost Windows' Startup" one. The Workshop section really impressed me. I downloaded the Predator app mentioned there, and it was awesome. Then, in the Comparison Test the reviews weren't separate and even the specs sheet was still placed in between the write-ups. That forced me to skip those pages to continue on to the Bazaar section which was good. There is one more request: in the upcoming January issue do a story on something like "Gadgets of the year 2013". It can even be your cover story. I want to see who wins this battle. This 13-year-old guy really appreciates the work you're doing. And don't worry, I'm



not at all requesting for a Digit t-shirt!
- Harsh Khurana

4 Glad you liked the last issue. As for your complaint about individual reviews not being present in the comparison test, there are a couple of reasons we do that. Sometimes we get so many products that it's difficult to talk at length about each of them in a comparison test. Secondly, there are times when we can bring out more decision specific clarity by talking about particular aspects of products such as performance or features. The cover story idea you suggested is exactly what our Zero 1 awards is all about – a battle of the year's best products. On the contrary if you want a take on the year's not-so-great products I'm sure you'll like Jayesh's column. Keep writing in. And since you didn't ask for a t-shirt, here's one.
- Siddharth

avoid that because many users don't have cameras.

- As many readers are demanding, please provide TED videos regularly in your DVDs.
- I want to thank you for controlling the amount and types of ads in the magazine. Some ads are useful and aren't annoying unlike that Intel XDK ad.
- DGT is always nice to receive. No need to change anything in that.

All in all, all the work you guys do is fabulous. Keep it up and do consider people's suggestions as some of them are very helpful.

-Paras Sidhu

4 Thank you Paras (I hope that's your first name. Your email ID was a little confusing. Correct me if I am wrong.)

We will look into implementing some of your suggestions and we're glad you like most of what we do. We cannot focus too much on developers all the time, but we

certainly will try and keep you updated. I think we cover most product categories, and don't really overdo any one, and cameras are a category we get a lot of people asking for more of. As you can tell, it's really tough to cater to everyone's needs and make everyone happy.

I cannot promise to keep everyone happy, all of the time, because I am sure there will be issues you will like less than others in the future as well, but I can promise to keep "almost everyone" happy "most" of the time, which includes you as well :)

- Robert

✉ First of all I must say that everything I read in Digit in simply, absolutely amazing. The style of writing, the issues covered, anything and everything about this magazine makes me wonder, how are these guys able to do so much in just a month?

I haven't read many issues, just 3-4 of them, and I haven't found anything more

comprehensive and useful. Being a B.tech CSE student, the information you give is much needed, and helps me know stuff that I feel I must be aware of as an engineering student and gadget enthusiast.

I can probably write a 20-page mail just praising your November issue.

However there's one thing I would like to request: apart from development and coding and hardware, there is another side to computers. The theoretical side. The stuff about machine learning, cryptography and robotics is also another extremely intriguing part of this world. As a research enthusiast I would like to say that we Indians are great at coding, but we need to go a step ahead and learn about the above mentioned stuff. Though there is increasing awareness about these topics, it's spreading slowly. It would be great if guys like you could actually try and fit this into your upcoming issues, even if it's only a small part. I see that many people in India (at least students) relate computers to only coding, which is not even 10 percent of it. I believe that you guys can actually be the harbingers of change and help create awareness about such topics by attracting the interest of your readers and thus perhaps an increased involvement in research as well.

P.S. I still want to know how you cover so much ground in such less time. I used to write too, but don't anymore and thus know the amount of work that goes into creating something which keeps the readers interested and always wanting for more.

- Akshay Agarwal

4 Well you're on the right track and we completely agree with you. In fact let's take the example of the three topics you mentioned – machine learning, cryptography and robotics. Machine learning is something we talk about all the time in our Sci-Tech section. We had an entire Fast Track on Cryptography in November 2012 and an FT to Building Your Own Robot about a year before that. In fact some would say we lean too much towards the slightly esoteric science, but knowing your tastes I'm pretty sure you're going to like our current issue, especially the stories in the Special Features section this month.

- Siddharth



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Broadwell's 2014 debut

Intel's next-gen 14nm Broadwell GPU is showing major improvements over the current HD 5000 (Iris) series



Her Name Is Khan

...and she's a superhero! Check out Marvel's Muslim superhero - a teenage girl called Khan <http://dgit.in/hernameiskhan>

Ups and Downs in the Gadget World

It's a bumpy era, this techno-rollercoaster we're on

Fujifilm enters the Indian MILC market

Fujifilm India has finally announced the release of its latest mirrorless camera, the Fujifilm X-A1 and a professional grade prime lens, the Fujinon XF23mm f/1.4. The camera is aimed at enthusiasts looking to upgrade from their Point-and-Shoots and move towards a more professional shooting experience without breaking the bank.

The Fujifilm X-A1 comes with a 16MP CMOS sensor and is the first mirrorless camera from the company to not have an X-Trans sensor. However, it still retains the EXR II image processor found in the newer high-end Fujifilm cameras which, according to Fujifilm, allows it to operate at quicker speeds; for instance it reduces the start-up time. The X-A1 also comes with a number of special

in-camera effects, including Toy Camera, Miniature, Pop Colour, High Key, Low Key, Dynamic Tone, Soft Focus and Partial Colour (Red/Orange/Yellow/Green/Blue/Purple). The camera also offers a Multiple Exposure mode which allows you to superimpose a second exposure onto the first exposure for a more creative touch. While the creative modes might appeal to the novice audience, Fujifilm has also included the five Film Simulation modes it's known for, namely; Provia, Astia, Velvia, Monochrome and Sepia.

Along with the Fujifilm X-A1, the company has also introduced its latest prime lens in the market - the Fujinon XF23mm f/1.4 R. The lens has a solid metal construction with an aperture ring around the lens barrel, and feels as premium as any other Fujifilm lens in the past. The lens also comes with

a distance scale etched into the body just in front of the manual focus ring, but doesn't include an IR adjustment marking. On a Fujifilm mirrorless camera, the lens offers an effective focal length of 35 mm and coupled with the seven-blade aperture, also offers a very pleasing bokeh effect.

The Fujifilm X-A1 and the Fujinon XF23mm f/1.4R are both available across select stores for ₹44,990 (kit) and ₹66,999, respectively.

Sony PS4: Not so perfect, after all?

The Sony PS4 crossed the million sales mark in North America within the first 24 hours of being put on sale despite several reported issues.

In most of the cases, the cause of the problem seemed to be the HDMI jack. Video game-focused blog Kotaku reported that it was able to isolate the issue to the HDMI connection.

THE FIX: Press the metal piece down a little so that it is no longer sticking up (please make sure you do this very, very carefully). The cause of the problem seems to be a manufacturing issue.

Among the complaints received were a few regarding the PS4's DualShock 4 controllers not being bundled with an accompanying charging USB cord, the new console booting up with the 'Blue light of death' (BLOD) and the console being DOA or dead while still being

SONY RESPONDS:

"A handful of people have reported issues with their PlayStation 4 systems," a Sony spokesperson told Mashable. "This is within our expectations for a new product introduction, and the vast majority of PS4 feedback has been overwhelmingly positive. We are closely monitoring for additional reports, but we think these are isolated incidents."

in use. At the time of writing, out of a total of 2,107 customer reviews, 591 customers gave it a single star rating, mostly related to the BLOD issue, which means that over 28% of users are facing issues with their new consoles.

This might not be the start that Sony, the company that won the hearts of gamers with its pre-launch marketing campaign, would have hoped for. We hope Sony can fix the issue before its India launch.

HCL shuts PC manufacturing

HCL will no longer be manufacturing PCs, but will continue to remain in PC distribution and after-sales services. It had started to take a toll on the PC maker, who's already been exploring new avenues with tablets and ultrabooks.

HCL Infosystems CEO and Managing Director Harsh Chitale is quoted as saying, "On possibilities of job cuts, Chitale points out less than



Fujifilm X-A1 doesn't have an X-Trans sensor



945



935



915³

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3% of employees of HCL's 15,000-strong full-time employees are part of the manufacturing vertical."

According to a TOI report, the PC business contributes about 8%, which is around ₹1,000 crore, to the company's overall revenues. With growing popularity of smartphones, tablets and phablets, HCL's PC business had been under an immense pressure. The Rupee's value against the Dollar and other currencies has also hit the Indian PC market, considering the fact that about 90-95% of the components are imported.

Research firm IDC's report for Q1'13 showed a record dip in

placed on either side of frame gathering solar energy while you're out in the sun. Once the sun goes out, this energy can then be harnessed to charge your smartphone.

The sunglasses have been designed by US-based Indian designer Sayalee Kaluskar as a part of a student project at Miami Ad School in San Francisco. Kaluskar collaborated with Ramiro Ramirez on the project as part of their student work.

The sunglasses have detachable arms that can be attached to your phone via a microUSB charging port or Lightning connectors that allow them to

"We will be stopping manufacturing. My distribution today does lot of distribution of PCs of multiple brands... We will be in PC distribution and in after-sales services but will not manufacture HCL branded products some time in the future. Manufacturing is not something that is keeping me awake, it's not part of HCL story now."

—Harsh Chitale,
HCL Infosystems CEO & MD

PC shipments worldwide. PC makers shipped 76.3 million units in the first three months of 2013, which is a 13.9% decline over the same period in 2012.

Solar Ray-Bans

Indian designer Sayalee Kaluskar has introduced the Ray-Ban Shama Shades. They come with two solar panels

transfer power to your device. Although Kaluskar stated that even an entire day spent in the sun won't be sufficient to charge your smartphone completely, it will be enough to keep it running for a while.

Recently, the technology for harnessing solar energy for wearable gear has been in the news. Apple has sent an applica-



tion for a patent on a system to outfit mobile devices with solar power converters.

PS4 vs XBOX One standoff in December

Online retailer Snapdeal has both, the PS4 and Xbox One listed on its website. Both the consoles are surprisingly priced the same, with EMI options and pre-orders available. It seems that the Indian showdown for the next gen consoles has begun.

While Sony and Microsoft have both been tight-lipped about the exact launch dates of their next gen consoles in India, Snapdeal seems pretty confident about the launch being in December. Sony mentioned that the PS4 might launch in India late in 2013, but it removed that listing from its website indicating that the launch might be delayed. Microsoft, however, clearly stated that the Xbox One will release in India later next year.

No other online retailers have started taking pre-orders except Game4u that started doing it back in July. Snapdeal has both the consoles priced at ₹40,000 which seems strange as the Xbox One is priced higher than the PS4 in the US and European markets. Theoretically, the PS4 should cost around ₹25,137 and the Xbox One should be around

₹31,437, going by the current exchange rate.

Microsoft sends out doctor's note to Xbox Live subscribers, hilarity ensues

Looking for an excuse to get out of work? Need to ditch college? Microsoft to the rescue!

The Xbox One launched on 22nd November, and many of us in other nations won't be graced by the console's presence till late 2014. That didn't stop Microsoft from sending out a little goody in the form of a mailer.

Xbox Live subscribers across the globe received a mail from Microsoft in the form of a medical certificate addressing bosses all over the world that deems the recipient unfit for any kind of duties. The note stated:

"Due to the Zombie Flu your employee will not be able to fulfill the scheduled commitment he/she has with you. Because of the severity of this condition I'm prescribing a heavy dose of Xbox One. He needs to destroy zombies."

If you like a good laugh, or a ridiculous excuse to get out of humanly duties, then feel free to issue this medical note as you go off decapitating the undead. Warning: Holding a machete in your hand while handing the note might be recommended.

Get the note from our website at: <http://dgit.in/Zombiexcuse>





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Web Watch

Some big predictions for the future of the web are covered this time. Also mentioned are some social initiatives revolving around the internet

App Watch

Play around with these apps that enhance your driving experience. Then, check out Tata Sky's Live TV app

It's time to ramp up the internals

This month saw chip makers introduce faster and more efficient chipsets and not too far behind, phone manufacturers released a slew of new phones

The Snapdragon 805 is here

Qualcomm has unveiled its latest new generation Snapdragon 805 chipset with a quad-core processor which has clock speeds of upto 2.5Ghz along with support for 4K graphics.

In addition to 4K display support, it will also support 4K video recording, already available on Snapdragon 800. Notably, the new SoC features a brand new Adreno 420 GPU, which has 40 percent more processing power than its predecessor, the Adreno 330. It also comes with improved processing power. The cores have a new Krait 450 architecture with a maximum clock speed of 2.5 Ghz and memory bandwidth of up to 25.6 GB/s.

Along with that, Qualcomm has also embedded a brand new modem dubbed 'Gobi 9x35'. It's manufactured on a 20nm process, delivers better power

efficiency, is smaller and, obviously, much faster. It also supports LTE Category 4, dual-band 802.11ac Wi-Fi along with support for 4K video streaming via Wi-Fi.

Executive Vice President of Qualcomm Technologies, Murthy Renduchintala said in a press release, "Using a smartphone or tablet powered by Snapdragon 805 processor is like having an UltraHD home theater in your pocket, with 4K video, imaging, and graphics, all built for mobile. Coupled with our industry leading Gobi LTE modems and RF transceivers, streaming and watching content at 4K resolution will finally be possible."

That's not all, Qualcomm has also added a new dedicated camera processor to the new Snapdragon 805 chipset, which will increase camera speed and might even boost the quality of images. It will also feature a Gyro sensor to stabilise the captured images.

Qualcomm is all geared up for mass production of the Snapdragon 805 chipsets and we should see them on devices by the first half of 2014.

The new Snapdragon 805 appears to be a substantial upgrade over its predecessor. Only time will tell if it will be as successful as the Snapdragon 800.



LG is reportedly entering the SoC space

Meet LG's 'Odin' SoC

Taking a cue from Qualcomm and of course not one to be left behind, LG seems to be making its entry into the SoC space. And why not? Every other phone manufacturer worth its salt seems to be baking its own chips now. Going by what's being reported by a Korean newspaper, LG too has officially confirmed reports of its own smartphone chipset called the 'Odin'. The SoC will come in two versions – Quad core (running at up to 2.2 Ghz per core and including an ARM Mali-T604 GPU) and Octa core.

The eight-core version of the Odin may be paired with ARM's latest Mali-T760 GPU. The two SoCs are reportedly being tested as of now. Taiwanese manufacturer TSMC will be manufacturing these SoCs as LG doesn't have its own facility. Rumours regarding the launch of a mobile

processor from LG have been around since the first half of this year. Earlier it was believed that Odin would power the LG G2. However, LG will reportedly use the quad-core Odin for its smart TVs, while the octa-core will be used in smartphones and tablets.

There's no official confirmation of the exact date of its debut. We'll have to wait for LG to officially announce the above claims.

Phone manufacturers can't be too far behind

Not to be outdone by all this talk of SoCs, chipsets and processors, phone manufacturers too came out with some tricked out offerings over the month gone by. HTC launched its One Max, a massive 5.9-inch quad-core Android phablet priced at an MoP of ₹56,490 and MRP of ₹61,490. The One Max is



4K and Wi-Fi 802.11 on mobile can mean some serious game changes

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Security Watch

Digit sat down with Larry Clinton of Internet Security Alliance fame to talk about cyber security



Firefox turned 9

It's been 9 long years since Mozilla launched Firefox. Let's have a piece of cake and say Happy Ninth Birthday Firefox!

the latest entrant to the large screen smartphones market. HTC is also offering two new accessories with the One Max – HTC Mini+ and HTC Fetch – which cost ₹7,799 and ₹2,399, respectively. While the HTC Mini+ is a multi-tasking 'mini phone', HTC Fetch is a tracker device for your mobile phone. The company is offering 50 GB of Google Drive storage for two years with the smartphone. Moreover, there's a power flip cover available with the phone for ₹5,999 that provides an additional 1,200 mAh battery, viz 30 percent extra battery power.

The HTC One Max runs Android 4.3 Jelly Bean with HTC Sense 5.5 and BlinkFeed. The smartphone/phablet is powered by a Snapdragon 600 chipset with a 1.7GHz quad-core Krait 300 CPU along with the Adreno 320 GPU and 2 GB of RAM. It comes with 16 GB of built-in storage, and memory card support for up to 64 GB of additional storage. The smartphone has the Ultrapixel camera and 2.1MP front-facing camera.

The smartphone also has the Fingerprint Scan feature that unlocks the phone and launches favourite apps with a swipe. In terms of connectivity, the HTC One Max supports 3G, GPS, Wi-Fi IEEE 802.11 a/ac/b/g/n, Bluetooth 4.0, NFC, DLNA, HTC Connect and microUSB

2.0. The smartphone comes with a 3,300 mAh battery, which is rated to deliver talktime of up to 25 hours.

The One Max is one of the priciest smartphones from HTC, and is expected to take on the likes of Sony Xperia Z Ultra, Samsung Galaxy Note 3 and LG Optimus G Pro. We'll soon come up with a detailed hands on and review of the One Max. Till then, munch on what local players are coming up with.

Intex reveals 6-inch smartphone

At an event held in Delhi in November, Intex unveiled a smartphone that runs on the MediaTek MT6592 chipset that boasts of 'true octa-core processing'. Put simply, this means that all the eight cores of the CPU are active simultaneously making the phone a beast (theoretically).

The device unveiled was a prototype. While the design of the phone is final, Intex hasn't given it a final name (model number) yet. It will be a flagship smartphone in Intex's Aqua series. There will be two variants of the smartphone available – 16 GB and 32 GB. The 16GB variant will be priced under ₹20,000 and the 32GB variant under ₹25,000. The smartphone will be available in January 2014.

Other specifications of the Octa-core Intex smartphone includes 2 GB of RAM and a 6-inch display with a 1280x720 pixels resolution. The octa-core processor is clocked at 1.7 GHz. The rear houses a 13MP camera and the front has a 5MP video-calling



That's not exactly what the phone looks like, but you get the idea

camera. A 2,600mAh battery powers the smartphone. The smartphone will run on Android 4.2 Jelly Bean straight out of the box and Intex says that the device will support OTA updates.

We got to spend some time with the prototype at the event and being a prototype, the device was quite buggy. All the bugs can be expected to be ironed out by the time the device hits store shelves. Considering its size, it's uncomfortable for single hand use. One good thing about the smartphone is that the battery is user replaceable, but the prototype at the event didn't have a removable back.

At 6 inches, the device is quite large and will compete with the likes of the Samsung Galaxy Mega 5.8 and the Huawei Ascend Mate. The 720p resolution on the octa-core Intex smartphone gives the display a pixel density of 244ppi. This isn't bad, but it isn't the best out there either. The reason for using a 720p display in place of a full HD display is, of course, to control the cost of the device.

Coming to the build of the smartphone, it's quite slim measuring in at 7mm in thickness. The rear of the smartphone also has dual Yamaha 1420 speakers with an output of 1.2W. With the octa-core chipset, the smartphone will be capable of playing 2K as well as 4K videos.

Overall, the Octa-core powered Intex smartphone looks promising but we'd like to get our hands on the final retail unit to see its true potential.

Micromax is expected to launch an octa-core smartphone sometime next year and Huawei has also confirmed the P6S that will run on an octa-core CPU.

Huawei unveils Ascend W2

Huawei has announced a new Windows Phone 8-based smartphone, Ascend W2. Powered by a Qualcomm Snapdragon dual-core 1.4GHz processor, the Huawei Ascend W2 features a 4.3-inch IPS WVGA (480x800) LCD display. The Huawei Ascend W2 sports a 5MP rear camera with 720P video recording and playback. It has 512 MB of RAM and 8 GB of ROM. In terms of connectivity, the Ascend W2 supports Wi-Fi 802.11 b/g/n, Bluetooth 3.0 and micro USB 2.0. The smartphone comes with a 1,700 mAh battery, which is expected to deliver talktime of 9.5 hours.

The HUAWEI Ascend W2 automatically syncs to a 7GB of free SkyDrive cloud storage account and entertainment content such as music and videos, on PCs, tablets and consoles can be shared with Xbox Music and Xbox Live. The Ascend W2 will be available in multiple colours – black, blue, yellow and red.

The smartphone is expected to be available in the Indian market soon.



5.9 inches – Now that's a huge phone!

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Now carry Internet in your pocket



The image shows a black D-Link DWR-730 3G Pocket Router. The front screen displays '3G', 'Wi-Fi', 'WPS', and battery status. The device is surrounded by various icons: a red musical note, a blue Facebook 'f' icon, a blue Twitter 't' icon, a speech bubble, a blue envelope, a blue Wi-Fi signal icon, a 'Wi-Fi' logo, a pink clapperboard with a play button, a red '3G' logo, and a box labeled 'Insert SIM & get started' with a SIM card icon.

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Instagram on Windows Phone

Instagram has finally made its much awaited appearance on Windows Phone platform, with no direct in-app camera support



SkyDrive for iPhone update

Microsoft has updated its SkyDrive for iOS app that automatically uploads camera pics to their SkyDrive cloud storage

The only thing constant on the web is change

And this month there have been some big predictions for its future and some initiatives that put the web at the center of social change

Web censorship to end within a decade

Google's Executive Chairman Eric Schmidt has predicted the end of censorship around the world in a decade. He added that better use of encryption will help people overcome government surveillance. Eric Schmidt made the statement during a talk titled "Connecting with the World: Empowering Young Entrepreneurs for the New Digital Age" at the Chinese University of Hong Kong on November 4, 2013.

Schmidt has long spoken out against limitations to the freedom of expression and restricted Internet access around the world. He recently even travelled to North Korea to support the cause.

"First they try to block you; second, they try to infiltrate you; and third, you win. I really think that's how it works. Because the power is shifted," he said. "I believe there's a real chance that we can eliminate censorship and the possibility of censorship in a decade", he said.

He stated that the people needed to connect with the rest

of the world: "My view is that if we can get some connectivity, then they'll begin to open the country, they'll begin to understand other systems."

Google has long been working on encrypting data to protect users' privacy. Schmidt stated that Google has recently increased the length and complexity of its encryption keys, and called it a constant "game of cat and mouse" between the government surveillance and internet users.

Recently, Yahoo! CEO Marissa Mayer also announced that the company would encrypt all its internal server traffic by the end of Q1 2014. Mayer stated in a blog post that the company would make Yahoo! Mail even more secure by introducing HTTPS (SSL - Secure Sockets Layer) encryption with a 2048-bit key across its network by January 8, 2014. She added that the encryption would be applied across all Yahoo products as well as mail partners.

Another prediction that puts India in the lead

eMarketer predicts that India will surpass US by 2016 to become the world's largest Facebook population. The research firm based this prediction on India's current statistic of recording the highest social networking growth - an increase of 37.3 percent - this year.



We the people!

Indonesia followed India with a growth of 28.7 percent with Mexico trailing behind with 21.1 percent. The report added that the growth in developed countries has stagnated due to saturation.

All of these three countries are high-growth areas for Facebook, and eMarketer estimates that they'll reach a worldwide monthly user base of 1.026 billion this year combined. US still has the greatest number of Facebook users, with 146.8 million this year. But eMarketer believes that India's large population and high expected growth rate will lead the country to have the largest Facebook population of any country in the world by 2016. Nearly 1.61 billion people are estimated to log in to social networks at least monthly, from various electronic devices.

The report added that there has been a growth of 14.2

percent in social networker numbers from 2012, and the double-digit growth is expected to continue for another year. The research also found that by 2017, 2.33 billion people will use social networks.

According to a recent report by IAMAI, India will become the world's second largest Internet population with nearly 243 million users by June 2014. India currently has 205 million active users, US has 207 million users and China retains the No.1 spot with 300 million internet users.

More predictions: Indian entrepreneurs can build the next Google

Google's Eric Schmidt states that India's entrepreneurial innovators have the potential to build the 'next Google' if the country 'plays its cards right' and ensures internet access for



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Canvio Slim
Slim External HDD

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OCTOBER 2013

Hybrid Drive | Canvio V7 Portable External HDD | • Desktop HDD • A/V & Surveillance HDD | External Desktop HDD | Enterprise HDD | Notebook HDD | Slim External HDD

Hybrid Drive

- SSD-like Performance and Responsiveness
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Portable External HDD - Canvio V7

- Enjoy Mobile Storage space up to 1TB
- USB 3.0 Connectivity / interface

Desktop HDD - Deskstar

- 3.5 inch internal SATA Drive for Personal Computer
- 7200 RPM; Available up to 3TB

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Lego: The Hobbit

Lego: The Hobbit game has been slated for a 2014 release
<http://dgit.in/1bRRm9z>



Software Hipster

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<http://dgit.in/backtothestoneage>

millions of its citizens. In an essay written in 'Reimagining India: Unlocking The Potential of Asia's Next Superpower' edited by global consulting firm McKinsey, Schmidt said that India is 'an Internet laggard'. He added that India needed to increase its internet penetration in towns and cities to unleash the country's full potential.

"Just think what will happen when India's entrepreneurial innovators are able to create great global companies without leaving their country. They will change the world. Hundreds of large firms focused on the Internet will be founded and will succeed by focusing purely on Indian consumers, Indian taste, Indian style, Indian sports. Can anyone of those companies ultimately become the next Google? Of course."

Schmidt said, "That may not happen for quite a few years. But if India plays its cards right, we will soon see Indian engineers and small businesses tackling Indian problems first, then exporting the solutions that work best."

Schmidt added that he believes India is on the cusp of a connectivity revolution. "I believe India has the chance to leapfrog its current connectivity challenges, bring internet access to a majority of its citizens, and even raise its penetration ratio to 60 or 70 percent within the next 5-10 years", he said.

India has approximately 600 million mobile phone users, but only 150 million people regularly connect to the internet. However India's Internet penetration rate in 2011 was just 11 percent, which is less than a third of China's penetration ratio of 38 percent and less than half of those in developing countries (24 percent).

Social change campaign to help women get online

Google India has launched the 'Helping Women get Online' campaign. The initiative is aimed at encouraging women in the country to use the online medium more effectively.

Google states that lack of easy access to the internet as well as lack of knowledge on how to use it has been one of the biggest barriers for women to get online. At present, India has over 200 million internet users, but only one-third of



Google to get 50 million women online by the end of 2014

them are women. The initiative will help 50 million additional women get online by the end of 2014 by undertaking various projects across India.

Google has launched a mass media campaign and a specially designed website www.hwgo.com as a first step in the initiative. The site will have content covering the very basics of the Internet and special content that is relevant for women in India, available both in Hindi and English languages. Women can also access a toll-free helpline number 1800-41-999-77 to get answers for any queries that they may have about the internet. The initiative is being supported by Intel, HUL and Axis Bank. Intel will also

launch a mobile app called "Easy Step" for women on the Google Play Store.

Yonca Brunini, the VP for Marketing Google said that this initiative will benefit numerous women. He stated, "With this project, we successfully completed a digital literacy effort of training over 100,000 women in Bhilwara and trained them on how to use the basic applications on the Internet. The learnings from the pilot will help us to work on a framework which we will use to roll out in other parts of India."

Google and Microsoft change search algorithm to fight child porn

Search engine giants Google and Microsoft are modifying search algorithms to block content that encourages child sex abuse. They have modified more than 100,000 search terms that show results in videos and images of child sex abuse on the Internet. The search engines began to work on this after UK Prime Minister David Cameron in June demanded Google and other Internet giants to get rid of child abuse images online.


Google boss Eric Schmidt stated that the tech giant has developed new technology

that makes it harder to find child sexual abuse images on the web. The restrictions will initially apply to English-speaking countries but will be expanded to the rest of the world and 158 other languages within six months.

Google Chairman Eric Schmidt wrote in an article for the Daily Mail recently, "We've listened, and in the last three months put more than 200 people to work developing new, state-of-the-art technology to tackle the problem. We've fine-tuned Google search to prevent links to child sexual abuse material from appearing in our results."

"While no algorithm is perfect – and Google cannot prevent paedophiles adding new images to the web – these changes have cleaned up the results for over 100,000 queries that might be related to the sexual abuse of kids."

He added that once it's determined that content represents genuine abuse it is assigned a unique digital fingerprint that speeds up the detection and deletion process when the images appear in Google's system. Schmidt wrote, "Microsoft deserves a lot of credit for developing and sharing its picture detection technology."

He added that engineers at YouTube have also created a new technology to identify child porn videos on the video-sharing site and it would be sharing the technology with other Internet companies and child protection agencies. The announcement by Eric Schmidt was made ahead of the Internet Safety Summit at Prime Minister David Cameron's Downing Street office, which Google, Microsoft and other Internet firms will be attending soon. 

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**3D-fy your world**

This Kickstarter gadget can create a virtual model of your own world
<http://dgit.in/3DLife>

Apps that add to your experience behind the wheel

Driving isn't all about the throttle, the gearshifts and turning the steering wheel. We list a few apps that add to the entire experience, with more information at your disposal

Vishal Mathur

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Driving isn't just a boring activity of sitting down and turning the wheel in hopefully the right direction. If you have the correct smartphone, and the right apps to go with it, the experience is amplified. To help you get going, here's a selection of Android and iOS apps that offer some exciting alternate angles to the experience. But, with any such app that uses GPS connectivity, be aware that the phone will heat up considerably more than usual.

is approaching. Doesn't need any additional gadgets or accessories to be installed in your car. Build a route in advance, and once it's saved on the device, you don't need web connectivity for it to work. Set the route, place the iPhone on the dashboard and the projection shows up on the windscreen. While we're



not huge fans of anyone blindly following a navigation service while driving, this is one must-have app, particularly in winters as an add-on to your instincts.

Not an app meant for everyone, because while it's free to download, only the connoisseurs will. Also, the projected heads-up isn't very visible in bright sunlight, and is mostly meant for low visibility and low light conditions.

DriveSafe.ly

Platform: BlackBerry, Android
Price: Free (₹870 per year for Pro version)

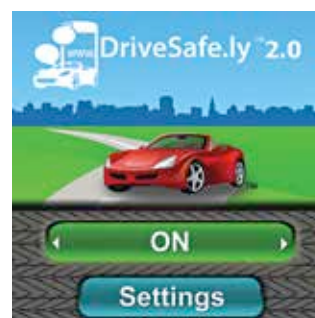
We've been using this app for quite some time now, and it's one of the old favorites. Not everyone has an infotainment system in the car that also

offers complete bluetooth connectivity and SMS readouts. Yes, Ford Sync, we envy you! For the poorer mortals among us, we have to make do with apps! And DriveSafe.ly keeps it rather simple. You just need to switch on the app's reader feature, and the service will run in the background. The moment a new SMS arrives, the reader will...um...read the contents, including the sender's name or contact number. The phone's built-in handsfree speaker is used for this, and no additional accessory or set-up is needed. While the basic app is free to download and use, the Pro version adds things like optional text message auto-responder, choice of female or male voice and auto-select voice by contact gender.

Ulysse Speedometer

Platform: BlackBerry, Android
Price: Free (₹69 for ad-free version on Android)

This is the multi-tasker among the apps mentioned here that provides quite a few options relevant to the drivers.



Ulysse Speedometer gives you a GPS-assisted speedometer, which will be more accurate than the factory fitted speedometer in your car, which always has variations and errors. The app will notify you (if you want it to), every time you cross the speed limit in a particular region. Multiple trip settings and the latest version



also adds the ability to access the phone dialer and contacts from within the app – providing quicker access while you may be at the wheel. There is our old favorite, an HUD mode as well, that projects the speed on the windscreen, but really usable only after the sun has gone down. The pro mode for Android costs ₹69, and removes the irritating adverts. We would suggest paying that, and experiencing the app in its full glory. 

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Bye Bye Carmack

John Carmack leaves iD software to work full time on the Oculus Rift
<http://digit.in/jcarmack>

**Apple Kinect**

Apple buys PrimeSense – the company responsible for the sensors in the Xbox Kinect
<http://digit.in/applekinected>

Tata Sky Everywhere TV

Dish TV did it in partnership with Ditto TV. And now, Tata Sky has launched a similar on-the-move Live TV service, the development of which has been in-house. The results are impressive

Vishal Mathur

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Not long after Dish TV launched the Dish Online app that lets you watch Live TV on your smartphone or tablet, Tata Sky responded with its own Everywhere TV app. At the moment, this app is available only for iOS users, and the Android version will be hitting the Google Play Store soon.

Interface

Unlike Dish TV, for whom the Dish Online app was a completely new product, Tata Sky has added the Live TV feature to the existing Tata Sky app for iOS. And it's the same case for Android, via a simple app update. The focus has been on familiarity in terms of the interface – TV and tablet. Go to the Everywhere TV section, and you'll find the channel listing and program guide very similar to what you'll see with the Tata Sky DTH service on your TV. The channel icons simplify navigation because of the visual recognition rather than having to read text. The overall blue theme, with different elements blending in, looks very sophisticated.

TV viewing experience

This is the main point of the entire exercise, and we're very happy to report that the experience is extremely good. The quality of streaming offered by Everywhere TV is comparatively better than Dish Online. The three settings



for the amount of bandwidth you want the app to use makes all the difference in terms of streaming quality. At the highest quality setting, it's very similar to the quality offered by starsports.com, meaning it can be hooked up to a 46-inch TV and produce good picture quality. On the iPad, the streaming quality was superb. Playback never really gave any issues, except one time when we were flipping channels and the playback error showed up. A force close and restart of the app solved the problem.

There are currently around 50 channels on the platform, with more channels soon to be added. Not a bad start. However, some popular channels are missing – the Star Sports channels, for example – as are the HD channels. Agreed, there are bandwidth limitations when using the 3G and broadband connections in our country, but some of us have powerful broadband connections at home.

Data usage

Streaming on a Wi-Fi connection is smooth. Tap on a channel icon or a program name, and on an 8Mbps connection, it takes around 5 seconds to start playing, and another 2 seconds for the connectivity to stabilise and the picture quality to settle. In terms of bandwidth use, this app won't use more than 2 Mbps of your connection speed anyway, which means that on a 4Mbps or 8Mbps connection, you won't face a virtual network freeze for the other devices on the network. Also, the data usage that we clocked was in the region of 20 MB per hour while streaming, at the highest quality. This means that if you stream 2 hours regularly on a daily basis, you'll use 1.3 GB data per month, very much acceptable for most home broadband users. Toggle to lower quality, and the usage will be lesser. The scenario with 3G largely depends on


the signal strength and connectivity in the area.

Other services

Not just Live TV, the Everywhere TV service also offers Video on Demand and Catch Up TV. For video on demand, you can purchase a video from the library that Tata Sky offers, and download it to watch later on the iPad or iPhone. This content will be visible till the time you have the subscription to this service. Unfortunately, you can't yet purchase VoD content via the app, but when you do purchase a video via either the set top box or the online portal, it will show up in the queue of videos to be downloaded on the app.

Catch-Up TV offers certain previous episodes of certain programs on certain channels. You may be able to catch episodes of *Man vs. Wild* and *How Do They Do It?* – both shows of Discovery Channel for the last five days, but not the rest of the Discovery Network's shows.

Should you subscribe?

We think ₹60 per month is not a lot to spend on the flexibility and convenience offered by this service. It's a very good multi-screen alternative and very well solves the dilemma of having one TV at home, with two people wanting to watch different things. Sports lovers don't have to choose between a football match and an F1 race anymore! 



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Cyber Security Matters

Larry Clinton in a candid discussion about the cyber security landscape

Jayesh Shinde

jayesh.shinde@thinkdigit.com

In an increasingly digital world, where the Internet is starting to define and control our very existence, threats to the system are wide-ranging and with debilitating effects. Larry Clinton, of Internet Security Alliance fame, knows all about them and authoritatively advocates cyber security norms to a wide-ranging audience that includes policy makers in the White House to university students halfway across the globe, and every stakeholder in between. Digit sat down with him to understand more about ISA, the cyber security landscape, and the need for collaborative and sustained cyber security policy to protect ourselves online. Excerpts from our interview:

■ Tell us a little bit about ISA and what they've done promoting cyber security?

The Internet Security Alliance is an international trade association started in 2000 it consists primarily of major multinational organizations who generally do a very good job with respect to cyber security – in that they're the industry leaders – but they're also interested in expanding the perimeter of cyber security, getting more organizations to promote cyber security, etc. So the ISA has three major goals. First is thought leadership. Cyber security is such a new era, that we really haven't figured out how to approach it, unlike a lot of other things, and thought leadership is very important. The second thing that we do is public policy advocacy. Because as I said, industry and government need to be working collectively to promote a sustainable system of cyber security. And the third is to promote the adoption of actual security practices and technology, so the mission of the ISA is to take advanced technology and blend it with economics to create a sustained system of cyber security. We see the problem very differently than most. Most

people have historically thought of cyber security primarily as a technical issue. We see it more as an economic issue. Actually, we know a great deal, technically, about how to solve our cyber security problems. But the incentives to promote good cyber security are not in place. So what we want to do is blend those economic incentives



Larry Clinton, President and CEO, Internet Security Alliance (ISA)

together with the advanced technology and have supportive government policy so that we create a sustained digital future for ourselves.

■ What according to you are the worst and more detrimental threats to cyber security that are out there on the Internet right now?

There are enormous numbers of threats out there. In fact you can go on the Internet and purchase them for very little money and make a lot of money with them. And the threats really run the gamut from fairly routine sorts of things that can be easily prevented all the way up to extremely sophisticated cyber techs. So the vast majority of cyber techs that are out there, maybe 80-95 per cent of those could

be properly dealt with simply by adopting standards and practices that are already existing in the community. For those it's really an implementation problem, not a development problem. And then there are the ultra-sophisticated attacks – things we call the advanced persistent threat or the APT. These are not hackers, these are ultra sophisticated individuals often affiliated with nation states who use increasingly sophisticated waves of cyber attack to constantly get in the system. So there's a whole range of things that we need to be aware of and different sorts of solutions that need to be put in place in order to deal with this growing problem.

■ What solutions? Do you have anything particular in mind from a technology perspective nation states, companies or even individuals can do on their own front to combat this threat?

Absolutely. As I mentioned, somewhere between 80-95% of cyberattacks could be easily prevented and frankly, fairly economically prevented simply by adopting well-known standards and practices that are already out in the market. The problem isn't that we don't know how to deal with cyber security. The problem is that we haven't been implementing the cyber security practices that we ought to be implementing.

Most of us, frankly, don't like security. Most of us, for example, if we buy a smartphone, we want something that's cheap and easy to use, or even pretty. Very few of us ask about the security features. And if there are security features on them, we tend to turn the security features off, because that slows things down. So people have to become aware of this, but we also have to motivate people much more to adopt the standards and practices that are out there.

■ You deal with policy makers day in, day out. Where do you rate their awareness

OpenSUSE again

OpenSUSE launches v13.1 this November. Read up on it, and give it a shot <http://dgit.in/osuse131>



Windows 8 Portable

AMD decides to get on the portable gaming scene by helping design a Windows 8 gaming tablet. Take a look: <http://dgit.in/winport>

Security watch

levels when it comes to cyber security both in the US and around the world?

Not very good, and let me explain. People in their mid-20s right now would fall into what the demographers would call “the digital native” category. They were born into the digital world that we exist in. I’m in the “digital immigrant” category. I was not born into this world. And most of the policy makers, unfortunately, are older guys like me. They do not have a very good understanding of cyber security, what cyber security is and how to engage their population in cyber security. So we need a vast educational effort of the policy makers.

There was a study that was published here in India about Indian cyber security last year which said that the policy here – as it is with the rest of the world – is very chaotic at this stage. Until the policy makers rethink the problem and can understand it in a much more broad-based and sophisticated manner, the public policies that we’re going to be enacting are probably going to be a little simplistic and ineffective. So that has to change.

What is your opinion of the Indian cyber policy?

Well, India is certainly one of the countries that has been most progressive with respect to cyber policy, particularly on the industrial side. You have organizations like NASSCOM who have done a terrific job with education with respect to cyber security. There is probably less intellectual property theft in India than there is, for example, in the United States. That being said, the amount of cybercrime in India doubled between 2010 and 2011, that’s the last number we have statistics for. India is among the top in the Asian rim countries in terms of web-based attacks. So there’s a growing problem here in India, and the

cyber policy is just beginning to evolve. And right now in India we’re seeing a kind of tension between the old way of thinking – which is to adopt traditional government-centric regulatory policy which isn’t going to work in cyberspace, because things change much too quickly. And, on the other hand, having a self-regulatory organization approach.

From an economic perspective, what do you think is the fallout of NSA’s PRISM programme? Do you see international companies making an exodus out of American companies and US servers?

Well, there clearly has been an effect, it has been documented with some recent statistics that in some parts of the world, China, for example, and Asia, there has been a statistically significant impact on American technology companies coming out of the disclosures that Snowden generated. I think that that’s probably unwarranted. A lot of the technology companies being hurt by this are victims of these Snowden disclosures, but I think that’s going to be a fairly short term blip. As we move forward, what people are going to want to buy are technologies that are efficient, effective and innovative and I think the more of those that come on board, the Snowden disclosures will eventually have less effect, with respect to technologies and technology companies. With respect to government policy, with regard to protecting individual privacy, now that’s a separate matter. I think there may be more staying power to the disclosures on that end.


One of the fallouts we see from these Snowden disclosures is the BRICS Internet coming up, so what are your thoughts about that? And do you see an eventual fracturing of the Internet as a global communication medium where people/nations start having

walled gardens and sub-Internets within the Internet?

I don’t think that’s a long-term solution. The fact of the matter is that we live in a global economy. We are inherently interconnected to each other, and I think the efficiencies of a worldwide Internet are going to overcome any of these issues that have come out of these disclosures. I think that this is another example of policy makers and digital immigrants taking a sort of old world solution, an isolationist solution to a 21st century product. I don’t think it’s going to work, I think they’re going to discover that it’s not going to work and hopefully when they do they will turn their thinking to a much more collaborative, open approach and realize that their nation as well as the community of nations are going to be better off if we work together to create a sustained system of cyber security rather than wall each other off in order to protect ourselves.

The Internet of Things is now a reality. From a cyber security perspective, how do you see this changing the threat landscape which exists right now?

You need to embrace the Internet of Things. And I think that this is a solvable problem. People look at the cyber security problems and say ‘Well, that’s really hard to solve’. And it is. We’ve done much harder things before.

You know, there aren’t schools of Internet philosophy or thought leadership with respect to cyber security. All we have pretty much are these technical orientations, and the technologists are way ahead of the public policy people and the philosophers with respect to this new technology. But eventually we’re going to catch up and merge these two things together so I’m very optimistic about the future and what digitalization is going to create. 



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Apple Star Wars

Jony Ive talks about the similarities between Apple and Star Wars. What did he have to say? Find out: <http://dgit.in/appleswars>

Magnetic Field Probe

Russians set off a space mission to probe the Earth's magnetic for answers to its slow dissipation: <http://dgit.in/magfield>

Logitech K760 wireless solar keyboard

For those who live life completely on the Mac and iOS side of tech, here's a gift you should consider for your Apple ecosystem-tied friends and family members. This is the keyboard that Apple product fans need and the last one they'll ever use, given its features. Say goodbye to batteries, it's completely powered off solar and indoor lights – that's right, as long as you aren't in a dark room for over three months, you will never need to charge this baby. And it works perfectly with Macs and iOS devices – iPhones, iPads, and iPods. It pairs without a hitch (with up to three devices simultaneously) and has all the necessary shortcuts for quick access. Yours for \$80 (₹5,000).



Drool-worthy gadget gifts for this holiday season



Philips Hue

You may not have a burning need for an Internet-connected, colour-changing light bulb, but what's stopping you from gifting it to a geek buddy who'll completely dig it? The Philips Hue is an LED bulb that can change colours and can be controlled by any supported online app or smartphone. The most inexpensive kit comes with three bulbs and one control hub, all priced at \$199 (₹12,500). It's easy to install, works like a charm, and offers up to 80 per cent savings on your electricity bill. Far from lighting up your room, the Philips Hue makes you smart just by turning them on.

PSN Goes Retro

PS4 organizes a scavenger hunt. The prize: Three PSOne Games retrofitted for the new console. Check it out: <http://dgit.in/retrops>



Space Hulk Reviewed

Space Hulk, a video game set in the Warhammer 40,000 universe, is reviewed: <http://dgit.in/spacehulk>

Drool maal

iRobot Roomba 880

Hailed by many as the best cleaning robot in our fight against dirt, this is the ultimate gift for bachelors surrounded by a mountain of dirt away from home or gadget-savvy households eager to show-off their new "housemaid" to visiting family friends and relatives. Worldwide, the iRobot Roomba has become the go-to name in robotic vacuum cleaners. It looks like a circular weighing scale that's self-propelled and works without a hitch on carpet, tile, hardwood or laminate. It sucks up dirt, vacuums along wall edges, stores all that muck in a HEPA-filtered bin, doesn't fall off stairs, is controllable via a remote, and intelligently returns to its docking station when low on battery. And this is just the tip of the iceberg. At \$700 (₹44,000), it's not the cheapest house cleaning attendant you'll hire, but boy is it cooler!



Google Chromecast

This is an interesting little device that that should be high on your gadget gifts list as it effectively connects your smartphone, tablet, laptop or desktop PC to an HDMI-enabled HDTV – without connecting wires, too. The Chromecast seamlessly lets you beam content from your handheld smart device onto your big-screen TV – watch YouTube videos, Netflix, Hulu, Pandora, and Google Music and Google TV and Movies. When you're doing this, your phone or tablet becomes the TV remote. Its beta screen-mirroring feature – which lets you beam your Chrome browser session to a large screen – is still restrictive, but it's only a matter of time before Google keeps adding more apps to the Chromecast party. This is a steal at \$35 (₹2,200).

Iogear Mediashair Hub

This device is perfect for anyone who needs a small, matchbox-sized wireless hub that supports a variety of media devices – because that's what the Iogear Mediashair Hub is. It can plug into any wired network with an RJ45 jack, it acts as a compact wireless router that can simultaneously connect up to seven gadgets (laptops, Android, iOS smartphones, tablets, etc) within its range. What's more, with an SD Card reader and USB port, it can stream photos from a camera's card or movies from a plugged in hard drive. That's not it, the device also functions as a portable battery pack, with a 2600 mAh battery. At \$100 (₹6,000) they're perfect for road trips.



ARE WE THERE YET?

The masters of science-fiction once envisioned their future – Our present. Did we do it justice?

Prakrit Dhondiyal

IMAGING: ANIL T

Curiosity is a trait mankind has been instilled with since the dawn of time. A gift that we've squandered shamelessly, with undeniable results. It's this trait that makes us so inherently attuned to science and the kind of advancement it brings. Even those who don't admit it have, at least once in their life questioned their place in the universe. It's this question that drives people to push the boundaries of reality into the boundless depths of the human imagination. Subconsciously, we may all agree with the logic behind the platonic reality we live in. Despite this, nothing stops us from trying to prove that even the most out-of-the-box ideas our brains can come up with can be replicated on some level or the other.

Science-Fiction, similarly, has always questioned the impossible and tried to make it feasible, if not completely possible. Looking back into the history of science-fiction, it's enthralling how much of it has given people a goal to strive for. Taking

what can be characterized as Theoretical Physics and 'Fringe Physics' and bringing into our plane of reality is a true testament to man's unyielding nature.

Taking a real trip to the past, here is how far we've come to creating things that may have seemed far-fetched to even the person who thought them into existence:

Advent of the Hovercar

Remember Doc Brown – scientist extraordinaire with a penchant for the insane.

But insanity is underrated. Question: What did he and Luke Skywalker have in common?

Answer: A Hovercar.

Sure, Luke had a futuristic 93-B Landspeeder and Doc had a modded DeLorean, but both gadgets had one fundamental thing in mind - an idea.

Michael Mercier and Chris Jones decided to put a hovercar together. They unveiled their prototype for the Mercier-Jones Hovercraft on the Charlotte Motor



The Mercier-Jones Hovercar

Speedway during an Auto Fair back in September. The aim of the this hovercar is to bring standard hovercraft technology and combine it with the style and elegance of sports cars. A hovercraft, essentially, is the ideal all-terrain vehicle. The Mercier-Jones Hovercraft aims at making it a commercially viable option by incorporating construction techniques from automotive, marine and aerospace design. It's also "inspired by elements of the Bugatti Veyron, Maserati Gran Turismo, Audi R8 and other sports cars" - A fact that people will agree with at first glance. It's not, however, a very practical option as of now with a fuel capacity of 38 litres, a quoted cruise speed of 56 km/hr and a mileage of about 7.4 km/litre. On the other hand when you own a car that floats 8 inches off the ground - well, enough said.

This project spent quite a long time in the pipeline, and the fall of their Indiegogo campaign didn't really help the situation; But after getting up after that fall, the Mercier-Jones Hovercraft has announced a Summer release in 2014.

"Hello, Jarvis."

When Tony Stark first used the space around him as his personal virtual corkboard, admit it, you were blown. Why wouldn't you be?

In May 2012 Michael Buckwald, David Holz and their team announced the launch of 'The Leap' - a motion sensor technology that would emulate similar hand-gestures on your own PC. This device launched in July 2013 and was met with cynicism on several fronts. People complained that it did not live up to its hype. The Leap Motion controller was well-designed and impressive from the technology point of view. The users' main complaint was the fact that it wasn't very productive for daily use. A lot of people felt like they had just 'experienced a gimmick' instead of trying out something that could be the next stage of user interface evolution. This is, however, a viewpoint held by a few, and it's quite valid. However, practice makes perfect. Check out this link to see a person play *Borderlands 2* completely via Leap motion. <http://dgit.in/hawaameingolimaar>

On a more scientific note, Elon Musk, the American business magnate and reputed inventor merged Leap with NX

Siemens to create a gesture-controlled designing program to make it easier for people to design three-dimensional models of prototype designs. In his demonstration (<http://dgit.in/therealStark>) he shows it's relatively fluid functionality. It seems like the 'real world Tony Stark is really living up to his name.

The end of all drivers

Remember how annoyed Quaid got with his robot cab driver in *Total Recall*? Well, robot driver aside, there have been several steps taken in the field of automated driving. Two major breakthroughs were made by Google and a European company called '2getthere Cabs'.

2getthere Cabs has had several projects dealing with the integration of PRT (Personal Rapid Transit) and GRT (Group Rapid Transit) systems in places that can afford it. Their systems run on AGV (Automated Guided Vehicle) Systems created by Frog Technology. With the kind of efficiency 2getthere has introduced, it very nearly represents the next generation of public transport.

Google on the other hand aims at the general populous with its Google Driverless car. these cars host about \$150,000 in equipment. The cars sport a LIDAR (laser radar) system along with a mounted range finder - a Velodyne 64-beam laser. This allows the vehicle to generate a detailed 3D map of its environment which generates maps and combines them with high-resolution world maps that make it easier for the car to drive itself.

As seen in the test run made by Steve Mahan (<http://dgit.in/driver1355>) an old man who's slowly losing his eyesight, the car runs quite smoothly.



2getthere Cabs: The future of public transport?



Scanadu: Your doctor at home

Dammit, Jim! I'm a Doctor, not a Scanadu!

Where would *Bones* or any other doctor on *Star Trek* be without their medical tricorders? A handheld device that scans a body for anomalies

Scanadu, a Silicon Valley-based company decided to take one of the first steps towards a Trekkie-centric idealistic galaxy. Introducing the Scanadu Scout - a device a bit larger than a pacemaker. This little device fulfils the role of a doctor's first opinion at home. Once placed on your forehead, It scans the body and symptoms and gives you a diagnosis. Based on this diagnosis, it will either give you a recommended treatment or at least tell you if its something that will go away, or something serious enough for you to admit the patient in the nearest hospital.

Though still going through some final tweaks, the device has great potential.

Iris, log me in.

Gaming is in constant need of innovation to keep up with its target audience. Gamers always want something bigger, more realistic and, essentially, better than

the last big release. Keeping up with the constantly growing demand of the masses is a challenge. And after the Oculus Rift and Virtuix Omni make themselves available in the public market, gaming will never be the same. Think back to your childhood and the enormous pull of Questworld. Even back then, gamers have wanted to stick their physical selves into a video game and transcend their experience into virtual reality. With recent advances in that field, people may actually get what they wanted two decades ago.

Some time ago, the Oculus Rift made its entry into the gaming scene (<http://dgit.in/17i7Rvn>), putting you into the game, and amping virtual reality to the next level. If you thought that was it, hold your breath. Check out the Virtuix Omni: <http://dgit.in/trulyVR>. While Oculus gets your head in



Break through reality into the virtual world

the game (pun intended), the Omni makes sure you really, really feel the pressure. The Omni consists of a platform which is specifically built to incorporate the player's feet movement in the game. Race across the battlefield, strafe corners and get a proper workout with almost perfect physical interaction with your PC and Console games.

Admittedly, not the same as plugging your head into a game and creating a three-dimensional animated avatar of yourself - but a lot more convenient, wouldn't you say?

Immortality?

Dmitry Itskov is a Russian Scientist and the head of the *2045 Initiative* - A non-profit organization researching the somewhat controversial field of life extension. With experts in the fields of robotics, neural interface and artificial organs and biological systems, Itskov and the 2045 claim that they can introduce man to a

form of immortality by 2045. They call this the 'Avatar' project.

Milestones:

- Avatar A (2015-2020): A robotic copy of a human body remotely controlled via BCI
- Avatar B (2020-2025): An Avatar in which a human brain is transplanted at the end of one's life.
- Avatar C (2030-2035): An Avatar with an artificial brain in which a human personality is transferred at the end of one's life.
- Avatar D (2045-2045): A hologram-like Avatar.

This project has faced severe criticism as well as support. While some experts feel that the concept is too erratic and a theory that has no basis in fact to be successful, a lot of people want to wait

and see what develops, saying that back in the 60s, even organ transplants were frowned on and considered impossible.

Frankly, Frankenstein may have been unsuccessful, but his theories were sound. The 2045 Initiative is at too early a stage to start judging its possible success. Looking into science fiction for advice,

admittedly, didn't seem to yield too many positive results. Metallo (The man with a kryptonite heart), Krang (the pink brain behind most attacks against Leonardo and his brothers) and Pretorius (Stanley Ipkiss' alter ego's arch nemesis) didn't instill much confidence in the project, but keeping a positive spin on all this, let's see where Itskov goes with his baby.



Viva la -bzzzt! Revolution!

One is glad to be of service.

"...and then of course I've got this terrible pain in all the diodes down my left hand side..."

"No?" said Arthur grimly as he walked along beside him. "Really?"

"Oh yes," said Marvin, "I mean I've asked for them to be replaced but no one ever listens."

Marvin the paranoid android would be quite happy (well, relatively happy) if he'd heard of EZ Robot. Existing under the assumption that robotics will always be a complex process, they claim to make it easier to put 'bots together for anyone who wants one. Their primary USP is being 'the first company to successfully make robots easy to build and integrate into your life'; a statement which seems highly accurate. If you visit the store on their website (<http://www.ez-robot.com/Shop/>) or view their promo video (<http://dgit.in/ezrobot>). One should also keep in mind that making, owning and maintaining robots isn't a cheap hobby. With robots priced at \$249-\$469 and parts at \$22-\$300, you need to be earning a decently large income.

In the larger scheme of things, it's incredible how far robotics has come; to the extent of being able to outfit one of these 'bots with a personality of your choice as well. It seems the revolution is, indeed here.

Read. Roll. Reuse.

Imagine reading a newspaper on your way to work, but instead of the cumbersome fluttering sheets that you usually read everyday it's replaced by a foldable sheet which is, in fact a portable screen broadcasting news right into your hands. Yes, I mean *that* scene from *Minority Report*. Well, it's coming close to that level of tech. The company 'Plastic Logic' manufactures plastic flexible displays that make use of e-ink technology to make your screen a pocket commodity. Link this up to your smartphone, or another portable device and read books and news on the go off the display. Of course, comparing it to the sci-fi concept may be premature, considering the display is exactly that - a display, with little or no in-built memory or operating system of its own and no connection to wireless internet of any kind. However, it's a very good start.

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"Life! Don't talk to me about life."

A-tractor beam

The term 'Tractor Beam' was coined by E.E. Smith, a Sci-Fi writer of some renown in the 1930s. It was a recoinning of his first name for it (the 'attractor beam'. Guess that was a little too on-the-nose). The tractor beam was made famous in pop sci-fi by Lucas and Roddenberry in their respective signature series. In reality too, the concept was theorized several times over the past 80+ years, with several fundamental theories of gravity-like beams, and was even reported to have been tested by Nikola Tesla.

There was no major breakthrough, however, until back in 2010, some scientists in ANU (Prof. Andrei Rode and his team) successfully managed to design a laser beam that could move very small particles up to distances of a metre and a half using nothing except the power of light. Earlier this year, some scientists from Singapore and Florida (Dr. Aristide Dogariu and his team) developed a beam of unstructured light that could manipulate objects over macroscopic distances along a chosen interface of two materials with different refractive indices.

It may take a little time for Tractor Beams to go from micro to macro, but as history goes to show - anything's possible.

Almost there. Almost.

There are some sci-fi-centric concepts that are brilliant in themselves, but we haven't made as much progress in them as we would like to: Teleportation and Invisibility, for example.

Teleportation has two working theories for its execution. The first, simpler one is the Trekkie way. In the simplest possible explanation: Disassemble the subject at one end, store it in data form, send it to the other end and put it back together.

Which makes perfect sense. Theoretically.

But the human body isn't a piece of hardware. Even if someone is successfully pulled apart and put together, there's no guarantee that the person's thoughts, memories and the rest of the metaphysical content will be transferred as well. I mean, really, what's the bit space occupied by the human soul, exactly?

So scratching that idea, C. H. Bennett, G. Brassard, C. Crépeau, R. Jozsa, A. Peres and W. K. Wootters proposed the theory of quantum teleportation. They made use of two postulates of quantum theory, one was Heisenberg's Uncertainty Principle, and the other, the theory of Quantum Entanglement. These concepts might be a bit abstruse for the average reader so check out <http://dgit.in/quanport> for more information.

Bearing in mind that our quantum theory is a bit rusty at the moment, here's the TLDR version of what we understood.

What these scientists are doing is creating an exact replica of you, down to the last quark or lower, and inescapably destroying the original you as a consequence of the process and Heisenberg's uncertainty principle (you really shouldn't have skipped that physics lecture). This does raise the Ship of Theseus Paradox however. Is a replica of yourself, no matter how lossless, still as good as the original? If yes, then what are you? What is your place in the universe? What is the purpose of your existence? Are you that easily replaceable? Nothing better than a drone?

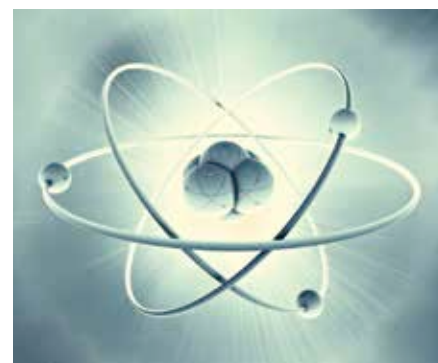
The six scientists were partially successful in teleporting a photon a distance of one metre, but with certain heavy conditions attached, making teleportation for anything other than a photon in the exact test conditions a theoretical improbability. But a few months ago, in August 2013, two teams of scientists, one in Japan and one in Switzerland made a few breakthroughs in quantum teleportation. The Japanese scientists developed a "hybrid technique involving continuous-variable-teleportation of a discrete-variable, photonic qubit." which minimizes

photon loss during the teleportation. The Swiss scientists, meanwhile, were able to teleport an electrical current between two circuits and measure the changed state without altering the current. Both experiments were breakthroughs on different levels.

So we seem to be heading in the right direction, but hold on to your molecules, because we're not quite there, yet.

Invisibility (unlike teleportation) was a much simpler concept to grasp. The theory hinged on the property of light to bend. Invisibility could be achieved by an object if it was given the ability to bend light rays around it to prevent light from reflecting off it (which is what makes an object visible). As easy as it's to say, it's equally hard to implement.

However, some time ago back in 2006, some physicists from Duke University



Quantum Psysics: The key to Teleportation

managed to bend microwaves around an object with virtually no distortion, it's effectively invisible, or cloaked, when observed at that frequency range. The invisibility isn't perfect - there's still some distortion in the microwave range - and it only works at a specific frequency of microwave radiation.

In March 2013, Andrea Alu, a physicist at the University of Texas and her colleagues successfully hid an 18 centimeter long cylindrical rod from view in microwave light. The invention was made of a new kind of material called a metascreen, created from strips of copper tape and a flexible polycarbonate film combined in a diagonal fishnet pattern.

Once again, close, but still a way to go.

Watching all that we grew up reading as sci-fi come to life around us is a reminder that Science Fiction thrives on the belief that nothing is beyond us. That we are, in fact, infinite. **d**



THE SECOND INTERNET

Recent snooping controversies have led to nations taking the path less travelled leading to the birth of the Second Internet.

Mithun Mohandas

A little news item passed by unnoticed back in 2012 when a new undersea cable was announced which would link all the BRICS nations together. It was nothing out of the ordinary as undersea cables are laid on a regular basis. After all, more bandwidth and lower latency is always welcome. Back then, it was incepted so that all communication between the BRICS would go through servers hosted in Europe and the United States (basically, the entire Northern Hemisphere). Reducing the time taken to get data across was the primary reason for investing in such architecture. After all, just two years back a cable was laid so that the folks working at the stock exchange could shave off a few milliseconds and not miss out on “opportunities”. The recent NSA snooping revelations have birthed another reason altogether for the cable – The Second Internet.

A little backstory

BRICS is a group of nations consisting of Brazil, Russia, India, China and South Africa. A group of nations that constitute 45% of the human population and 25% of the world's GDP. All of the member nations feature in the top 10 list of global internet users, and together they account for over 775 million internet users. So it's not a small group by any means. Earlier this year, a seemingly insignificant employee from the NSA (the one in the US)

decided to let the cat out of the bag. Turns out that the US was snooping on not only millions of US citizens but also citizens of other countries. Well this isn't surprising given that every spy movie out there has governments and security agencies portrayed in the same light. The difference here was that these “citizens” also included the first citizens of these nations.

Naturally, summits/meets were cancelled and ambassadors were given a strict dressing down. On the upside, it did get the policy makers thinking, they needed a way to ensure that state secrets remained secrets. In the meanwhile, we had the BRICS cable laying nearing completion and it didn't take much to put the

“Insidious government surveillance may be worse than outright censorship”

– Sir Tim Berners-Lee
(Inventor of World Wide Web)

two together. A few weeks later, Brazilian President Dilma Rousseff announced the creation of the second internet – one free from any interference by the US or the UK. Soon after the blowout, many countries publicly advised companies to start moving away from services provided by US-based companies in the view of providing greater security. Now, you'd think the onus is on the companies to decide whether they wish to continue their current arrangement with US-based companies but that's not going to be the case. Brazil is to vote on a law that will require all companies to store data regarding Brazilian citizens on Brazilian soil and nowhere else. That's just one nation at the moment or 100 million users, which is by no means a small number. Those 100 million users translate to a lot of revenue, and companies will have to cater to their demands or ship out and lose market share.

A new beginning

The internet is a network of many smaller networks. Then there are totally isolated networks as well – those that host military information and interconnect government offices are good examples of this. Even corporate offices spread out over a large campus have their own networks, so the concept isn't alien at all. The scale of implementation is the focal point here. Even on a global scale there exist layers

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to the internet; the dark web is one such network. To access it you need to hop onto a different set of routers, which are isolated from the internet that we know. There exist a vast number of websites that unfortunately have had no authority keeping a watchful eye on them. The dark web is where you can access information that's normally censored and taken down by governments but it's also a host to websites that indulge in narcotics and assassins for hire.

We don't need to worry about the planned second internet turning out the same way, since the member nations will initiate policing as they've done before. That last statement seemed like a paradox, didn't it? That's because the folks in power always have an agenda and they aren't a lovely bunch either. Take Russia for example; it has a website blacklist which not only censors illegal content like pornography but also goes out of its way to censor stuff deemed not worthy of being in the public domain. This includes criticism against the government as well. India isn't that transparent or ahead of Russia either. In the recently released Web Index 2013 statistics – measuring the internet's contribution to development and human rights in countries worldwide – India has been ranked 56 out of 81 countries. This highlights poor internet infrastructure penetration and a rather free-handed censorship style. The importance of a free and open internet only lies on paper and isn't understood by policy makers of the country. The IT Act of 2000 is a clear indication of this, wherein the infamous Section 66A is so broadly defined that it's been abused to arrest people for simple emails and Facebook posts.



Seems like Grumpy cat would be the first to switch

Apparently Geopolitics is a thing

As mentioned before, this wouldn't be the first time the oppressed have moved on to create a world of their own. The laying of another cable has a lot more to offer than just increased speed and reduced latency. For one, the BRICS countries will have an option, and arm twisting these nations by withholding resources will be a lot more difficult. Then there are the many backward countries in Africa for whom the improved connectivity will mean globalisation of the region, which in turn will help accelerate development.

If you went back in history, you'd remember the time when France and Germany argued for telegraph lines separate from British influence (Britain was the major stakeholder in the telegraph market) and look where they are now. Though internet connectivity isn't some voodoo magic which improves

the economy in a day, it does help boost information exchange and economic activity which subsequently aids in growth of a nation. The scales of power stand to change because of the emergence of choice in all matters. Not having a bargaining chip in the region leads to loss of influence which means a few decades down the line the political scenario may radically change.

The impact

Reduced surveillance on the part of the United States will be one of the payoffs. Since the cable does connect to the US at Miami the two networks (Internet and the Second Internet) will be connected but majority of the information will pass between the member nations and only those targeted to foreign servers will actually be under scrutiny from external security agencies. And if the vote in Brazil over localised data storage does pass, then this data exchange will be even lesser. Even Google considered moving its servers out of the US after the Snowden incident.

This new means of internet access also enables the architects of the second internet to increase its transparency and security. Making HTTPS the default standard for internet traffic is the simplest way to go. At a recent event Google's CEO Eric Schmidt expressed his optimism over the elimination of censorship on the internet, saying that it could be accomplished over the next decade. More countries have the option of opting in to the second network, thus providing an opportunity to engage with



That red line is 34,000 kilometers long and would be the backbone of the Second Internet

the BRICS economy. Censorship would be a major issue since all the members of the BRICS group aren't exactly stalwarts of openness and fairness. China has an electronic great wall, Russia has its blacklist and India isn't that far behind at censoring information.

However, a few things could go wrong. The member nations are currently strictly monitoring the traffic passing through the cables, and since they seem to be the major stakeholders here it doesn't seem that's likely to change anytime soon. What will surely come into existence is another layer of firewalls blacklisting an even bigger set of websites all to which each of the member nations will contribute to going forward. All aspirations towards an open internet may continue to remain just that – hope.

This step of getting a second internet would be a bifurcation of the existing infrastructure but access will still be worldwide. Having a fallout between the member nations would result in further bifurcation and subsequently another layer of firewalls and undesirable monitoring. The end result would be the same as the geography we have – hundreds of mini internets (countries and states) connecting to a mega internet (continents). By the time the connection trickles down from halfway across the earth there's a possibility that what you'd be seeing would be half of what actually exists, with the remaining half getting "filtered".

"I believe there's a real chance that we can eliminate censorship and the possibility of censorship in a decade."

– Eric Schmidt (Google CEO)

Will it work?

Let's look at all the facets as we possibly can here. Laying a cable isn't out of the ordinary; there are already plenty of undersea cables. Also, it's not as if the cable laying is yet to begin, in fact, it's nearing completion and would become functional by mid-2015 which is six months away. There has been no lack of funds either, close to \$1.5 billion has already been invested for the cable laying project. So the majority of the infrastructure can be said to be ready by mid-2015.

Creating a second internet isn't a difficult prospect either given that the BRICS nations have the infrastructure and the spending power to do so. If motive is a concern then the snooping scandal was more than enough to get the ball rolling. So there wouldn't be a lack of countries willing to sign up for this initiative. This could be compared to what the Rothschild family managed to do over a hundred years ago. They had a wired telegraph infrastructure when the norm was to still use carrier pigeons. Their infrastructure was adopted across the country and it netted them quite some money.

The cable is 34,000 kilometers long and is connected to six countries with the option for others to join in. Each country maintains a section of the cable so each country/authority is held accountable for its own section. At the South African operator, the BRICS cable will be connected to two other cables which will run by the African continent's coast. So the cable will be accessible by the 21 African countries, which make up for a vast amount of untapped human and natural resources. So investors are more than happy to be getting an entry into a market at a time when a lot more will be joining in, thus putting everyone on an equal footing. At the end of the day, investing in the BRICS cable gains you access to a huge economy. Also, the individual investment needed by each country is reduced.

Splicing social networks into half isn't a new thing. As of now we do have Facebook privacy options wherein your profile is not visible to folks outside your friends'

network. A localised storage of data can be easily accomplished as the underlying scripts and programs are pretty much performing the splicing but on a different level. And servers exist everywhere – the only difference will be that these servers won't synchronise with the ones stored outside the region.

At the end of the day it seems like almost everything is in place, all that needs to be done is for the birthday kiddo to come and blow the candles.



There could be a lot more snooping if we aren't careful

Final say

Throughout history no one particular entity has been able to maintain monopoly over any resource. All it takes is time and some new player enters the market and knocks off the one of the top. The current internet administration may consist of a "group of nations" and that's about to change. The cable is nearing completion and with tempers flying high this might seem like a hurried move on the part of the BRICS. And it'd be wise to remember that this decision lies in the hands of politicians and as with any political process this could fall flat on its face. However, in the greater scheme of things it seems like a necessary move towards reducing the influence of the US and the UK over the traditional internet. And even though it's being kicked off on a small scale, it sure seems like more nations would opt in for the Second Internet. 

WINAMP TO SHUT DOWN, LLAMAS REJOICE!

After “whooping the llama’s ass” for 16 years, AOL has announced that it will be closing down Winamp (and its related services) on December 20. End of an era?

Nikhil Pradhan

An immensely cherished link to our collective digital past, by means of a software dating back to the ‘90s and the early days of the Internet, is being severed; and it isn’t unlike the cutting of a umbilical cord – digitally at least. Winamp, the fodder of every music hoarder who ever existed and the butt of several llama jokes, is soon to be discontinued. After December 20, there’ll be no more of Winamp. If that isn’t tear-jerkingly emotional, we don’t know what is.

Winamp still remains one of the most popular music players on desktops but ever since the advent of the iPod and iTunes and the more recent emergence of streaming players like Spotify, user share has dipped. In 2004, Nullsoft, the developer of Winamp, was bought by AOL for \$80 million. Even now, Winamp is said to generate about \$6 million of revenue annually for AOL, so the reason behind the decision to shut it down remains a strange one.

The first version of Winamp (0.2a) was launched in 1997 as freeware by Justin Frankel and Dmitry Boldyrev with a focus on minimalism and MP3 playback. Winamp continued to evolve and soon after v2.0 released, it quickly became one of the most downloaded software on Windows. Winamp3 was released in 2002, following which in 2003, Winamp 5, the biggest visual

change in the player’s history (and the final ‘major’ version upgrade), was launched. Winamp v5.66 was recently released, and will probably be the final official update for the music player.

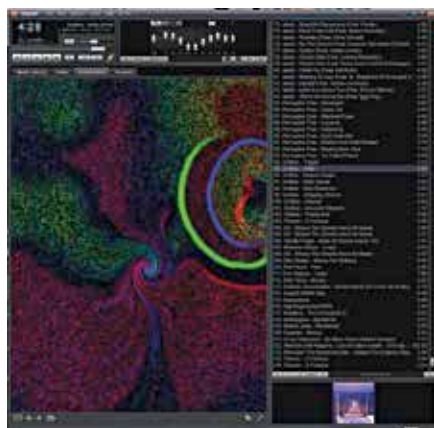
However, since Winamp is primarily an offline software, you can continue to use it, just make sure you download and keep a copy of the installer safely backed up and tucked away. Although we’re sure there will be a million sites out there from which you could continue to download the installer, even if the official source shuts down. Updates aren’t too big an issue since Winamp users are accustomed to getting very rare updates, maybe once a year. However, the death of official support could mean that Winamp users may be

left out in the cold if incompatibilities with any future versions of Windows should arise. One way this could be dealt with is if the Winamp source code is released; although, considering AOL’s background, that seems unlikely.

On a personal note, some of us have been using Winamp since our schooldays back in 1999 and still continue to use it everyday. Despite owning an iPhone, we continue to use Winamp because in our experience iTunes on Windows is probably one of the worst things that Apple’s name has ever been associated with. If you have a large music collection, an obsession with ID3 tags, album artwork and organising your music, you’ll be hard-pressed to come across a better music player to help sort everything out. Unless Windows forces us to stop using Winamp, we’ll continue using it, but the experience would feel incomplete with the people behind it no longer there.

5 great (free) alternatives to Winamp

Now that Winamp is officially being shut down by AOL, many of you must have already begun looking for a new music player to call your own. Well, stop, because we’ve done the hard work for you. While you can continue using Winamp, if you do want to step away from the player and look at other desktop



Winamp and its visualisations

music players with an official support lifeline, then here are five of the best that may help you forget about how awesome Winamp was.

1. Media Monkey

The true Winamp alternative, Media Monkey does everything that Winamp can (and a little bit more). If you have a large music library and have compulsive tendencies when it comes to keeping it organised, Media Monkey will suit your needs. Media Monkey also supports a huge variety of audio formats including high fidelity ones like WAV, FLAC and OGG apart from common ones like MP3 and AAC. The player also supports plug-ins and skins, so if that was what you loved about Winamp, then you'll also learn to love Media Monkey.

Download: <http://www.mediamonkey.com/download/>

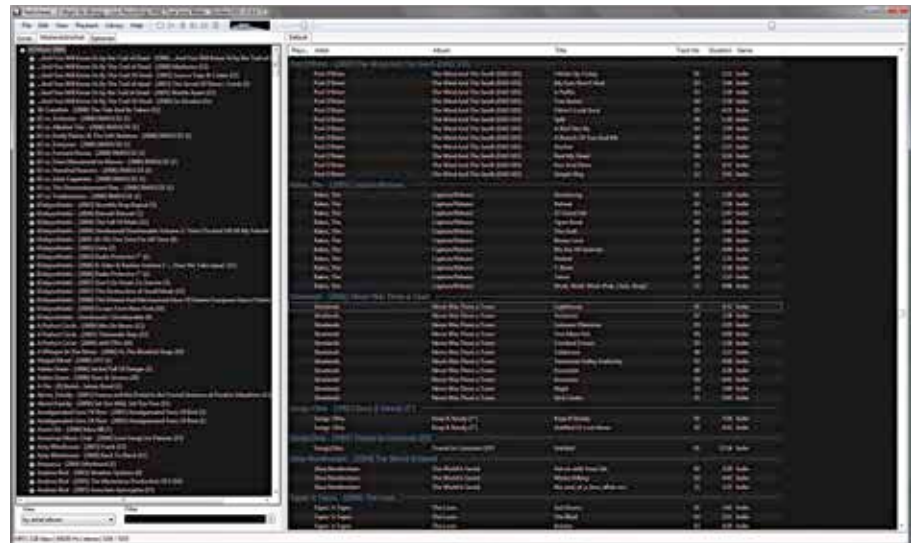
2. Foobar2000

If what attracted you to Winamp was its 'mini' avatar which you could use to quickly queue up and play individual tracks, then you should look at Foobar2000. Foobar is light on system resources, has a simple UI and is blazing fast even on underpowered machines. While Foobar is not the best option to manage large organised libraries, it can still do this provided you spend some time customising it. Foobar also supports all the popular audio formats including OGG and FLAC.

Download: <http://www.foobar2000.org/download>

3. AIMP3

AIMP3 is another music player reminiscent of Winamp's 'mini' version. It offers a single pane view in which you can queue up individual songs or playlists. However, if you want to manage your entire library, you can still do so by jumping to the album manager option. It won't provide as much information up front as Winamp, but it works. AIMP3 also offers a ton of customisation options to change the way it



Foobar2000 is blazingly fast even on slow machines

works and looks, and a whole bunch of equalizer options and presets.

Download: <http://www.aimp2.us/aimp3-download.php>

4. MusicBee

MusicBee is another very good alternative to consider if keeping a large music library organised is your priority. Like Winamp and Media Monkey, MusicBee also lets you view your entire music library at a glance through multiple panes for tracks, albums, artists etc. Auto-tagging and manual tagging are also built-in features along with support for custom playlists and online information on the artist you may be listening to.

Download: <http://www.getmusicbee.com/download/>

5. Windows Media Player

Yes, we know, we know. We'll wait till you finish laughing. Done? Good. There's a

reason why Windows Media Player still remains the most popular music player on Windows. And it's not just because it comes pre-installed on Windows (although that's a big reason). WMP is an easy-to-use player whether you want to use it to play single songs and playlists or manage your music library. WMP may not have the best format support (unless you install codecs manually) but it's a good looking software that's easy to pick up and use and suited for people who want to just listen to music and not mess around with the player itself.

The elephant in the room: iTunes

You may be wondering why we didn't include iTunes in the list of the five alternatives to Winamp even though it's undoubtedly one of the most popular media players on the planet. There's a simple reason for that: iTunes on Windows is unwieldier than a drunken one-legged elephant on a unicycle with a punctured tire. Everything takes an inordinate amount of time to do in iTunes, from starting it up to downloading online information to syncing music to your iPhone. In fact, despite owning an iPhone, most of us seldom kickstart iTunes and instead rely on Copy Trans Manager for almost everything music related.

However, if you do plan on buying lots of music from iTunes (iTunes definitely has some killer deals on music for Indian users) and use other services like iTunes Match and also own multiple Apple devices, then iTunes will suit you. **d**



Media Monkey helps you stay super-organised



The Ultimate Fight for Supremacy

The Zero1 Awards signify the pinnacle of achievement for products across categories...for this year only, of course!

Welcome to yet another installment of Zero1 Awards, our roundup of the very best performing products of the calendar year. Every year, day in day out, the Digit Test Centre puts several hundreds of products through rigorous tests, and meticulously ranks and rates them in order of merit. Why? Because we all deserve the best products and picking the right one can be so darn difficult – today’s prince is tomorrow’s pauper as the pace of innovation and high-performing gadgets takes no prisoners. Whether it’s the latest mirrorless camera or a hotly-anticipated graphics card for an in-depth Bazaar review, the Digit Test Centre proceeds with the single-minded goal of giving our readers the best knowledge about the latest and greatest products. That’s always been our aim while reviewing and writing about any product that’s printed in Digit’s *Tried and Tested* section pages, and it will continue to remain our focus as long as there are products to review in the market.

We’ve dropped a few categories from last year, and introduced new ones including CPU Coolers, All-in-One Desktops and Smartphone Cameras. This year we tested close to 400 products in all our comparison tests, and a little shy of 300 products in our bazaar section pages. During what we call “Zero 1 season” we called for some of these products back for every category and threw in a lot of new, previously untested products to tell you which are the best performing products of 2013. And we’re left with close to a crore worth of products to play with! Don’t even think of visiting

our offices over the next month or two, our security system rivals Fort Knox!

With that in mind, let’s outline the significance of this story and the iconic trophy on the page alongside. The Zero1 Award is different from all our other awards that we hand out in our comparison tests, because it’s a shoot-out of all the Best Performers of the year, and their most recently launched challengers. The product categories are carefully picked to ensure we have reviewed enough products in any given category to speak authoritatively about it. We also summarise the highs and lows of a Zero1 Award product category in the introduction of their respective pages, trying to give our readers an idea of what transpired in that product category throughout the year, and predict future trends (if any). And although performance really is king in this Award’s category, we also list out some of the recommended buys for different usage scenarios, or budgets (wherever applicable), to ensure that with this one issue of Digit, you’re armed with enough knowledge to be able to buy the best product you possibly can in their respective categories.

After a rather hectic month of testing – not to mention blood, sweat, tears, and sleepless nights – the Digit Team is proud to announce the winners of the Zero1 Awards 2013. These are the best products that have entered our hallowed halls and will serve as benchmarks for future challengers. We hope you find the following pages useful, while the team now recuperates in the best possible way – diving into more gadgets for the coming year. Some things never change.

Jayesh Shinde

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High-end Smartphones

Quite on the expected lines, smartphones over the year 2013 became more and more powerful. But, the sheer spike was unexpected for some, because it would just take a couple of months at the max to have a new flagship come along and snatch the mantle of best performer. The Samsung Galaxy S4, the HTC One, the Sony Xperia Z1 - all led the performance charts at one point of time or the other.

However, it wasn't as simple as saying that a new phone came along every once in a while. Hardware, across the board, received major upgrades. While Samsung bumped up the clock speed and the number of cores in its Exynos processor range for the flagships, the likes of HTC One relied on the Qualcomm Snapdragon 600 at the same time. The likes of the Sony Xperia Z1 and the LG G2 benefited by the launch of the Qualcomm Snapdragon 800 and to their credit, took full advantage of that. But, the most heart warming development was the arrival of two brands, who we hope succeed in the smartphone space - Intel and Lenovo. The Lenovo K900, powered by the Intel Atom Z2580 processor, did extremely well, at a rather affordable price tag.

The year really wouldn't be complete without the iPhone refresh. The "cheap" iPhone 5c has exactly the same specifications as the iPhone 5, but with a plastic shell in various colours. The major upgrade though, is the iPhone 5s. And it's no surprise that it is one of our top smartphones of the year.

Zero1 Winner

Sony Xperia Z1

Powered by the Qualcomm Snapdragon 800 processor, the Xperia Z1 is by far the most powerful Android smartphone you can buy in India, today. Maybe, by the time you read this, the Nexus 5 will come around and change the equation. But, we are not getting bogged down by that fact right now. Sony seems to be intent on building a design identity, much like Samsung has done. Which is why, the Xperia Z1 follows pretty much the same design theme and materials seen in the Xperia Z and the Xperia Z Ultra. That's a good thing, except that the glass on the back needs to be handled with care, because it gets scratched easily. The Xperia Z1 was shadowed closely by the LG G2, which also has the same pro-



◀ HIGH-END:
SONY XPERIA Z1
Price: ₹38,999

cessor and a much better IPS display. But the Z1 is the undisputed leader in our benchmark tests. If the Sony Xperia Z1 falls in your budget, buy it without any hesitation. The phone is more than capable of handling load and if Sony does push the latest Android updates to it, you shouldn't see a stutter.

Notable Mentions

Apple iPhone 5s

The iPhone 5s is a completely different beast from any iPhone before it, both in terms of hardware and software. The A7 processor is logically a major upgrade over the predecessor, but the bigger change is the M7 co-processor, which picks up data from various sensors even while the phone is asleep. This provides a major boost to some apps, including fitness and navigation apps. Apple also introduced 64-bit architecture with the new processor, and to kick it off, ported all of Apple's own apps to it. Along the way, existing apps will get updated to the 64-bit architecture and of course, the enhanced biometrics are not bad either.



Apple iPhone 5s

Price: ₹71,500



LG Nexus 5 (by Google)

Price: ₹32,999

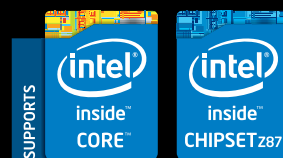
LG Nexus 5 (by Google)

The Nexus 4, through this year, has fallen behind the newer Android flagships. The Nexus 5, expected to be in India soon (at the time of writing), will bring the Nexus smartphones back on the level. It packs in a bigger screen this time around - a 5-inch Full HD IPS+, with Gorilla Glass 3. Those who cannot suffer other Android phones because of the customizations and skins, will be delighted.



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Cellphone Imaging

Who would have thought we'd ever see a day when cellphones would almost be on the verge of making the basic point and shoot camera obsolete? If you would have considered the idea even a year ago, it would have been ridiculous, but now, it's not so far-fetched. We're starting to see phones with many of the features found in a basic point and shoot camera and we're talking not just software, but also a lot of the hardware stuff as well. We're seeing optical image stabilization, bigger sensors, and incredible optics. To the untrained eye, images from an affordable point and shoot when compared to images from these cameras would seem no different (under adequate lighting conditions, of course).

Testing these camera phones has been nothing short of an adventure full of excitement and revelations. Each device has its advantages over the competition and the image obtained has a signature that can be considered to be unique to the said device. These camera phones are relatively still a little expensive, but if you do factor the economics of it all, it might make not just financial, but also ergonomic sense to just carry one device. If you are one of those who wants to replace their point and shoot with a cellphone, we've got quite a few suggestions for you, but only ONE that rules that roost.

Zero1 Winner

Nokia Lumia 1020

The Nokia Lumia 1020 is the culmination of Nokia's finest technological advancements. It combines a large, 0.66 inch, 41 megapixel sensor with an f/2.2 Zeiss-made lens. In case you're wondering, the sensor size in the Lumia 1020 is bigger than what you'd see in most point and shoot cameras, which is saying something. But it isn't just the hardware that's stellar, it's also the software Nokia's plugged into the 1020. The Nokia Pro Cam app gives the user complete control over every single aspect of creating an image such as white balance, shutter speed and even manual focus. The best part about the Lumia 1020 is that thanks to its incredibly large pixel count and a large sensor, it is able to take photos that are unrivalled by any camera phone in the market at the moment, and matches (if not better) most sub-20K point and shoot cameras. This is THE point and shoot replacement,



Sony Xperia Z1

Price: ₹42,990



LG G2

Price: ₹36,100

the one you've been asking for, the one you deserve especially considering the price at which this beauty comes in for.

Worthy Mentions

Sony Xperia Z1

This is Sony's point and shoot camera in an incredibly slim cellphone body. The Z1 is a 20 megapixel shooter with a more than adept 1/2.3 inch sensor right out of Sony's common point and shoot cameras. The camera brings many of Sony's scene modes to the cellphone, along with the ability to shoot in manual mode as well. The Z1 has secured the second spot in our testing by quite a leap, but remains somewhat behind the Lumia 1020. If you want a camera that's capable of going from sleep mode to firing off the first shot all in under a second! It is THAT FAST and we love it for that.

The LG G2

The LG G2 gets a worthy mention in the Zero1 Awards because it too uses a large sensor for imaging duties, but brings a very unique way of shooting. It takes the shutter button from the side and brings it to the back, which sits perfectly in the spot where your finger would go if your hand was resting on the back of the phone. While it does take time to focus on the subject under low light conditions it's by far one of the best shooting experiences ever and the image quality is point and shoot quality, in most situations.



CELLPHONE IMAGING: NOKIA LUMIA 1020

Price: ₹41,350



◀ NEXUS 7 2013

Price: ₹20,999

7-inch tablets

From being a luxury device, the tablet has found a way of becoming a part of our everyday lives. Be it for reading books, watching movies, playing games and even taking care of a bit of work, the tablet has found a way of getting the job done. The 7-inch form factor seems to be the sweet spot with consumers as every known tablet maker now has a tablet in 7-inch form factor. We have seen the launch of tablets that offer not only 3G on the go via a USB dongle but the ability to house a SIM card as well. Some devices offer users the ability to hold the 7-inch device up to their ear as a phone. We at Digit think that a 7-inch device is too big to work as a phone but seeing that these devices are selling like hot cakes, the consumers think otherwise.

Another improvement in the 7-inch tablet category when compared to last year is that we have seen budget devices launch that offer some great specifications and build for the price of admission. We have devices such as the Lava E-Tab Xtron and the iberry Auxus CoreX4 3G that are great value for money products offering a good balance between the specifications and build on offer.

Another advantage of owning a 7-inch device is that it is more portable and comfortable to carry. The



Nexus 7 first gen

Price: ₹11,999



Samsung Galaxy Tab 3 211

Price: ₹15,999

downside remains that it still feels a tad cramped to type on in portrait mode when compared to its 10-inch brethren.

In the middle of 2013, there were companies that launched 7-inch tablets in the sub ₹5,000 price point and they were disastrous. The touch screen experience was bad and the device could barely multitask. The much-hyped Aakash tablet too made it into the news but there has been little happening for manufacturer Datawind with respect to the Indian market.

Zero1 Winner

Nexus 7 2013

If you are looking for the best 7-inch tablet available in the market, you don't need to look beyond the second-generation Nexus 7. The tablet has a gorgeous display and stereo speakers, making gaming and multimedia consumption a treat on the device. Add to it the fact that the device is available in an LTE variant and you have a tablet that will keep you connected on the go. With the Nexus 7, you will be the first to receive Android updates as and when Google makes them available. The battery life of the device is also great, clocking in at over 9 hours in our video test. The fact that the device is now officially available in India is just the icing on the cake.

Notable mentions

Nexus 7 (First Gen)

If you are on a sub 10k budget and are looking for the best tablet out there, then the first generation Nexus 7 is still the best option. It has a good display, compact form factor and the ability to run all the apps available on the Play Store very smoothly. The hardware may be old, but there are budget tablets such as the Xolo Play Tab that is powered by the same hardware and launched recently. The tablet isn't officially available via the India Google Play store but those interested can pick it up from other online retail stores as well as physical electronic stores.

Samsung Galaxy Tab 3 211

The Samsung Galaxy Tab 3 211 is very popular for two reasons – simple interface and calling functionality. Then there is Samsung's TouchWiz UI as well and if you've used a Samsung tablet in the past, you'll feel right at home with the UI. The response of the touch-screen is good making typing, browsing the Internet and playing games a fun experience. If you want a tablet that is good for multimedia consumption, easy to use, has expandable storage (which isn't available on either of the Nexus tablets), then the Samsung Galaxy Tab 3 211 is the one for you.



10-inch tablets

The 10-inch tablet market has been dominated by the iPad ever since its inception in 2010. There have been a slew of 10-inch tablets launches in India over the past year and few have been able to garner the kind of attention that the iPad has.

We have seen some interesting devices such as the HP Slatebook X2, Huawei MediaPad 10 Link, Asus Transformer Pad, Samsung Galaxy Note 800, Karbonn Smart Tab 10, Spice Stellar Pad, Videocon VT 10 and many more. Each of these devices tries to bring something new to the table, be it a keyboard dock that gives it a netbook like utility, HDMI output to connect to the TV, IR blaster to work as a universal remote and more.

We have also seen devices such as the Huawei MediaPad 10 link bring Huawei's own hardware and skin to the tablet in an attempt to freshen up the UI and OS experience. We have seen devices such as the Galaxy Note 800 which brings calling features to a 10-inch device. Sure, the experience of making calls is quite awkward if you use the device as a phone but 3G connectivity on the go is great. Add to that the S-Pen capabilities and you have an Android tablet that offers you a lot of features. We have also seen



Sony Xperia Tablet Z

Price: ₹41,499



iPad 2

Price: ₹24,500



◀ **IPAD 4**

Price: ₹31,900

devices such as the PadFone 2, which is a smartphone, that can be housed in a 10-inch display making it a tablet and that 10-inch unit can be docked in a keyboard giving it netbook like utility. Technically, this is a hybrid device.

Zero1 Winner

iPad 4

Even though there are a bunch of interesting 10-inch tablets available in the market, none of them come close to what the iPad has to offer. To start with the device is available in a variety of storage options from 16, 32, 64 and 128GB with the option of Wi-Fi only or Wi-Fi + Cellular. Its slim, light and has the Retina display. Its clean and interacting with the display is a lot of fun, be it for playing games, typing or browsing. The iPad has a simple design and that's where it wins. iOS has an app ecosystem which has more tablet optimized apps when compared to the competition. The power under the hood is great making the tablet very responsive. Graphically heavy games look great on the device and the battery life of the tablet is great too.

Noteworthy mentions

Sony Xperia Tablet Z

The Xperia Tablet Z has taken the spot as the 'best Android tablet money can buy in India'. It brings to the table a slew of features such as India specific content (you can watch Sony TV shows on it), a good skin on the Android OS, slim and sexy form factor, and some brilliant power under the hood. It is the slimmest tablet available in the market, measuring in at 6.9mm. The tablet boasts of weatherproof capabilities so you can use it in the bathtub without any worries. The tablet also has an IR blaster, which can be used as a universal remote. The display is great for consuming multimedia content as well as playing games. Then there's the ability to play multiple videos simultaneously showcasing its multitasking capabilities. The audio output from the speakers too is great. There is no other tablet that could steal the crown of the best android tablet from the Tablet Z.

iPad 2

Launched in 2011, the iPad 2 is still selling and growing strong. Why should you consider this device? Well, to start with, the tablet supports iOS7. Sure you don't get all the features, but the latest OS is still supported. The tablet can run all the apps available on the App store with ease and its battery life is the best any tablet has to offer. If you don't want to invest too much and want a holistic iOS tablet experience, then the iPad 2 is the one for you.



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**Corsair
Obsidian 900D**

Price: ₹26,000

Cabinets

In an era when the desktop is dying as a mainstream product, it makes sense to focus more on the enthusiasts, and that's exactly what manufacturers are doing. CES 2013 launches showed cases with better water cooling support – internal, as external liquid cooling mounts are a thing of the past now.

Over the course of the year, we saw that plenty of new cases were designed to be mod friendly, allowing a user to replace some parts of the case or completely remove them. They did this in various ways, but primarily, they used screws instead of rivets wherever possible.

Also, when we said most new cases are primed for liquid cooling, we didn't mean that their air cooling aspect hasn't been worked on. After all, liquid cooling does actually require air to dissipate heat from the radiators. Keeping that in mind, most newer cases have been designed with a meshed area somewhere on them to improve airflow. What is good to see is the inclusion of dust filters on even the cheapest cases so you no longer need to buy expensive ones to keep your components dust free and easy to clean. Another feature that is now seen on small cases, such as mini towers, is space to mount full length graphics cards. This is an advantage if you're building a powerful HTPC or a mini-ITX based gaming rig and installing a long and powerful graphics card. A gripe that we had with many cases in the past.



**Cooler Master
HAF 912**

Price: ₹5,300



**NZXT Phantom
820**

Price: ₹18,000

Zero1 Winner

Corsair Obsidian 900D

Yes, it's unjust to other cases especially to mid-towers that the 900D wins the Zero 1 award, but it is indeed the best performer and no other case comes close. Being one of the largest computer cases we've ever tested, the Obsidian 900D can only be compared to its biggest rival - the Cooler Master Cosmos II which also happens to be the only other case of this size available in the market. Not only does the 900D perform well, but it's full of extremely useful features. The amount of space inside it is what makes for an excellent home for high-end components. However absurd or impractical it may sound in the Indian market, the 900D can easily accommodate a full size 480mm radiator at the top, another 480mm at the bottom on one side, a 240mm on the other side at the bottom as well, a 140mm radiator at the rear and finally, a 360mm radiator at the front; you can go nuts with the 900D while building a liquid cooled rig. It's the only case we tested that could take in two PSU's simultaneously. With these features and many more unlisted ones here, the Corsair Obsidian 900D is a case of choice for extreme system builders.

Worthy Mentions

Cooler Master HAF 912

If not for the Corsair Obsidian 900D, the Cooler Master HAF 912 would have won the Zero 1 award. That would've been something considering the HAF 912 sells at about a fifth of the price of the 900D and it won the best performer award in our comparison test this year. The HAF 912 follows in the footsteps of its costlier siblings from the HAF line of cases and so, it maintained a cool temperature inside during testing and is a very feature rich case for its price. At about 5.5K, the Cooler Master HAF 912 is the best performing case that you can go for with a great build quality.

NZXT Phantom 820

The NZXT Phantom 820 is not your regular run-of-the-mill chassis. It has a futuristic design element to it and we especially liked its gunmetal grey colour scheme. The case is very well built and has a raised steel stand to let air in through the bottom. This was the only case that we tested this year to come with an elaborate lighting system and boy it made the case look cool. The Phantom 820 also has lights at the rear of the case near the I/O shield to let you see the ports at the back in the dark which we found quite brilliant. A well rounded full tower case to go for enthusiast builds.



▲ CORSAIR H110

Price: ₹10,195

CPU Coolers

CPU TDP (Thermal Design Power) has been continuously falling through the years due to the improvement in manufacturing processes and the shrink in die size. At the same time, CPU coolers seem to be getting more popular with more people opting to go for an all-in-one liquid cooler. High end air coolers are still capable of outperforming many all-in-one liquid coolers but some good liquid coolers give you much more headroom when overclocking; while proper custom built ones will throw the cooling chart out the window.

Zero1 Winner

Corsair H110

There were many contenders for the coveted Zero 1 title and the only coolers that gave the Corsair H110 some competition were the ones with a 280mm radiator. This is justified because of the fact that in cooling, the more the surface area, the better the heat dissipation. The H110 came out on top because not only did it keep the CPU temperature low but it was silent, unlike many of the other liquid coolers during testing. At about 9.5K it's pricey but definitely worth it.



NZXT Kraken
X60

Price: ₹9,000



Nepton 280L

Price: TBC

Worthy Mentions

The NZXT Kraken X60 was the next best cooler after the Corsair H110 and it came by no surprise as both the coolers were similarly designed. Frankly speaking, the performance difference between this, the Corsair H110 and Cooler Master's latest Nepton 280L was marginal and it only depends on you and where you want to spend your money.

As an aside, if we were to recommend the best performing air cooler, then that would be the Noctua NH-U14S as it is an excellent air cooler and is extremely silent.

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◀ INTERNAL HDDs:
**WESTERN DIGITAL
VELOCIRAPTOR 1TB**
Price: ₹14,800

Internal HDDs

Another year went by and though there hasn't been any major change in the storage sector, we've still seen many new product launches but mostly in the solid state storage department. Internal mechanical HDDs still rule the market when you take into account the cost-per-GB or value for money that you get with them. We've seen the prices of most PC components rise due to the dip in the exchange rates and HDD prices did take a hit in Q3 2013. But now, the prices seem to have fallen quite a bit and it's a good time to go for a HDD.

Zero1 Winner

Western Digital Velociraptor 1TB

This came as no surprise. In fact, this has been the trend with internal HDDs since the past couple of years as Western Digital's Velociraptor once again bagged the Zero1 award for being the best performing desktop HDD we've tested. With a capacity of 1TB that runs at 10,000 RPM, a 64MB cache size and SATA 6.0Gb/s, the Velociraptor is one blazing fast drive that left other competitors in the dust.

Notable Mentions

Seagate Desktop SSHD 2TB

This is a hybrid drive from Seagate that's an amalgamation of SSD and HDD technology in the same drive. Instead of being completely mechanical, the Seagate Desktop SSHD uses an 8GB MLC NAND flash chip and the outcome is much more performance. This drive was the best after the Velociraptor, purely in terms of performance.



**Seagate
Desktop SSHD
2TB**
Price: ₹9,600



**WD My Passport
Ultra**
Price: ₹5,999

Portable HDD's

Hard drives have become a necessity for most people these days and portable hard drives are something that make carrying data easier. This year we saw a rise in the number of USB 3.0 portable hard drives and also a few with Thunderbolt. We saw many brands going for the rugged drive design approach with many of their models. A few of these rugged drives that we tested were built very well while some had a flimsy rubber jacket in the name of calling it a rugged drive. A few manufacturers have also come up with portable Solid State Drives but they're pricey.

Zero1 Winner

Silicon Power Armor A15

This was one of the most rugged hard drives we've tested this year. With a great build quality, the Armor A15 has a U.S. military standard rating "US MIL-STD-810F". We actually tested their claim by drop testing this drive from a height and the A15 was unscathed.

Notable Mention

WD My Passport Ultra

The drive was a worthy contender for the best performer's pole position. Though it isn't spectacular in any way in terms of its build quality, it performs very well. The drive also comes with a handy pouch to help owners carry it around with them safely. A good drive to go for.



▲ PORTABLE HDD's:
SILICON POWER ARMOR A15
Price: ₹5,450



SSDs

The whole PC building scenario took a turn when SSDs were revealed to the world. Enthusiasts and gamers alike, everyone started to go for an SSD as their primary system drive and then pairing it with a HDD for storage purposes. SSD prices have always been quite high but they've fallen down a bit now. It won't be long before SSDs completely replace mechanical drives and become more mainstream while also selling for cheap. We've also noted a rise in the capacities on offer; it's still nowhere near that of tradition HDDs.

Zero1 Winner

Samsung 840 Pro

We actually had to pinch ourselves to see whether we were dreaming when we tested the Samsung 840 Pro series SSD, the performance was staggering. Housing a three-core MDX controller and 8x 32GB Samsung MLC toggle mode NAND chips it easily touches synthetic transfer speeds of 530 MB/s in sequential trans-



◀ SSDs:
SAMSUNG 840 PRO
Price: ₹16,000



SanDisk Extreme II
Price: ₹26,100

fers. The real world performance of the 840 Pro was also quick. The Samsung 840 Pro series 256GB is what you should go for when you want the best performing SSD, regardless of cost or any other factor.

Notable Mentions

SanDisk Extreme II

The Extreme II from SanDisk was the only drive that came the closest to the Samsung 840 Pro. With AS SSD benchmark scores for Sequential Read and Write being 521.97 MB/s and 467.92 MB/s respectively; the SanDisk Extreme II was a worthy contender for the Zero1 title as well but the Samsung 840 Pro came out on top. It is on the expensive side though.

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Mainstream notebooks

The first half of the year saw the Intel Ivy Bridge series' Core i5 processors packed into mid-range laptops, with the higher end devices getting the Core i7 variants. Quite expectedly, the performance boost was massive as you went higher up the price band. However, it was on a rather happy note that the AMD APUs, dual and quad core, seemed to do rather well. These APUs were mostly to be found on the more affordable laptops, somewhere in the region of ₹28,000 to ₹35,000 (approx.). This is a very important category in terms of numbers and building a base of users who will show some loyalty in the future. Sony, which had fairly depressing offerings in this price region, rejoined the battle with the impressive FIT series of notebooks.

Mid-range notebooks saw a lot of competition. HP has the impressive Pavilion m4-1003tx, Sony updated the E-series, while Lenovo brought in the IdeaPad Y500 and IdeaPad Z500. Dell simply dealt with huge numbers and configurations, for the Inspiron laptops in 14-inch and 15-inch screen sizes.

Expectedly, the top end of the price bracket, upwards of ₹60,000, is where the real powerful stuff was. While it was all fun and games (quite literally) in that regard, we still have a couple of complaints. Firstly, 1080p screens are still not standard and that is just cruel. For anyone spending so much on a laptop, still giving them a 1366 x 768 pixel display is just being petty. Secondly, build quality needs to be improved massively. Yes, everyone can make a snide remark about MacBooks being "arrogant" and all, but the fact remains - their build quality is unmatched. And if you were to buy a Windows laptop that costs the same as MacBook Air 13, you would like a similar quality build.

Zero1 Winner

HP ENVY 15 j-001TX

This is one of HP's first notebooks with the Intel Haswell upgrade and it's an extremely impressive package overall. Quite frankly, if you are in the market for an ultra slim and ultra light laptop, none of these machines are for you. These are powerhouses that pack in the most powerful processors and graphics that laptops can. The Core i7-4700 quad core processor along with 8GB of RAM and the Nvidia GeForce GT740M (2GB) graphics makes



HP ENVY 15 J-001TX

Price: ₹80,000

this most powerful laptop in this category. And within the ambit of this award, we are looking at non-gaming category laptops. The newer Nvidia chips are boosting performance by as much as 10 frames per second. It's good to see that HP has carried on with the excellent keyboard that we had praised in the ENVY dv6 last year, along with a couple of other notebooks and ultrabooks. The build quality is quite good, albeit a tad heavy, and the generous use of aluminum makes this rather solid. If you want a laptop where your primary criterion aren't battery life or extreme portability, the ENVY 15 J-001TX will deliver excellent performance overall.

Notable Mentions

HP ENVY dv6-7206tx

In the midst of all the newer Intel Haswell notebooks, the HP ENVY dv6-7206tx still remains one of our better performers. It's remained at the top of the performance charts for most of the year. The Intel Core i7-3630QM processor pipped the Lenovo IdeaPad Y500 (Intel Core i7-3632QM) by a small margin in terms of system performance. The battery life is great but the screen resolution is low. All in all, this is a very decent performer and well worth your money. For better battery life however, Haswell is the only way to go.



HP ENVY dv6-7206tx

Price: ₹64,000



Dell Inspiron 15 - 7537

Price: ₹70,000

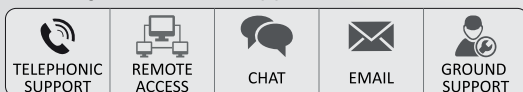
Dell Inspiron 15 - 7000

A very recent launch, the Inspiron 7000 series comes in a completely redesigned chassis, and thankfully for us writers', an excellent keyboard. The performance of the Core i5-4500U is impressive, but the real delight is the Nvidia GeForce GT750M (2GB) graphics. The only disappointment is the display, which is stuck at 1366 x 768 pixels, but the more expensive Core i7 version packs in a 1080p display.

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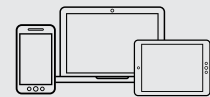


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Gaming Laptops

We live in a world where ultrabooks are fast pushing out the last remnants of entities what were once known as laptops or notebooks. Just like in the human world, where fat bodies are frowned upon and anorexic figures celebrated, ultrabooks are the 'it' machines of mobile computing and good ol' flabby laptops have few takers these days. However, making wafer-thin ultrabooks has its physical limitations – for packing in an unbeatable arsenal of hardware firepower is next to impossible on an ultrabook form factor, currently. And this is where gaming laptops buck the trend, for as a thumb rule the more chunkier, larger a gaming laptop is, the better its internal hardware muscle invariably is.

Sadly, there hasn't been too much action in the gaming laptops scene this year, with the same old players refreshing their flagship product offerings. We're happy to report that gaming laptops haven't lost any of their unique qualities that make them so special – ostentatious design, cutting edge hardware, and some serious gaming bling. It's good to see Intel's "Haswell" processors making their way into these high-powered machines, while NVIDIA mobile GPUs continue to dominate the high-end mobile gaming market – AMD's had a forgettable year on PC gaming until their Hawaiian Islands GPU refresh last month, and there's still some time before we start seeing laptops sporting their spiffy new GPUs. Razer's mobile gaming rig still isn't available for purchase here in India and



Alienware 17

Price: ₹1,29,990

MSI's inconspicuous absence means that there isn't much competition.

Zero1 Winner ASUS ROG G750JX

The ASUS Republic of Gamers G750JX came out in front of the Alienware 17 by a very close margin. This 17-inch gaming behemoth isn't quite as spectacular as the Alienware in terms of looks and glam factor, but its built very well and has some impressive hardware: a quad-core Intel Core i7-4700MQ chip, 16GB RAM, 1.5 TB HDD, and NVIDIA GTX 770M (3GB GDDR5 VRAM), that conquers any latest game with ease. Despite sporting identical battery capacity, the ASUS gaming laptop lasted about 23 mins more than the Alienware 17 in our synthetic benchmark carried out at identical settings. And the slightly superior GPU that ASUS G750JX sports definitely helps it gain an edge over the Alienware 17.

Besides the obvious gaming firepower, the G750JX has a nice wide backlit keyboard deck and a slightly larger touchpad area compared to the Alienware. Audio visual performance of the machine while watching HD 1080p rips or Blu-ray movies was top notch, no complaints whatsoever. What's more, this machine is 3D ready, letting you watch stereoscopic games or movies with a bundled pair of glasses and gaming headset.

Not far behind... Alienware 17

A huge part of the appeal of any Alienware machine is undoubtedly its look and feel. Past Alienwares have sported some iconic designs and bling, and the new Alienware 17 continues the tradition. Sporting a metal screen lid with angular accents, and a nice chunky reinforced plastic exterior, the Alienware feels rock solid and very sturdy. The overdose of glowing LED bits -- right from the logo to the keyboard keys -- and angular edges on the Alienware gives it a distinct personality that's quite unique. The keyboard is good for both typing and gaming (not quite in the same league as mechanical keyboards, though), and its touchpad is nice and textured. Apart from boasting off a Full HD matte screen display, another highlight of the Alienware 17 is its better-than-average onboard audio. This machine marginally loses out to the ASUS gaming rig due to a slightly lesser GPU, otherwise it has the same basic hardware specs. This is still a winner in our books, packing in unmatched bling for gamers looking for a distinctive gaming laptop.



ASUS ROG G750JX

Price: ₹1,49,999

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Ultrabooks

Ultrabooks started off as a very confused segment this year. Intel did eventually come out with strict criterion for the definition, but we did see plenty of decidedly chunky laptops wearing the "Ultrabook" tag with some degree of smugness.

Discrepancies with weight and thickness aside. We also saw ultrabooks that were attempting to morph into tablets, devices such as the IdeaPad Yoga 13, which could contort themselves in the most disturbing fashion. The ergonomics of such devices was hit and miss though. Ultimately, once the definition settled and we saw some more traditional designs making a come back, we ran into some very interesting devices that piqued our interest.

While they have not won any awards here, the Asus VivoBook S500C and the Samsung Series 5 Ultra Touch (NP-540U3C) were extremely impressive ultrabooks. Priced somewhat within the affordable price bands, they offered a blend of very good build quality, consistently good performance and the traditional slim-and-light ultrabook experience you would expect. Now, if these amazing ultrabooks did not win any awards, just imagine what the winners will be like

Zero1 Winner Aspire S7 - 392

The S7 is very expensive, but it's very obvious that Acer can actually make a good ultrabook if they put their minds to it. The all aluminum unibody chassis is extremely slim, and weighs in at just 1.3kg. Add to



Sony VAIO Pro 13

Price: ₹84,000



HP Envy TouchSmart Ultrabook 4-1113tu

Price: ₹65,000

that, something very rarely seen on a laptop till date - a Gorilla Glass 2 layer on the lid, over the white enamel finish. If this doesn't scream stylish, nothing probably will. We will not be pedantic for a while and draw your attention to the fact that this finish needs a lot of care (oops, we just did). But instead, we'll draw your attention to the rather powerful Intel Core i5-4200 @ 1.6GHz processor, from Intel's latest Haswell series. With 4GB of RAM and a very fast Kingston SMSR150S3256G solid state drive, this machine has clocked by far the better system and graphics benchmarks than any of the immediate rivals. Little things make all the difference, and the backlit keyboard with ambient control is again something not seen in many ultrabooks. The 13.3-inch display has a 1920 x 1080 pixel resolution. The keyboard is the only little niggle that we could find because the unusual decision to go with five rows instead of six can be ergonomically jarring.

Notable Mentions

Sony VAIO Pro 13

Others may claim otherwise, but for us, the Sony Vaio Pro 13 was the first ultrabook running the Intel Core i5-4200U Haswell processor, to be available in the market. The chassis is made from carbon fibre, and the sharp design makes this a looker. Little ergonomic goodies include a keyboard that has a slight elevation towards the back, because of the overall thickness spread, making typing a bit more fun. The Full HD display, extremely good battery life and the latest generation processor put this laptop very close to the top of the benchmark charts. This ultrabook is available in an i7 variant as well, for those who want more power. This is a lovely, sleek and powerful device and an ultrabook in the true sense of the word.

HP Envy TouchSmart Ultrabook 4-1113tu

While the TouchSmart Ultrabook 4-1113tu isn't the slimmest in this category, we need to appreciate and recognize the fact that the latest generation Intel Core i5-4200U processor does make this a good machine to consider, if you're looking at a purchase to last you at least a couple of years. The system held its own in all our tests and that, coupled with the six hours of battery life make this a highly recommended ultrabook any day. As expected, the keyboard is easily among the best we've seen, coming from HP. The build quality would feel right at home on a more expensive laptop. This is a more affordable laptop than the others here. but don't let the price fool you. It's one hell of a deal.



ASPIRE S7 - 392

Price: ₹1,05,000



◀ **ASUS RT-AC68U**
Price: ₹18,000

Routers

An ordinary year for routers since there hasn't been a huge leap in throughput nor has there been any new feature that managed to make a considerable impact. AC1900 devices started appearing on the market and it can be said that the products are simply following the evolutionary path. All WiFi protocols use amplitude modulation and over the years the density of the modulation has increased and TurboQAM is what Broadcom is calling their implementation of the feature.

Broadcom's BCM4360 is what lies at the heart of all AC1900 devices currently available. The BCM4360 is capable of running three spatial streams and is the reason why we get 600Mbps on the 2.4GHz band and 1300Mbps on the 5GHz band. Certain companies still tend to use an inexpensive chip on the 2.4GHz band since that throughput is not going to increase in the next year or so. 802.11ad is still in the works and by the looks of it would be way ahead of its time given the massive 7Gbps throughput that it's designed to provide.

There are about three AC1900 devices on the market at the moment namely, ASUS RT-AC68U, Netgear Nighthawk and Linksys EA6900. Moreover, they are all using the BCM4360 for each band. However, we did see that the first dual core processor has made its way into routers and it seems that a new battle is about to begin in the routers segment.



TP-Link TD-W8968
Price: ₹2,349

BEST BUY:



DG-BR4000N/E
Price: ₹1,300

(Single Band)
Digisol DG-BR4000N/E happens to be a run of the mill budget router with 802.11n 150Mbps support. Compared to others in its price range it offers the most features and that is what won it the Best Buy Award for routers.



DIR-810L
Price: ₹3,799

(Dual Band)
The D-Link DIR-810L offers decent throughput to manage a minimum of two clients streaming HD content on the 5GHz band while all the rest are surfing away happily on the 2.4GHz band without worry.

Zero1 Winner ASUS RT-AC68U

Being the only AC1900 router that we tested this year, it came as no surprise when the ASUS RT-AC68U took the crown. The router is built well and has three adjustable antennae so there was nothing out of the ordinary when viewed from outside. The firmware is a modified DD-WRT which is quite feature heavy on its own and moreover since this happens to be the flagship product it enjoys regular updates. The router is ideal for environments with lots of clients and a heck lot of large sized file transfers. Did we mention that this happens to be the first router that has a dual core processor at its heart? Yup, that and two USB ports (1x USB 2.0 and 1x USB 3.0) at the back complete the package.

Notable Mentions TP-Link TD-W8968

For starters, it has a high enough throughput to handle two or three clients and stream HD media simultaneously. The two 5 dBi antenna coupled with its base transmit power is enough to ensure good signal coverage throughout an average middle-class house. It supports ADSL as well as cable connection both of which make up for the most prevalent types of internet connections in the country. On top of that it has a USB 2.0 port. Overall, it seems like the folks over at TP-Link were determined to give the customer as many features possible within a feasible price point.



Point-and-shoot

This has been a rather exciting year for point and shoot cameras. The consumer has been demanding more from this segment, pushing manufacturers to get very innovative with not just the design, but features and performance as well – companies had to get creative.

We saw a major influx of many new models this year, but the focus on enthusiast point-and-shoot cameras was obvious – bigger sensors, faster lenses, better optics and control-centric ergonomics.

Point-and-shoots have evolved to the point where they're rivalling entry-level DSLRs – with sensors as large as those on DSLRs, amazing optics and fast apertures, great ISO performance, fast AF systems and even the provision of Hotshoe.

Zero1 winner

Sony RX100 II

Sony took the point-and-shoot (PnS) industry by storm when they introduced the RX100 last year. We thought the camera was pretty much perfect the way it was, but then Sony went ahead and made our favourite PnS even better. The focusing is the fastest we've seen in a PnS, incredible high ISO performance and in the latest addition, a much loved hot-shoe. It even improved video, image quality and retains the incredibly compact form factor that allows it to slip into a pocket.

Worthy mentions

Fujifilm X20

It's almost as pricey as the RX100-II, but a camera for a whole different league. The Fujifilm X20 is designed



▲ POINT-AND-SHOOT CAMERA: SONY RX100 II

Price: ₹42,000



Fujifilm X20

Price: ₹40,000



Olympus Stylus XZ-2

Price: ₹31,000

like an old time rangefinder and sports a 2/3 inch sensor and a 28-112mm f/2.0-2.8 lens. The fast aperture makes this camera a low-light champion, not requiring the need to go to obscenely high ISO numbers. We love the camera for its design, for its really good performance and our penchant for nostalgia.

Olympus Stylus XZ-2

The Olympus XZ-2 is a little known camera in our circles, but those of us who have used it, can't stop singing it's praises. It's a 12 megapixel shooter with a 28-112mm f/1.8-2.5 lens. The camera is incredibly quick to focus and thanks to the aperture range, is able to work quite well even in low light. Our favorite part about the XZ2 is just how light it is, and how easy a camera it is to use. Anyone from an amateur to a pro shooter would benefit from having one in their kit bag.



◀ MIRRORLESS CAMERA: OLYMPUS OM-D E-M1

Price: ₹1,05,000

Mirrorless

These started out as glorified replacement options for point-and-shoot (PnS) cameras, with the added benefit of interchangeable lenses. Over the last five years, they've evolved into a segment that is giving the DSLR market touch competition.

It started with Panasonic, but Olympus, Sony and Fujifilm have since contributed significantly. Fujifilm brought some serious quality lenses to the market while Sony made the technology widely available at very attractive price points. This year, we saw some groundbreaking announcements such as the first full-frame mirrorless camera, the Sony A7, and we



also encountered some products that failed to leave any noticeable mark such as the Canon EOS M. In the end though, there's always only one winner for the Zerols, and here it is:

Zero1 winner

Olympus OM-D E-M1

The Olympus OM-D E-M1 is a DSLR-styled mirrorless camera that packs 16 megapixels onto a micro four thirds sensor, and while it's a smaller sensor than its Sony and Fujifilm counterparts, it's in no way a shy performer. The E-M1 has the fastest auto focus we've seen in a mirrorless camera. The image quality is absolutely stellar even at high ISOs and the number of lenses available for this system outnumber all others. The camera is incredibly versatile with a lot of configurable buttons that makes it easy to use for anyone. The best part about the camera is the twin-dial setup on the grip that allows settings to be changed not just quickly, but by using just one hand! This camera offers semi-professional DSLR performance with its fast AF, 10 frames per second burst mode speed and stellar image quality. While a few would consider it a little pricey, we think it's money well spent.

Worthy mentions

Fujifilm X-M1

Thus far, Fujifilm's X-series seemed targeted at a more exclusive buyer – going by the prices of the X-Pro and X-E1. However, with the launch of the X-M1, Fujifilm now offers a no-frills mirrorless camera for the masses. If you've loved the X-Trans sensor as much as we have, but couldn't afford it, well, now you can. Not only does it match the X-Pro1 and the X-E1 in terms of dynamic range and high ISO performance, it also packs in a Wi-Fi chip that the more expensive brethren don't have, and a tilt screen to make shooting with it even easier!

Panasonic GX7

The company that started it all! Panasonic has gone from having one mirrorless camera in its arsenal to having four distinct lineups in the same segment aimed at all kinds of users. The Panasonic Lumix GX7 is a camera that technically belongs to the enthusiast/semi-pro class, but this is a camera that breaks many boundaries. It may have a micro four thirds sensor, but it still delivers exceptional images, except in low light (one candle lit) scenes. The touch-based AF is just phenomenal and though not as fast as that of the OM-D E-M1, it has the ability to let you move the AF points around by just dragging your thumb across



Fujifilm X-M1

Price: ₹42,000



Panasonic GX7

Price: ₹57,000



Canon EOS 700D

Price: ₹51,000

the gorgeous 3-inch screen on the back. It also sports an electronic viewfinder that you can tilt upwards by 90-degrees so that you can frame your shots better.

The GX7's strongest suite however, is its boat-load of customisable buttons that come pre-mapped to the most commonly used features – even a complete amateur can pick this camera up and shoot with it without wasting time looking for hidden controls. Pros will love it too – it's versatile, compact (yet robust), and Panasonic (coupled with Olympus) offer a lens portfolio that is unmatched.

Entry-level DSLR

Digital Single Lens Reflex cameras have traditionally been the territory commanded by serious professionals, mostly due to the fact that in the earlier years, these cameras were crazy expensive and if you really wanted to get one, it would cost you a house, a car and maybe even a kidney or two. However, as is customary with technology, prices fall and target audiences expand.

To be honest, we've always had our reservations about this segment, since the cameras don't offer the right balance between price and performance for us, but even we're impressed with the 2013 launches.

Zero1 winner

Nikon D5200

The Nikon D5200 is a significant upgrade to the D5100. The EXPEED 3 chip that replaces the older one in the D5100 helps in fast function, but it's the AF system that impressed us. Of the 30 focus points, 9 are cross type, which help significantly when it comes to shooting moving subjects and even help in locking focus in low light. Speaking of low light, the 24 megapixel sensor can handle going all the way to ISO 6400 without generating any colour noise. Even when noise does start creeping into the shots, it looks more like fine grain rather than image destroying red-blue blotches. The D5200 is our best performer of 2013, despite not being the most expensive in the running. Impressive.

Worthy mention

Canon EOS 700D

Essentially the EOS 650D in a new body, the EOS 700D didn't really bring anything new to the dSLR table.



◀ **ENTRY
LEVEL DSLR:
NIKON D5200**
Price: ₹38,000

Many assume that since Canon had to issue a recall on several EOS 650D units due to faulty grips, the camera garnered a negative image and the EOS 700D is an attempt to move on from that tarnished image. The inside is identical to the 650D, but the outside is better. The touchscreen is as responsive as any high-end smartphone, but doesn't really add any value as such to your images.

Semi-Pro DSLR

Last year was actually a better year for dSLRs than 2013. We saw more powerful models introduced in 2012 – Canon EOS 5D MarkIII, Nikon D800, the Canon 1DX and the Nikon D4. While the entry-level segments saw their updates coming in like clockwork, the only expected release everyone hoped for was that of the Canon 7D MarkII. Unfortunately, many were left disappointed. The focus this year seemed to be advanced point-and-shoot and mirrorless cameras, but that didn't stop Nikon and Canon from releasing two new semiprofessional dSLRs this year. Both cameras are quite a step up from their predecessors and if you're in the market for a new camera, we strongly recommend stretching your budget to get either of these two.

Zero1 Winner Canon EOS 70D

Back when the EOS 60D was introduced, it was carefully designed to not step on the 7D's turf. The 7D was at the time heralded as a mini 1D series camera and the 60D thus ended up feeling some-

what underwhelming. The Canon EOS 70D comes out to fix that and then some. The EOS 70D packs the first of its kind Dual Pixel AF CMOS sensor, which allows the camera to achieve near silent AF during Live View and filming mode. Its incredibly effective when paired up with an STM lens or the higher end USM lenses for a much better video shooting experience. The camera also packs the familiar touchscreen from the EOS 700D which adds to its versatility. The best aspect, however, happens to be the fact that the EOS 70D has inherited the EOS 7D's AF system in all its 19-cross-type AF point glory. The EOS 70D impressed us in every test we threw its way – even managing some pretty neat images at high ISOs. If you venture into low light with this camera, you will not be disappointed. In fact, if you buy this camera for anything, you won't be disappointed. Just don't try to shoot F1 races with it.

Worthy mention Nikon D7100

The Nikon D90 was a revolutionary camera for its time and segment, one that lived through the product cycle of the D7000, a camera that was supposed to replace the former. The D7000, unfortunately ended up being quite an underwhelming camera and those who had been long waiting for the update to the D90 were left a little too disappointed. Nikon's had its ear very close to the forums and out came the D7100. The D7100 is one hell of a robust camera that screams "serious chops" the minute you pick it up from the box. It has a 51 point AF system with 15 cross type, offering an adequate area of coverage. It tracks focus brilliantly, and maintains its potency even in low light. If you've been considering an upgrade for your Nikon camera, just go out and buy the D7100 with your eyes closed.



◀ **SEMI-PRO DSLR:
CANON EOS 70D**
Price: ₹78,000

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Processors

This year started off with nothing coming out in Q1 while towards the end of Q2 saw the launch of Intel's Haswell CPU family bringing in 17 more processors into the highly crowded processor market. While we wouldn't say that a momentous boost in performance was achieved this year, since all increments were within the 5-10 per cent range, we've come to expect that for processors. Right around the same time AMD came out with a few processors based on its Piledriver architecture which weren't priced as well as AMD has done in the past. Top Haswell processors did compete well with the Piledriver models and it was the price that put the ball in Intel's court. Surprisingly, AMD is not going to launch any new FX-series processors next year, though the year after that may have something in store for us.

In the third quarter, we saw the IVB-E LGA2011 processors launch which on its own didn't need a new socket, and provided a similar boost as the Haswell increments we saw earlier. Since there isn't anything new other than the marginal performance increment most enthusiasts are looking over to skipping this launch and hoping that Haswell-E which should launch late next year would make for a more worthy upgrade. Unfortunately, the X99 chipset will be out by then which will necessitate upgrading your motherboard as well.

Moving on, we had plenty of refreshes in the APU segment which has been found to be worth the investment given the graphics performance increment. Not only AMD, but even with Haswell the HD4600 on-chip graphics made for a worthy increment in performance. However, it can be said that AMD still has a good grip in the segment and is doing great. Ivy Bridge launches have moved on to the more budget friendly Pentium moniker with plenty of G series processor coming out. The most interesting news by far given processors was that both next gen consoles (Xbox One and PS4) have gone ahead with AMD's APUs and have moved to an x86 architecture. Great news for developers and PC gamers since we won't have to endure too many more crappy console ports.

Zero1 winner

Intel Core i7 4960X

There hasn't been a CPU comparison this year at our Test Centre which means we couldn't get our hands on most of the new launches. However, going by sheer



INTEL CORE I7 4960X ▲

Price: ₹75,100

performance the winner for this year is no surprise. The Intel Core i7 4960X offers an performance boost of barely 5-8 per cent over its predecessors. Though the power draw has been significantly reduced owing to the 22nm manufacturing process used for this iteration. Overall, this doesn't seem that big a launch since it has been two years since 3960X launched and all there is to show for this period is a meagre increment in performance. Not having a new socket to go with this launch does help since there would be hardly anyone willing to upgrade from a 3960X otherwise. However, if the 8 per cent does matter in your line of work then by all means go for it, it'll most likely pay off in a few months till you can get your hands on the Haswell-E.



Intel Core i7 3960X

Price: ₹56,000



Intel Core i7 4770K

Price: ₹24,000

Notable mentions

Intel Core i7 3960X

Since these are still available on the market and their performance is similar to the 4960X the 3960X is still a better choice economically. You're essentially getting the same product at a much lower price. The Haswell-E processors will be worth the wait though.

Intel Core i7 4770K

If getting your money's worth is a concern then the Intel Core i7 4770K is the processor for you. A refresh over last year's 3770K, the 4770K offers better performance in regards to processing and graphics capabilities. Everything else remains the same, but it still makes for a fair purchase since the unlocked multiplier now scales to 80 in comparison to Ivy Bridge's 63, however, even though it is based on the same manufacturing process Haswell has been criticised for ramping up to really high temperatures when overclocked, which is something you'd want to keep in mind.



Graphics Cards

Plenty of changes this year from both camps. NVIDIA started off early in May with its 700 series GPUs and the launches will continue well into the next year given that we've yet to see the elusive 790 or any Ti variant if there ever will be. The Titan was launched early this year and blow away our minds it did! Sorry for the Yoda-speak but a card having 6 gigabytes of memory seemed a bit ahead of the times but then again gaming isn't all that can be achieved using graphics cards. The mid-range and low-end cards were again victims of rebadging where older GK104 chipsets were used. This isn't anything new and has become a standard practice even by the competition. The conference held in Canada saw NVIDIA showcasing Shadowplay - a service that let's you capture and stream your game using your graphics card. Another highlight was GeForce Experience which logs your game settings and your computer configuration and sends it to NVIDIA. Using data from all its users, GeForce Experience can suggest graphics settings that would get the best out of your computer configuration.

AMD has been working hard and they finally unveiled a new series this September which not only boasts an architecture revision but also a new nomenclature system. However, turns out that just like NVIDIA, almost all cards were rebadged with Tahiti chips. Only the R9 290 and the R9 290X featured the new Hawaii chipsets and they sure did perform great. One of the most talked about things that AMD did this year was come out with Mantle, a new API that allows programmers direct access to the GPUs memory and reduces CPU overhead. They claim that Mantle can call about 9 times more draw commands compared to other higher level APIs. The first game with Mantle is already out and we're sure you've heard of it - Battlefield 4. However, we'll have to wait till mid-December for the update that claims to make the magic happen. AMD seems to have incorporated Raptr's client into their driver which is very similar in function to GeForce Experience.

Most of the high-end offerings are out and the mid-range and low-end cards are being introduced on a regular basis. Dual GPU cards are yet to be released though aftermarket cards like the ASUS 760 MARS have been released. With the new chips from both camps coming very close, the onus is now on Nvidia to do something in order to regain the edge they had over AMD or we could see a shift in sales statistics soon enough.



◀ **NVIDIA GTX 780 Ti**
Price: ₹59,000

Zero1 Winner

NVIDIA GTX 780 Ti

The GTX 780 Ti was released soon after the R9 290X and it retook the crown of the fastest GPU with at least 5% increment in performance over the Titan with certain benchmarks pulling about 15% increment which is considerable. Functionally, it has 16 texture units and 192 stream processors than the Titan. What's even better is that the GTX 780 Ti is cheaper than the Titan which makes it the right choice if you are a stickler for NVIDIA products. What remains to be seen is how long it'll be before the aftermarket models arrive which are bound to have some sort of factory overclock raising the bar even higher.

Notable Mentions

AMD R9 290X

AMD's flagship has everybody all excited for two reasons. The first would be that these cards are powerful and offer the same performance as a Titan but at half the price. Secondly, there's Mantle which we've talked about. The Hawaii chipset outperforms the competition when crunching code written in OpenCL which even the Tahiti chips did with ease. The card is built in the same manner as previous AMD cards with the same noisy fan, however, performance wise it offers a significant improvement with up to 20 fps increment in AAA titles.



AMD R9 290X
Price: ₹38,000



ZOTAC GTX 780 AMP! Edition
Price: ₹48,000

ZOTAC GTX 780 AMP! Edition

This triple fan graphics card comes with a factory overclock that pushes it way ahead of the stock GTX 780, so much that it nearly equals the GTX 780 Ti stock card in terms of performance. In some of the gaming benchmarks we ran, this card performed slightly better than the GTX 780 Ti but the difference wasn't much greater than the error margin. Being an aftermarket card, this boasts better construction and would thus be preferred over a stock card.



Gaming monitors

These are the most apparent gateways to your digital world. Regardless of that mini-supercomputer humming away at your feet, nothing would be possible in the digital world without a good display to complement the computing power at your disposal. A monitor is something you should never scrimp on, a good monitor will last longer than your PC and there's no point in having a 780Ti when you can't even properly see the pixels that it's pushing to your screen.

We haven't been seeing too much innovation in this segment, though the bump to 4k is one we are curious about. Sadly, we're yet to see even 1440p being adopted as a resolution of choice amongst gamers, though we will admit, price is quite a barrier. That said, if you're ready to spend 40k on a "gaming" monitor, spending that money on a higher resolution display might be more suitable.

Some interesting monitors we've seen have included NVIDIA's 3D Vision and webcams, but we truly feel that nothing beats a well-calibrated display running at 120Hz – everything else is either just a bonus or fluff. What we're looking for in our tests are monitors with an excellent response time, minimal ghosting and a great contrast ratio.

Zero1 winner BenQ GW2760HS

With a true 8-bit VA panel, this monitor is easily among the best monitors we've tested, in terms of image quality. The contrast ratio was a stellar 1200:1 based on our tests and this is more than we've ever seen before, including on the professional-grade monitors that pass through our test labs from time to time. This extreme contrast ratio is more a result of the inky blacks than blinding brightness and that's a very good thing as far as eye-strain goes. This monitor also fared fairly well in our tests for flicker and response time, easily out-classing many of the similarly priced moni-



▲ BenQ GW2760HS
Price: ₹21,000



ASUS VK278
Price: ₹24,000



BenQ XL2720T
Price: ₹35,000

tors. Professional monitors aside, this is the best 27-inch panel that you can buy today. We only wish the resolution was a bit higher.

Worthy mentions ASUS VK278

This monitor's a great all-rounder, a monitor with a nice balance of features and performance. The contrast ratio of 900:1 was second only to the GW2760HS mentioned earlier, with deep blacks that fall just short of the latter. Those blacks are coupled with a powerful backlight that helps boost the contrast ratio to the levels we measured. The monitor fared very well in our black level test and almost all the desired boxes were visible. We did notice an issue with flickering in our flicker tests, but we doubt anyone will actually notice as our tests are very harsh on the monitors. This monitor also packs in a webcam (and in effect, a mic) and a "dynamic" backlight system to help boost contrast in demanding situations. All these factors come together to create a monitor that is definitely worthy of mention in this category.

BenQ XL2720T

This monitor was a surprise winner for us. Right out of the box the colours were washed out and the backlight a bit too bright. The display seemed harsh and we didn't feel comfortable using the monitor. After half an hour spent calibrating the monitor however, there was a significant improvement. An improvement so marked that it might have been an entirely new monitor (a better one) that we were testing. Our Spyder 3 estimated the monitor's contrast ratio at 800:1, again a very high figure, but then again, you weren't expecting any less in this category were you?

To be very frank, the other monitors mentioned here were better in terms of image quality, but this one sneaks in an excellent refresh rate and a flicker-free display that smokes the competition. The XL2720T aced all of our flicker tests and while it didn't perform spectacularly well in our black and white saturation tests, the results weren't too bad either. What sets this monitor apart from the rest is the Nvidia 3D Vision integration. The device natively supports 3D Vision and the boosted brightness and skewed contrast that we initially noticed was because the monitor was actually trying to compensate for the slight dip in brightness and contrast that we would see while using the 3D glasses. This is definitely a must-buy if you have a 3D Vision kit lying around.



All-in-One Desktops

The writing's been on the wall for quite some time, however hard we try to ignore it. Desktop computing is no longer a booming business compared to the tsunami of tablets and smartphones launching every minute. More than just a cliched catchphrase, the post-PC era is a reality and we're already living in it. That's why last year, we never did test (m)any desktops, let alone any AIOs. But something sparked a second coming of sorts for the desktop PC (now sitting in the shell of an AIO), and Microsoft deserves a lot of the credit for reinvigorating this space.

With the launch of Windows 8 last fall, there was no doubt that PC manufacturers had renewed incentive in launching Windows 8 tablets and touch-enabled AIOs. This sparked a lot of innovative AIOs to come out – traditional AIOs with multitouch screens, 20-inch tablet versions with a bundled battery, hybrid AIOs with two separate processors and a detachable screen, to name a few notable trends witnessed this year. After grinding to a complete halt last year, the wheels are slowly but surely back in motion as the AIO segment regains all its lost momentum. And the steady stream of products from OEMs is a sign that all-in-one desktops are busy reinventing themselves and trying hard to reach out to a new audience. The steady stream of products slowly rolling out from OEMs, the reinventing that's happening, the fact that what we saw at shows like CES and CEBiT last year are trickling down to the masses, all these indicate that AIOs are not going to go down meekly.

Zero1 Winner

HP Pavilion 21-a255in

This machine pleasantly surprised us by comfortably edging out the rest of the competition. It's combination of a good processor paired with very good graphics running on a 7200 rpm drive supported ably by an adequate quantity of RAM proved enough. The fact that it outperforms some of its higher-priced brethren (a la the two 23-inch HP AIOs) is a strong testament to its unique quality. Not just in benchmarks, it also does a stellar job of passing our real-world tests – including stuff like watching 1080p video, better-than-average onboard speakers, and a vibrant, Full HD display. We even did some casual gaming on the thing, and you can get by on the latest games on medium settings. It doesn't stop there, as



◀ HP Pavilion 21-a255in

Price: ₹48,990

the machine is quite petite, compact and well-built; its keyboard and mouse are great to work with as well. Having three years of warranty – which is the best in this category – is another thing going for the HP Pavilion 21.

Close but no cigar:

Lenovo IdeaCentre A730

We know looks don't count for a lot in the Zero1 Awards, but the Lenovo IdeaCentre A730 is quite a stunner – an uber cool, premium, Apple iMac-esque AIO with an all-aluminium shell and sturdy design and frame. Its slim, 27-inch, multi-touch enabled screen is gorgeous in quality, and the A730's central stand has a full-90 degree tilt capability, allowing it to be used as a regular desktop and touch-enabled, flat, table-top PC. It has an enviable feature set, not to mention a Blu-ray drive and a quad-core Haswell chip complemented by the latest NVIDIA graphics. It's a machine that you absolutely must consider if you're in the market for an Apple iMac lookalike with top-of-the-line hardware, great feature set and just a unique user experience.



Lenovo IdeaCentre A730

Price: ₹1,25,990



ASUS Transformer AIO 1801

Price: ₹1,12,500

ASUS Transformer AIO 1801

The ASUS AIO Transformer is an interesting concept. It's a 3-in-1 PC that tries to cover all bases and appeal to a multitude of users, packing in an 18-inch tablet that's powered by an Nvidia Tegra 3 SoC running on Android. This does double-duty as a tablet as well as a remote display for the Transformer's base station. The second half of this machine is an AIO PC that's powered by an Intel Core i5 processor and an NVIDIA GT730M running on Windows 8. If you want a truly all-in-one device, this is the one to go for.



◀ Monochrome MFDs:

BROTHER 7065DN

Price: ₹15,110

Monochrome MFDs

Whether for home offices or large corporations, MFDs are a staple at all workplaces. Their job is just to print, scan and fax documents at a fast and economical rate. The devices can range in complexity from bare bones, no-name boxes that just stay in a corner somewhere and tirelessly churn out pages or they can be flashy devices that take the form of office attractions for the more banal among us. Either way, these devices have a job to do and they must do it well.

There really can't be much innovation expected in this space, but Epson was one that surprised everyone with their Ink-tank based printers. They use ink to print on paper, unlike the toners used in most monochrome MFDs. Because of this, they're supposed to print at miniscule costs (20p per page, excluding cost of ownership). From what we've experienced in our tests, these printers are perfect for those looking for a printer that just prints, regardless of quality. They produce prints that are a bit smudgy when compared to their toner-based counterparts and hence don't win any Zero1 awards. Another reason the Epson printers fell short was for the price. The M200 sells for close to ₹14,000, which negates the cost advantage that the ink tanks provide, unless you're printing upwards of 30,000 pages that is.

Zero1 Winner Brother 7065DN

The 7065DN wins our Zero1 award for its ability to churn out excellent prints at a very reasonable cost



Ricoh Aficio SP200S

Price: ₹8,700



Brother DCP- 1511

Price: ₹9,090

without a stutter. The MFD is not too large and while we wouldn't call it compact, it's of a manageable size. The print quality was great, the LCD functional and the speed more than acceptable. The printer looks like it's built to last. When we calculated the cost of ownership of the device, we realised that it's strictly average when it comes to cost per page, but in the long term, if you print a lot and use the larger capacity drum cartridges, the cost comes down dramatically. Not enough to edge out Brother's own DCP-1511 (₹2.8 vs ₹1.7 per page), but enough to make it worth your while. Without the drum cartridges, as a regular printer, this was the most expensive printer to run, but not by much according to our tests.

Worthy Mentions

Brother DCP-1511

This unassuming little white box of a printer caught us off-guard with its cost of ownership, a piddling ₹1.7 per page. The reason for this incredible performance is the pricing for the toner and/or refill, ₹2,800 for 10,000 pages, which isn't bad at all, especially when coupled with a printer that costs about ₹9,090. The performance on offer was also quite good. The performance was a mixed bag and not as consistent as that of the SP200S (also mentioned here), but it's overall performance was good where it mattered. It scored very well in our point-size copy test (to test a printer's ability to scan and print teeny-tiny fonts) but did fall behind in our actual point-size printing and mixed document tests; the quality of the scanned images was also not too great. This is a great MFD to consider if you want one that is dirt-cheap to run.

Ricoh Aficio SP200S

This one is smaller than the 7065DN, but that doesn't mean it's scrimping out on features or performance. The device is as capable as any MFD we've had in our test and was particularly impressive in our black and white photo tests. The performance was quite good and it just barely managed to sneak ahead of the DCP-1511 at a slightly lower MRP.



Colour MFDs

Companies are facing a problem when it comes to printers and MFDs because most people don't need them anymore. Photos are shared on tablets, tickets via SMS, paper has no value. To compensate for that, we're now seeing printers pop up with facebook and twitter integration, Wi-Fi and cloud printing support and much more. Why you would want to access Facebook from a printer is beyond us but that's beside the point. MFDs now want to be an extension of our digital lives, a transitory link between the analogue and digital world that will seamlessly link our devices to our printers without the earlier "hassles" of configuring drivers on our PCs. We're seeing more and more printers that are perfectly fine as stand-alone devices that can interact directly with your tablet or smartphone.

Other than this attempt at seamless integration, we've not seen anything new from this category other than maybe Epson's ink tank design that we've spoken about in the section on monochrome MFDs.

Zero1 Winner

HP Deskjet InkAdvantage 6525

If image quality is what floats your boat, this is the MFD for you. The 6525 features what is easily the best print quality among all the devices we received, and by a wide margin no less. What was even more startling was the print quality in our text copy test, where a plaintext document was scanned and printed. The quality of the output was so good that we couldn't differentiate between a print of the original and the facsimile.



Brother J6250DW

Price: ₹11,920



EPSON L355

Price: ₹16,000

The one area where this printer really lost out was in our OCR tests. The sample we used was admittedly a tough one and few MFDs actually did well, but on a comparative scale, the HP performed half as well as the rest of the competition. Regardless, this MFD aced every one of our text print tests and was able to pump out sharp text at almost all the font sizes that we use in our point-size tests. The device comes with integrated Wi-Fi connectivity and features HP ePrint support as well as the ability to scan and e-mail images directly from the device itself, among other things. This is definitely a great printer and while the scan quality may not be stellar, it's more than adequate for SOHO use.

Worthy Mentions

Brother J6250DW

The first thing that stikes you about this MFD is how professional it looks. Now we know that's not a criteria for measuring performance or awarding our Zero1 awards, but a snappy dresser is always noticeable regardless of what else he does. The printer is relatively compact and light, but is a great performer nonetheless. The text prints were legible and sharp and so were the colour prints. The image quality was a just a little sub-par when compared to other photo-printers, but it's good enough that the average person won't notice the difference.

Another point to note about this MFD was its speed; the scan speed was the fastest we've encountered so far (at 300dpi) and even the print speed was quite good. The speeds are nowhere near that of laser printers, but they're close enough.

EPSON L355

While everyone else was busy working on improving technology, Epson snuck in with their ink tanks. These printers are great for one reason and one reason alone, price. The print quality is strictly passable and filling up the ink-tanks is a really messy business. Thankfully, that's all we have to say against the L355. The print speed was about average and the scan quality was decent, nothing to write home about, but when it comes to running costs, that's where this MFD shines. The ink refills cost almost nothing and the cost of ownership is barely ₹5 per page, half that of most other printers in the category. No matter which way you cut it, this printer is cheap to run. Sure, the output seems a tiny bit blurry and some might even argue that the build quality isn't too great, but when you're looking for an office printer that will churn out colour prints at low rates, look no further than the L355.



▲ Colour MFDs:
HP DESKJET INKADVANTAGE 6525
Price: ₹11,000



Audiophile headphones

Audiophilia, at least the way it is practiced, is more of a cult than a science. It's so subjective an experience that over the years esoteric customs have evolved in this subculture such as obsession over specialist cables, burn-in times, vintage amps and hundreds of nebulous ways in which audiophiles try to quantify their experiences into words.

The makers of audiophile gear, in this case headphones, couldn't possibly be complaining. They are only too happy to supply a hungry audience with tweaked and tuned headphone variations to suit every subjectivity-ridden ear. The sweetest outcome is that we get to try out so many different units and models through the year that it's eargasms all year round.

This year saw some genre-defining audio pieces come into the test center. From the house of Sennheiser to Audio-Technica, Logic3, AKG, Harman/Kardon – we had a variety to die for. That being said, recency in the audio realm isn't all that paramount, because a 10-year old design could still kick some "cutting edge" contemporary @\$\$.

Zero1 winner Sennheiser HD 700

From the moment you hold them in your hand you know right away you're going to be privy to something great. The ear cups are open circumaural and the stainless steel grille mesh on the outside is more than just eye candy. It is specifically designed to direct and control the flow of air and reduce harmonic distortion. There's



Harman/Kardon CL

Price: ₹9,990



Sennheiser Momentum

Price: ₹24,900



Audio-Technica ATH AD500X

Price: ₹9,990

virtually no isolation, but sound quality is superlative. The sound signature is almost sparkly and so open, you get a brilliant wide soundstage. Vocal performance does not take a beating even when the instrument density is high. They are fairly neutral, which for most people means bass shy. As for the performance the headphones deliver brilliant dynamic range – you'll hear everything from the quietest clink of a feather touched cymbal, to the loudest scream of a wailing guitar.

Worthy mentions

Harman/Kardon CL

The headphone has a particularly sweet sound signature. You'll especially relish these if you're preference in music is guitar driven rock. By and large supra-aural headphones have a tough time competing with circumaurals in terms of comfort, but these cans are extremely comfortable even over extended listening. Bass is accurate and just the right amount over the standard flat response neutral headphones. Definitely worth the asking price.

Sennheiser Momentum

The higher-end of the spectrum is powerful on the Sennheiser Momentum. Vocals are always given equal attention as the rest of the mix, which is critical for most tracks. In essence, the Sennheiser Momentum is very comfortable with all kinds of music – upbeat, unplugged, or even the slow tracks. Appeal to a wide demographic is pretty difficult for most audio equipment, but the Momentum does seem to have its grip on what is pretty much the perfect balance.

Audio-Technica ATH AD500X

The AD 500X takes off from where the AD300s left off, but manage to take the sound quality several notches higher. If ever you are looking for the definition of a bright sound signature these are the cans. For the price, these are perfect circumaural headphones for home. Period.

AKG K551

For closed back headphones the AKG K551 is surprisingly open and airy. The precision and clarity is through the roof. We get the same precise flat-response signature we loved on the older K271 MKII or K240 MKII we had with us earlier this year. However – and this is a huge listener's bias – they will be construed as bass shy for sure by most people. If you want your 20 to 150 KHz space bumped up these are not the cans for you. As for being portable they do fold flat but the ear cups are huge – if you want precision, however, look no further.



◀ HEADPHONES –
AUDIOPHILE:
SENNHEISER HD 700
Price: ₹59,990



Gaming headsets

Gaming headsets are a very funny bunch. The ideal headset is a matter of grave debate among pro-gamers and audiophiles wouldn't be caught dead with one of them.

When we're talking about gaming headsets here, we're talking about sets that are meant for gamers; sets that provide a gamer with an enhanced toolset and actually advance his skillset as a gamer. For this reason we've completely ignored "true" 5.1 and other such surround sound headsets. They have their place, but they're better left in a class of their own.

We haven't really seen much innovation in this category and that's to be expected. A good headset, whether it's brand-spanking new or a decade old, will still sound good because the way we fundamentally experience sound hasn't evolved. You have diaphragms that move and create pressure waves that you perceive as sound via your ear, that's it. We have seen some really cool designs, especially those from ThermalTake and Razer, but when it comes to pure performance there can only be one winner.

What differentiates a gaming headset from that preferred by an average user or audiophile is the sound signature. While an audiophile set will need to be tonally accurate, a gaming headset is supposed to be very light on bass and especially capable of reproducing voices accurately. Basically, every sound that the game can produce must be heard by the gamer, the quality itself shouldn't matter as long as the gamer knows what's going on. It's a very fine line to walk and one that many manufacturers stumble on and end up making sets that are just plain bad rather than useful. Gaming headsets are not about outrageous colours and design, they're about audio quality, but a quality determined by a different set of benchmarks.

Zero1 winner SteelSeries Siberia V2

This set has impressed us from day one. There are many variations of this set, such as the Frost Blue, Diablo III edition and a Heat Orange edition, but all of these variations are just cosmetic upgrades and they're still based on the original V2's design and have the same aural characteristics. What makes these sets special is the way they handle audio from games. A gaming headset is supposed to reproduce all the aural feedback that a game is providing in the most accurate



◀ HEADPHONES – IN EARS:
STEELSERIES SIBERIA V2
Price: ₹11,890

way possible and if this means that atmosphere and thump has to be sacrificed, so be it. Other manufacturers have tried to do this, but few have succeeded in reproducing that feedback with a minimal loss in tonal quality the way these SteelSeries V2 based sets have. There is a distinct lack of bass, but it's not as bad as on some of the other sets that we've heard and the positioning is spot on. The headset is definitely on the more expensive side, but it's worth it if you are, or have aspirations of becoming, a pro-gamer.

Worthy mentions

ThermalTake Level 10M Diamond Black

This lovely red and black headset is easily among the best looking sets we've received at our test labs; the guys at BMW's Designworks have done a stellar job in creating this piece of art. That excellent design needs to be mated with excellent audio quality for the effort to be worthwhile and for the most part, ThermalTake has succeeded. The audio is very accurate, as accurate as the Siberia V2 in fact, but the bass is more severely reigned in than on any other set we've tested, completely ruining the ambience in many games. That said, this is supposed to be a professional set for pro-gamers and to that audience, it gives them exactly what they need. The only reason this set didn't win a Zero1 award is because the SteelSeries V2 was a more comfortable and had a better sound signature.



ThermalTake Level 10M Diamond Black

Price: ₹9,900

Logitech G230

As good as the Siberia V2 are, they're for a very niche audience and not everyone will want to spend money on them. For the more mainstream gamer, the Logitech G230 is the set we would recommend. The set is quite capable of positioning audio sources accurately in games and while it isn't as precise as the V2, the shortfall is compensated for by more enhanced bass that does offer a better overall experience than the V2. This set is a great all-rounder, and we recommend it to anyone in the market for a decent gaming headset. It does have an elder brother, the G430, a worthy contender in itself, but if you're going to spend that much on a set, you might as well get the SteelSeries V2.



Logitech G230

Price: ₹5,495



In-ear headphones

This is a hotly contested category with sets ranging from below to ₹1,000 to well into the ₹60,000 range. In-ear headphones have a major advantage over other types of headphones and headsets in that they deliver the sound directly into your ear-canal, usually isolating background noise quite considerably. They're also a bit more secure in your ears when compared to other types of headphones and thus, all these features together make in-ear headphones the ideal headphones for everyday use. We have seen a few interesting designs pop up over the years, most notably Sony's XBA series that feature balanced armature (drivers are balanced, meaning they're both calibrated to sound exactly the same) and a few other variations with multiple drivers. Overall, we've been quite impressed with the sets that we've come across.

Zero1 Winner

Bose QC20i

To be completely honest, we weren't expecting this set to win our Zero1 award at all. The competition was very stiff, especially from the Logitech UE900, which we'll talk about in a bit. The QC20i is a remarkably well-built set and has an unusual ear-piece design, it's a bit hard to describe so we'll let the image below explain. Despite looking large and ungainly, the silicon ear-buds are comfortable and form a very nice seal in the ear canal. Oh and before we forget, the set comes with an Active Noise Cancellation (ANC) unit that's integrated into the cable. The ANC feature is particularly useful and does an exceptionally good job of cutting out background noise, especially voices. We did notice that the audio quality was very markedly improved when noise cancellation is turned on, and not just because there was less background noise, but almost seems like it's been deliberately muted to show off the feature.

The audio is very precise and the entire frequency range sounds just lovely. If we had to nit-pick, we'd say that the audio is just a little bit too harsh in the higher frequencies, especially in very heavy tracks, but that's like saying a Ferrari gets a bit jittery



Logitech UE900

Price: ₹34,995



Martin Logan Mikros 70

Price: ₹9,900



▲ HEADPHONES:

BOSE QC20i

Price: ₹22,388

above 250kmph. It's expensive, those who can afford them will not be disappointed

Worthy mentions

Logitech UE900

This was a set we really wanted to love. It seemed to have everything going for it, replaceable cables, a stratospheric price tag and a killer reputation. Sadly, while this set was definitely among the most precise sets we've heard, there were a few minor issues which ended up denying it the top spot.

The cables that these headphones come bundled with seem very sturdy and we really doubt you'll manage to damage them easily. They're also replaceable, meaning you can just pop off the driver units and replace the cable as and when you wish to. There's also a considerable assortment of ear-buds of varying sizes made of foam and silicon, so every possible ear is covered.

The audio quality of these headphones is simply stellar, however, the set does have major issues at higher volume and there's much more distortion than we would like, especially in the bass. Also, there was a very prominent hiss that seemed to be a side effect of this set being hyper-sensitive. If that wasn't enough, the awkward ritual you have to get through to actually don the set is, well, awkward.

The actual performance difference between the UE900 and QC20i is surprisingly small and, using a car analogy again, it's like comparing a Ferrari to a Porsche. You're going to have fanboys on each side arguing over the merits and demerits of one over the other. We awarded the Zero1 award to the QC20i for one very key factor, the QC20i offered the most consistent performance across varying scenarios as compared to the UE900. They're both great sets and it's definitely hard to pick one over the other. To a person who can afford either we can only say this, try them both out and see which one you prefer, either way, you'll be walking away with something special.

Martin Logan Mikros 70

This is another great set and if it wasn't for the super-expensive behemoths listed here, the Martin Logan Mikros 70 would have walked away with the Zero1 award. At this price, this set is just unbeatable. Now the audio is on the brighter side and the bass isn't as prominent as we would like, but we're only nit-picking and the only reason the audio seems to fall short is because we have the HD700 in our labs. Even if we have to be absolutely brutal while reviewing this set, it's still an excellent pair of cans.



GPS devices

As a standalone device, GPS navigators only appeal to those who really don't want to take any risks with navigation quality or consistency. To be honest, most people make do with apps on their smartphones.

Keeping that mind, GPS manufacturers have also provided apps. MapmyIndia has Maps on Mobile app for Android and Windows, with live traffic updated, while Sygic also used MapmyIndia maps for its very competent Android and iOS apps. Tom Tom upgraded the India app, which now is better than ever before, pretty much in-line with their extremely good standalone navigators.

Which neatly brings us to the topic of discussion - which is the best GPS navigator that we have tested this year. Well, the competition was tough throughout, to say the least. Last year, Satguide was a fairly important player, but this year, they seem to have taken a couple of steps back. No major navigation device launches from them, primarily. MapmyIndia trimmed the lineup, and added some rather competent devices - the Lx340 and the Zx350, the successor to our favorite, the Zx250. Tom Tom's new maps graced the VIA line-up, that has been carried on without any hardware change. However, the good aspects like quick boot and the readiness to navigate remain. Garmin added the Nuvi 2568LM to the product line-up, the successor to the very competent 2565LM, along with a few more affordable devices.

Navigation quality has improved considerably, with maps being updated more often, and more regions being covered. MapmyIndia's 3D Maps are pretty much unmatched. But, for the drivers, neat features like lane guidance are worth every penny spent on buying a navigator.

Zero1 Winner Tom Tom VIA 125

We just love these TomTom devices, and while these maps aren't 3D, they still look gorgeous and very much usable. Each VIA series navigator just goes about doing what it's supposed to do, in a very precise fashion. German precision, almost! And the VIA 125, with the bigger screen, is the best performer this year. Switch on any of the VIA devices, and it opens up straight on the Maps application. And straightaway, you are good to go. Extremely quick GPS lock times help as well. The amazingly clean UI is easy to navigate even for a newbie. The fact that we don't have to tap on a map app to start the navigation is one



TOM TOM VIA 125 ▲
Price: ₹14,000



step less. Voice guidance is at par with MapMyIndia devices, which is a huge positive.

Notable Mentions

Garmin nuvi 2568LM

Last year, the nuvi 2565LM was by far the best navigation device as far as map clarity and navigation precision is concerned. This time around, the updated nuvi 2568LM just takes the game further. The navigation quality is very good, be it on the main roads, a national highways or roads inside a colony. Navigation is precise - the nuvi 2568LM was the closest to the actual destination when it announced "you have reached your destination", in comparison to all other navigators. The impressive set of features are carried forward as is, but in a more streamlined UI - fuel average calculator, trends to guess where you may be going and little bits like currency converter, calculator, Bluetooth for phone calls, ability to customize the menu, etc. The UI is easy to navigate, thanks to a heady mix of big icons and clear text. This device is compatible with the rear parking camera, and Garmin packs in lifetime map updates with the device.



Garmin nuvi 2568LM

Price: ₹18,000



MapmyIndia VX140s Premium

Price: ₹10,000

MapmyIndia VX140s Premium

On cue with the price tag, the VX140s is true to its name - premium finish and a very sophisticated design. This device has received map upgrades that bring 3D landmarks and complete 2D maps. The interface is simple to get around, and MapmyIndia's prowess with address search makes this somewhat affordable (compared to the other two) navigator a rather good deal.

PROJECT ANARCHY

GAME DEVELOPMENT WITH PROJECT ANARCHY

Gaming has come a long way since the days when we used to play games like Mario and Contra. Today the gaming experience is more sophisticated with detailed visuals, better physics and most importantly the AI that has significantly improved over the ages to provide a much more engaging experience to the player. Moreover, the emergence of mobile gaming is one of the factors that has significantly changed the way games are played today, specifically on handheld devices. This has resulted in the need for game engines that offer developers the possibility of deploying the game to multiple platforms and devices without having to reinvent the wheel for each new device and architecture that they want to target.

Project Anarchy (<http://www.projectanarchy.com>) is one such collection of game development tools that allows all kinds of developers to target and publish games on Android*, iOS* and Tizen* platforms and the best part is that it is available for free. It has been developed by Havok, a leading name in game development, most famous for its physics engine which has been used by most major AAA releases in the industry. Project Anarchy brings all this gaming goodness and experience to the fingertips of budding game developers for free.

So what's the catch? Well not much really. All Havok asks of you is to agree to the following conditions:

- You are encouraged to be a part of the community and help make the product better by participating on its website which has all sorts of opportunities to interact with other developers in the form of forums, Q&A etc.

GAME ENGINES OF TODAY NEED TO OFFER DEVELOPERS THE POSSIBILITY OF DEPLOYING THE GAME TO MULTIPLE PLATFORMS AND DEVICES WITHOUT HAVING TO REINVENT THE WHEEL FOR EACH NEW DEVICE AND ARCHITECTURE

- Havok requires you to agree to some a bit of co-marketing that it might want to engage in when your game is published. Specifically, this means that you are required to have a Project Anarchy splash screen before your game is launched and the possibility for Havok to do some kind of promotion activity when your game is launched.
- If the game is being published on an official app store like Google Play and the platform supports an x86 compatible version of the game, then you are also required to build and publish the x86 binary for the same.

These three conditions are the only applicable for the free license applicable when you are releasing games on the mobile platform. This standard license bundles along with it all products such as Havok Vision, Physics, AI and the Animation Studio. In case you want to customize and tweak the engine according to your needs, headers for all products and source code for the integrations of Physics, AI, Animation in Havok Vision are also available. This license comes with community support and allows you to publish to all the official app stores of the three supported mobile platforms. It also includes a development only license for targeting your games to Windows* PCs. However, if you want to ship games on Windows*, you can purchase the PC exporter license which comes at the cost of \$499 per person in your development team. To make it more clear, the PC exporter license lets you publish games for the Windows* platform, while the free license only lets you develop and run them in the IDE for the Windows* platform. The PC exporter license is expected to be available starting Q1 in 2014 and it brings you the full feature set for targeting your games on Windows*, along with community support similar to the free license. Additionally, a full engine license is also available for incorporated companies which are specifically trying to target more platforms like consoles and comes with official support directly from Havok along with more advanced features like full source code and advanced rendering. All info about licensing and downloads available here: <http://havok.com/>

The components included in Project Anarchy include the Havok Vision Engine,

which comes with a complete C++ API and tools like vForge, vSceneViewer, vModelViewer. Havok Physics provides collision detection and physical simulation technology which is what Havok has been known for. The Havok Animation studio allows artists and designers to work on character development and optimize animation runtime. On the other hand, Havok AI provides excellent pathfinding features and character steering to provide motion to the characters in the scenes. The software bundle also includes popular third party tools like Autodesk Scaleform for UI development and FMOD for audio playback and creation.

SETTING UP FOR ANDROID** DEVELOPMENT

Before one can begin with Android** development on Project Anarchy, the following are the minimum requirements which need to be taken care of:

- DirectX SDK
- Visual C++ 2010 Express
- JDK 1.7
- Android* ADT
- Android* NDK

If all the above have been set up and the Android* SDK platform has also been installed, you can proceed with running the Project Anarchy download manager which is available on <http://www.projectanarchy.com/download>. It will ask you to select which packages you want downloaded and at the minimum you will need to choose the Havok Anarchy SDK for Windows** and the Havok Anarchy SDK for Android* and Tizen. However, it is highly recommended to also download and install the following tools:

- Havok Anarchy Samples for Windows*
- Havok Anarchy Samples for Android* and Tizen



Download screen to choose packages for installation

- Startup Guide Assets
- Windows* PDB Files (for debugging in Windows*)
- Havok Animation Studio
- Havok Content Tools 32bit/64bit
- Scaleform GfX for Windows* and Android* ARM*/x86

While downloading these packages, you also have the option of joining the online community by clicking on the Join Project Anarchy during download checkbox. This will open a registration page for Project Anarchy in the browser. Registration will allow participation in discussions, questions/answers and let you submit feedback and ideas on the Project Anarchy website.

Once downloaded and installed, on the

Android* SDK environment screen, you will need to specify the variables according to your SDK installation path. Note that manually pasting the path into the field may not work and you might have to select the location by clicking on the "..." button. Once installation is complete, you should be ready for building and deploying the samples.

COMPILING AND RUNNING AN ANDROID* SAMPLE

To start the build and deploy process, make sure that the USB debug-
ging is enabled on your Android*

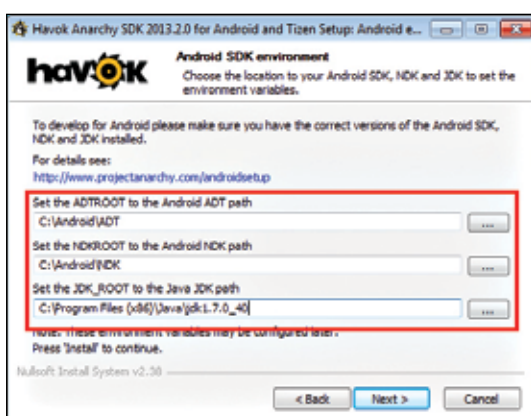
device and that it is correctly detected by the PC. You can check connectivity by typing the "adb devices" command on the commandline.

The Project Anarchy solutions in Visual Studio 2010 are demarcated as mentioned below in the documentation:

Android*_VS2010_anarchy: Solutions for targeting the Android* platform.

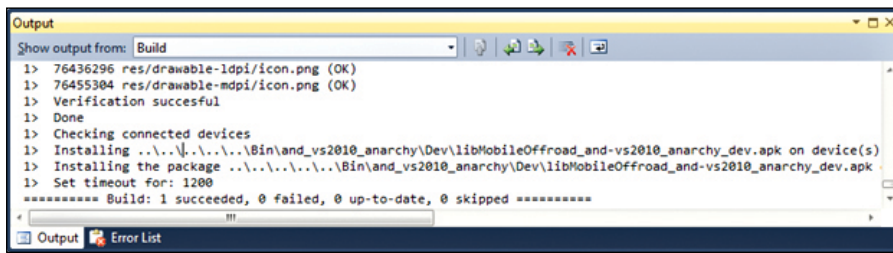
Android*_x86_VS2010_anarchy: Solutions for targeting X86 Android* platforms

Win32_VS2010_Anarchy_DX9: Solutions contain both C# and C++ projects. A DirectX9 renderer is used in this case, which is why there's the DX9 suffix in the folder



Setting the Android* SDK environment variables

HAVOK PHYSICS PROVIDES COLLISION DETECTION AND PHYSICAL SIMULATION TECHNOLOGY. ON THE OTHER HAND, HAVOK AI PROVIDES EXCELLENT PATHFINDING FEATURES AND CHARACTER STEERING.



Successful Build Completion for the Android* project

Win32_VS2010_anarchy_DX9_C#: Solutions only contain C# projects, which is useful for Visual Studio Express users

Win32_VS2010_anarchy_DX9_C++: Solutions only contain C++ projects, which is useful for Visual Studio Express users

During this tutorial we will be using the sample solutions which are present at the following paths:

Android*_VS2010_anarchy\HavokVision_Samples_Android*_VS2010_anarchy

Win32_VS2010_anarchy_DX9_C++\HavokVision_Samples_Win32_VS2010_anarchy_DX9

There are two build configurations in which these projects can be built:

Debug: This is the default option and Debug information is included for the compiled library or executable.

Dev: This is the release version. No debug information is included and the libraries/executables are optimized for better performance.

To start the build in Visual studio, follow the below mentioned steps: -

1. Run Visual C++ 2010 Express and open the Anarchy Android* solution file.
2. On the VC++ Start Page, click Open Project...
3. Navigate to your AnarchySDK\Workspace\Android*_ARM*_VS2010_anarchy__C++ directory and select HavokVision_All_Android*_VS2010_anarchy.sln.
4. In the Solution Explorer on the left, you should see a list of projects. Right click on one of the samples e.g. **MobileOffRoad** and select **Set as StartUp Project** from the context menu.
5. Set the build configuration to **Dev** and Press F7 to start building. This may take a while. Once the build process is finished, the RPG sample will be automatically installed and available on your Android* device.

In case you get installation errors during the build process, ensure that you have appropriate space on the device and that the game has not been installed on the device already. You can also try installing the game manually. The generated

apk files are located in **bin\Android*_vs2010_anarchy** in the Anarchy SDK directory. You will again find two directories, one for the debug configuration and one for the dev configuration. These can be installed as follows: -

- Locate the apk. It should be located in your Anarchy SDK directory under: **bin**

REGISTRATION WILL ALLOW YOU TO PARTICIPATE IN DISCUSSIONS, QUESTIONS/ ANSWERS AND LET YOU SUBMIT FEEDBACK AND IDEAS ON THE PROJECT ANARCHY WEBSITE

Android*_vs2010_anarchy\Dev\libMobileOffroad_and-vs2010_anarchy_dev

- Open the Command prompt.
- Execute: **adb install <Anarchy SDK path>\bin\Android*_vs2010_anarchy\Dev\libMobileOffroad_and-vs2010_anarchy_dev**

COMPILING AND RUNNING THE WINDOWS* SAMPLE

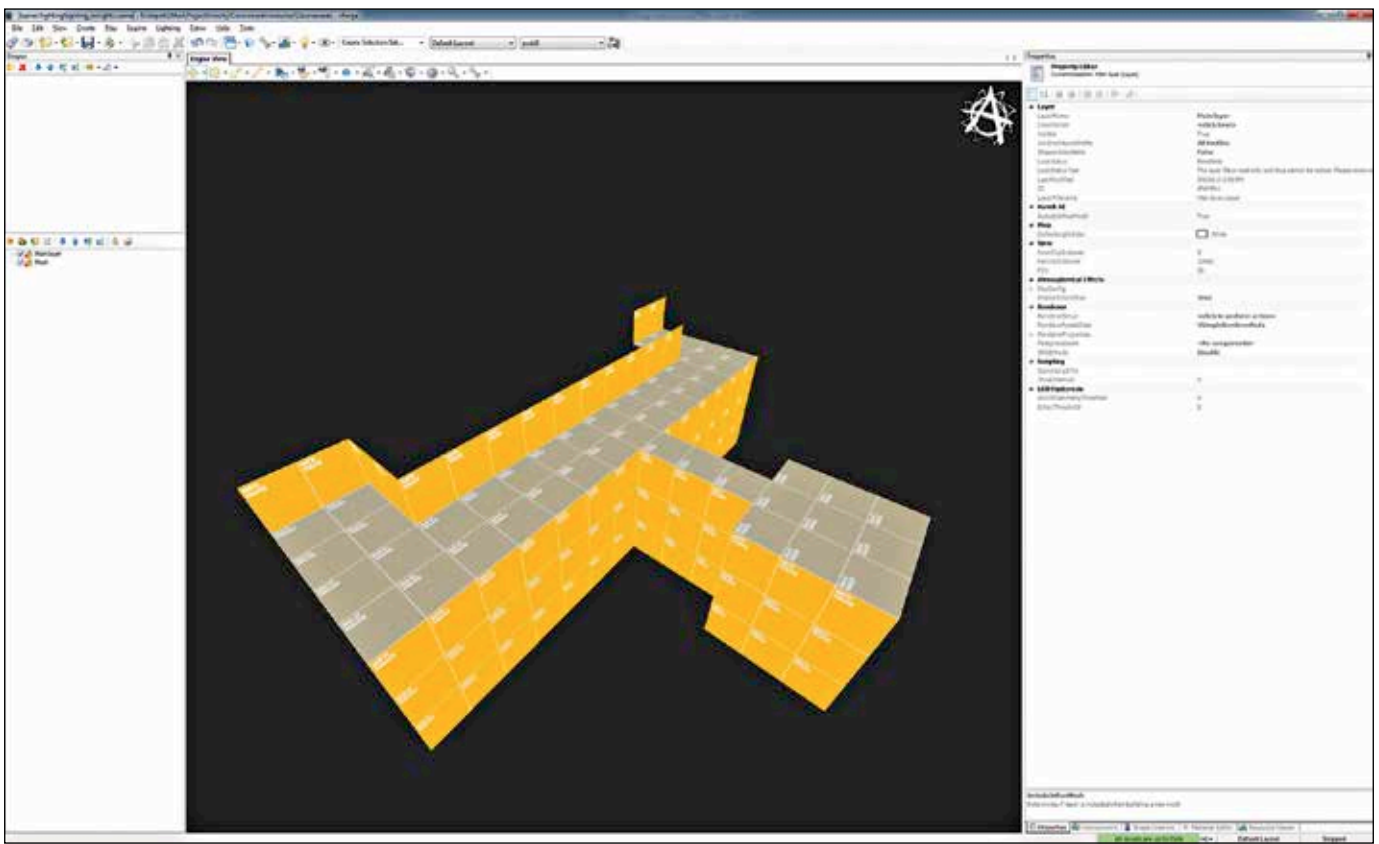
To compile and run the Windows* version of the sample, load the appropriate sample in the Solution explorer and set the build configuration to **Debug**. Right click on the project and choose the **Set as StartUp Project** option. You can now start building using the Build option in the context menu. Once the build is complete, ensure that vForge is running and if it is not, it can be started via **Start Menu > All Programs > Havok Project Anarchy > Tools**. Once it is up and running, you can click on Start Debugging and you should be able to see the game in all its glory.

TOOLS OVERVIEW Vforge

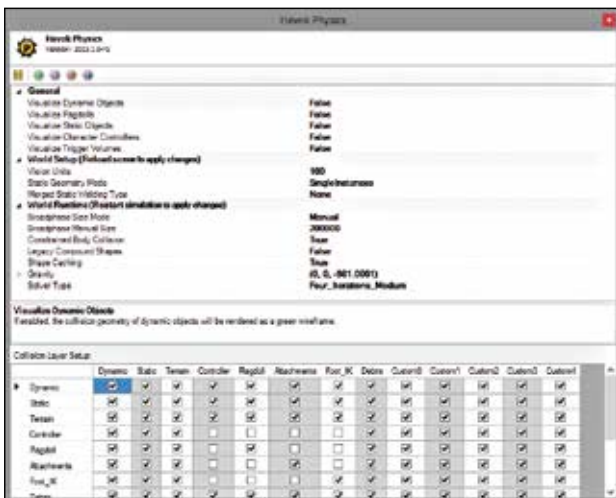
Vforge is the WYSIWYG world editor tool available with Project Anarchy that acts like the main utility where you would be spending most of your time while developing your game with this engine. In order to look at the features of this tool, you can easily load one of the samples provided with the initial installation. This tool has so many features within itself that you would be surprised with



The Mobile Offroad Sample



vForge showing a scene in its Engine View



Havok Physics settings

what you can do. It allows all sorts of functionality like Particle Editor, Material editor, Shape Creator, Shader Tools, Terrain Editor and much more. It also has a fully featured Script Editor with features like Code Completion and context sensitive help. Surprisingly there is also an inbuilt code profiler and debugger.

Havok Physics

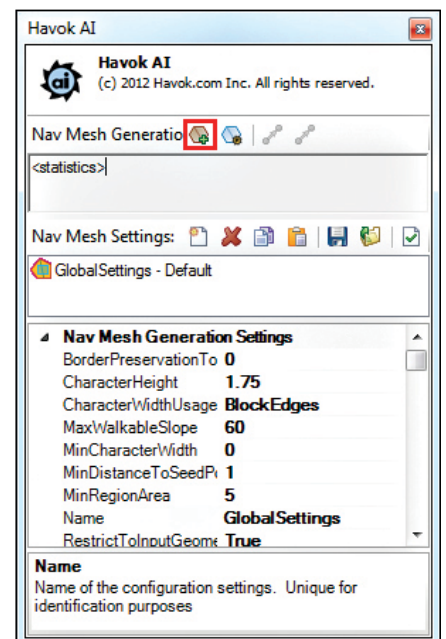
Havok Physics is also embedded and accessible within the vForge Tool, and allows you to define the physics with the help of its components and allows you to define model type once the entity has been added to the scene.

Havok AI

The Havok AI global settings can be changed in the Havok AI dialog box. This AI allows you to create navigation meshes which can define the paths to be followed and thus determine the navigable portions in the scene. Havok AI is a very important part of this engine and provide a lot of AI related functions.

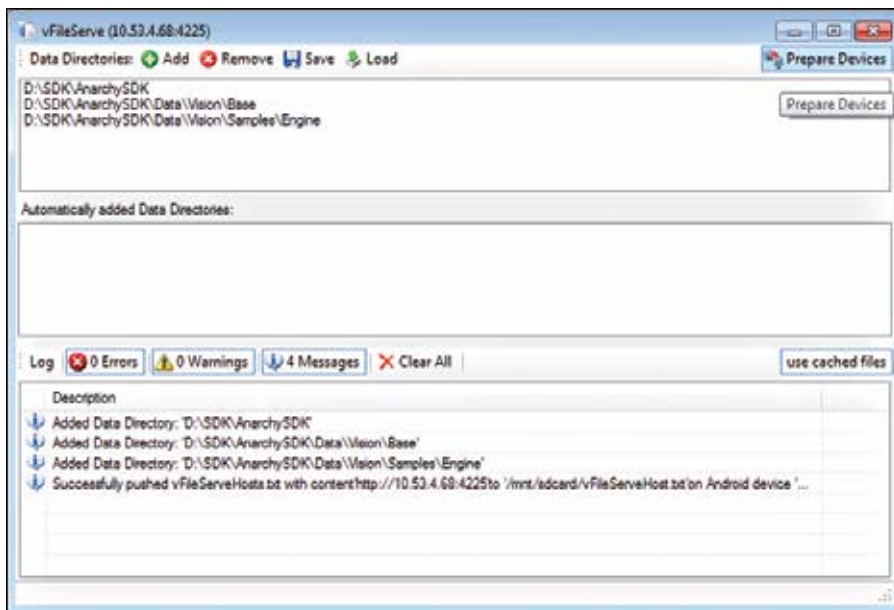
Havok Animation Tool

The Havok Animation tool is a very powerful tool to create animations and interactive characters. It allows you to create locomotion and



Havok AI global settings

transitions, organize and construct animation blend trees with state machines. Animation components can be built up for the characters from the rest of the assets.



The vFileServe application

vSceneViewer and vFileServe

vSceneViewer is a tool used to visualize geometry ranging from a shape to a scene outside the vForge tool. It can be used in Windows* and Android* platforms and works on the exported versions of these files. It can be opened from **All Programs > Havok Project Anarchy > Tools > vSceneViewer** on Windows*. Once launched, you will be able to choose the files to be loaded and will show you the shape or scene accordingly.

On Android*, vSceneViewer works with the help of the vFileServer application, which runs on the computer to receive the required components via streaming. So, the vSceneViewer app basically, connects via WiFi to the vFileServe application thus avoids having to generate a new apk every time something is changed. In order to set it up on your Android* device, you will have to deploy an install on the connected device by going to **All Programs > Havok Project Anarchy > Tools > Android* > Scene Viewer**. Once it has been deployed, you will need to set the connection parameters for your PC i.e. its IP Address. This can be done from the vFileServe application itself, by clicking the "prepare devices" button in the top right of the application.

Launching the scene viewer app on the mobile will now give you a list of scenes available and once you click on one of them, you will be able to see it stream to your device!

There are a lot of similar tools available that are integrated with the vForge tool and you will

be able to easily navigate them with the help of the extensive and detailed documentation available for each of them. There is also a lot of courseware available online on the Project Anarchy website, which you can refer to in case you are just getting started with this tool.

THE MOBILE DEV CHALLENGE

Project Anarchy recently launched the Mobile dev challenges with some very attractive rewards in an attempt to get developers started with development on the Project

PARTICIPATION IN THE MOBILE DEV CHALLENGE BY PROJECT ANARCHY HAS SOME INTERESTING ADVANTAGES. APART FROM THE PRIZE MONEY THERE IS A CHANCE TO GET FEEDBACK FOR YOUR GAMES FROM THE TEAM ON HOW TO IMPROVE THEIR GAME.

Anarchy game engine. Moreover there is a chance of receiving feedback for improvement for all developers who give in their submissions before February 1, 2014. All developers who submit their entries before this date will receive feedback from the team on how to improve their game before final submission deadline. Eventually ten finalists will be selected to showcase their game on the Havok's booth at the GDC to be held in March.

Eligibility

Following are the eligibility criteria for this game dev challenge: -

- Adults above 18 years of age
- Residents of countries mentioned in the Official Rules on the website. This includes Indian residents.
- All teams will be required to appoint a team leader or representative to speak on their behalf.
- Restrictions mentioned in the Official Rules will be applicable. This includes restriction to employees, judges and their immediate family members etc.

Submission Requirements

- The game must be in English or have an English translation available.
- The game must be agreeable to the Project Anarchy end user license agreement.
- The game must be submitted before the early or final submission deadline i.e. February 1, 2014 (Early Submission) or May 31, 2014 (final submission deadline).
- The game must have been published to an official app store like the Play Store, so the time taken to get the game approved and published there must be taken into consideration. The link to the game on the app store will need to be provided and in case of paid games, a promotional code needs to be given, otherwise such games can be also be submitted to the SFTP site, whose details can be gained by requesting a login at contest@projectanarchy.com.
- At least 4 images and videos of less than 2 minutes need to be submitted along with the entry.
- A text description explaining the game's functionality and features also needs to be provided.

Prizes

Grand Prize

- \$100,000

- \$100,000 plus one Project Anarchy PC License

2nd Prize

- \$25,000
- \$25,000 plus one Project Anarchy PC License

3rd Prize

- \$15,000
- \$15,000 plus one Project Anarchy PC License

Early Submission Winner

- \$10,000
- \$10,000 plus invite to showcase your game in Havok's booth at GDC San Francisco, March 17-21, 2014
(EARLY SUBMISSION WINNER WILL BE ANNOUNCED MARCH 17, 2014)

Early Submission Finalist

- Invite to showcase your game in Havok's booth at GDC San Francisco, March 17-21, 2014 (EARLY SUBMISSION FINALISTS WILL BE ANNOUNCED MARCH 17, 2014)

The winning entries will be judged on the basis of their entertainment value (18% weightage), visual design (26% weightage), technology usage / performance (26% weightage), controls/input (16% weightage) and originality (16% weightage). In order to enter the challenge, you can follow these steps: -

- Ensure that you meet the eligibility criteria for entering the competition.
- Register for the Challenge at <http://projectanarchy.challengepost.com>
- Create an account on <http://www.ProjectAnarchy.com>
- Download and install the Project Anarchy SDK and agree to the Project Anarchy SDK end user license agreement
- Complete and enter all of the required fields

TO PARTICIPATE IN THE PROJECT ANARCHY DEV CHALLENGE THERE ARE A FEW REQUIREMENTS. THERE'S BIG PTEN FINALISTS WILL BE SELECTED TO SHOWCASE THEIR GAME ON THE HAVOK'S BOOTH AT THE GDC TO BE HELD IN MARCH NEXT YEAR

on the "Enter an Application" page of the Challenge Website

- Acknowledge whether you are entering on your own behalf or as a Representative of a team or Organization
- Follow the submission guidelines on the website.

Timelines for the Game Dev Challenge

- Challenge Submission Period: October 17, 2013 (10:00am Pacific Time) – May 31, 2014 (12:00pm Pacific Time).
- Early Submission Deadline: February 1, 2014 (12:00pm Pacific Time).
- Feedback Period: Individual Feedback will only be provided during the Feedback period, from February 3, 2014 – February 21, 2014.
- Early Submission Finalists & Winner Announced: March 17, 2014 (12:00pm Pacific Time).
- Final Submission Deadline: May 31, 2014 (12:00pm Pacific Time)

- Final Judging Period: June 2, 2014 (12:00pm Pacific Time) through June 13, 2014 (12:00pm Pacific Time) (the "Judging Period").
- Finalists Announced: June 16, 2014 (12:00pm Pacific Time).
- Winners Announced: On or around June 24, 2014 (12:00pm Pacific Time).

For more details related to this contest, you can visit the website at <http://projectanarchy.challengepost.com/>.

In conclusion, Project Anarchy really provides an opportunity for developers and students to begin using industry leading tools from Havok. These tools have been used by leading titles like Skyrim, Halo, Assassin's Creed, Uncharted and Skylanders. The free availability not only puts the powerful tools in the hands of indie developers, but also within reach of schools and colleges, where students are just starting to learn game development. This is especially important considering that mobile games are the new focus for many developers and also given the fact that this tool does not have any usage restrictions for anyone on mobile platforms, it is one of those game engines which are bound to play an important role in the future. ■

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WANT TO EXPERIENCE AUGMENTED REALITY?

If you have an iOS or Android device, you can make some of the reviews in this Bazaar section come alive.

Step 1: Install "Zoop" (from the Google Play Store or Apple App Store)

Step 2: Look for images that have the **Zoop** tag and scan them using the Zoop app (**example below**).



Step 3: Enjoy an augmented reality Digit like never before

Remember to send feedback about this initiative to editor@thinkdigit.com

Bazaar

THE LATEST PRODUCTS REVIEWED FOR YOU

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests and is finally given a score. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and, in the case of software, even ease of use.

For better understanding of our ratings, here's a quick guide to our overall score



Extremely poor product.
Keep away!



Strictly OK.
Not recommended



Decent product.
Go for it, but there may be better products out there.



Very good product.
Highly recommended.



Ground-breaking product.
We've never seen anything like it before.
A definite must buy!

PLUS

- 85** | Intel Core i7 4960X
- 86** | CM Storm Devastator Bundle
- 87** | HP Chromebook 14-q001tu
- 88** | AMD R9 290X 4GB
- 89** | Lenovo P780
- 90** | Amkette Trubeats Metal
- 91** | BlackBerry Z30
- 92** | ASUS FonePad 7
- 93** | Olympus OM-D E-M1
- 94** | NVIDIA GTX 780 Ti 3GB
- 94** | ASRock Fatal1ty Z87 Killer
- 95** | Epson EH-TW5200

& MORE...



Conon O'Craft

Conan O'Brien tries to understand World of Warcraft. See what he has to say: <http://dgit.in/conancraft>



Windroid?

Intel trying to turn Android into Windows? Is the dominance of Android in the market enough to make Intel follow the masses? http://dgit.in/win_droid

Bazaar

Intel Core i7 4960X

Two years after the 3960X's introduction, its successor emerges!

The enthusiast segment rarely sees any action and the last time we saw a processor enter the segment was two years ago. For the investment they require, one would expect to ride the wave for a few years before having to go in for an upgrade. Also, the processors aren't cheap nor are the motherboards built for them. However, this isn't the deciding factor, it's the sheer ridiculous power that these machines output that make them objects of envy. That being said, the latest entrant into the enthusiast market seems to lack the excitement that usually accompanies a launch like this. Maybe Intel is doing the customers a favour by offering them a transitional processor to bid time till Haswell-E launches same time around next year. Which would explain the processor using the same platform as before. You will need to get a BIOS update before you can stick this processor in your computer as most old motherboards won't recognise the processor out of the box but those who've gone in for an Intel board will be disappointed to know that Intel has officially announced that they won't be enabling backwards compatibility with the IVB-E motherboard.

Like its predecessor the 4960X comes with an unlocked multiplier that scales up to 63x depending on the BCLK, so the multiplier can be varied while the BCLK is set to 100MHz, 125MHz and 166MHz. While the 3960X was set to 3.3GHz and then had a boost frequency of 3.9GHz the 4960X starts off at 3.6GHz and tops off at 4GHz under turbo. The Turbo barely seems different and the benchmarks pretty much reflect the same. The TDP is the same and it still features 40 PCIe lanes though we didn't have any problems like graphics cards running on PCIe 2.0 instead of PCIe 3.0 which is what happened with the 3960X, so native PCIe 3.0 support is guaranteed. What comes with this new iteration is that it's manufactured using a 22nm process. The maximum memory bandwidth has also increased by 8.5 GHz but that's something which is more dependent on the motherboard manufacturer who decides which SKU can support which frequency memory. The 3960X was obtained from a Xeon processor by knocking off two processor cores, however, the 4960X seems to have six cores natively.

For benchmarks we used the ASRock Extreme9 motherboard with 4 x 4GB ADATA memory kit running at 2133MHz. The monitor was an ASUS VK278 and the cooler was the stock model we had



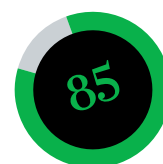
when the 3960X came in and for the graphics card we had a ZOTAC 780. The whole rig was powered by a Corsair RM650 power supply.

Performance wise, the 4960X has only managed to get a meagre 5-8% more compared to the 3960X. Video encoding benchmarks scores show that the 4960X was capable of getting 98.66 fps while the 3960X could only manage 90.59 fps. Gaming benchmarks as expected showed no difference at all, a few FPS here and there but all within the margin or error. Blender scene rendering test put the 4960X ahead since it managed to complete the scene in 21.16 seconds while the 3960X did the same scene in 25.51 seconds.

Like the 3960X even the 4960X was introduced with a closed loop liquid (propylene glycol) cooling system and it looks exactly the same as before, we didn't get a test system with the processor so we won't be able to give you the numbers on that. The motor is attached to the CPU block and the radiator has an in-built buffer which can be called a reservoir if we are to be picky. Overall, the device seems to be an Asetek OEM which is quite reliable.

Like we mentioned before, this seems like a transitional processor just to give enthusiasts an avenue to spend what they usually do to get the edge over everyone though we'd recommend sticking to your current enthusiast system for another year when the Haswell-E processors will be released along with a platform refresh bringing the X99 on to the scene. Did we mentioned that it's going to support DDR4 memory starting at 2133MHz? That will be a refreshing change.

Mithun Mobandas



Performance..... 95
Value for money..... 75

Specifications

Intel Core i7 4960X;
Ivy Bridge-E; Cores 6;
Hyperthreading support;
Multiplier unlocked
Frequency 3600 MHz; Turbo
Frequency 4000 MHz;
Clock Multiplier 36; Socket
LGA2011; L3 Cache 15 MB; 40
PCIe Lanes; Quad Channel
memory support; TDP 130W

Contact

Intel Technology India
Pvt Ltd

Website: <http://www.intel.in>



The Lumia 1520

The Lumia 1520 tablet reviewed with all its pros and cons. Check out the Arstechnica article <http://dgit.in/1520lumia>



Twitter: Encrypted

Twitter takes its encryption up a notch to protect users' privacy. Read the article to know more: <http://dgit.in/safetweet>

CM Storm Devastator Combo

A great gaming combo for cheap



Price
₹3,100

We're often fooled into buying expensive products from manufacturers especially when it comes to gaming. But as it happens, a cheap alternative always exists in the market. The CM Storm Devastator combo is one such alternative. The keyboard in the combo has a nice futuristic design with angled edges and a partly matte,

partly glossy finish. It's a blue backlit keyboard and doesn't have individual LED backlighting. The keyboard doesn't have a brightness control feature which means that you can only turn the backlight on or off. Turning the backlight off we noticed the only niggling part about the keyboard; we could barely see the letters on the keycaps even in daylight and were forced to use it with the backlight on. Features wise the keyboard has multimedia and volume keys at the top. All the buttons are well spaced and give a good tactile feedback when used, even during gaming.

CM Storm took a flatter design approach with the mouse and people who like slimmer mice would like it. It has a 2000 DPI sensor with a quick DPI switch for switching between 800-1600-2000 DPI modes. There are rubber side pads on the mouse that add some grip to it. The mouse tracked well during gaming and we didn't have any misgivings with it. The Cooler Master Storm Devastator combo is one of the best cheap gaming combos we've come across in a while. And we give it our thumbs up.

Siddhant Sharma



Features57
Build Quality80
Value for money80

Specifications

Mouse (MS2K):
Key Type: Membrane; **DPI:** 800, 1600, 2000 (three modes); **Weight adjustment:** No; **Weight:** 128 grams
Keyboard (MB24):
Interface: USB; **LED backlight:** Full Blue LED backlight; **Shortcut keys:** Media and volume; **Dimensions:** 449.7 x 148.4 x 35.6 mm; **Weight:** 898 grams

Contact

Cooler Master Co. Ltd.
Phone: 9820207871
Email: sanket_naik@cooler-master.com.tw
Website: www.cooler-master.in
Warranty: 2 years

Logitech G430

Boom boom. Boom?



Price
₹6,500

Spending upwards of 5k on a gaming headset is not an easy decision to make and if a headset demands that much from you, it better be very sure of itself. The G430 just might be that set. It's a great set, the bass is more on the boomy side, though not in the same league as the Creative SoundBlaster series, but the positioning is spot on and we were never let down. The set looks fiddle-some and flimsy but feels surprisingly sturdy. It's light and comfortable and the large ear-cups sit comfortably. It's mic's noise cancellation feature doesn't work very well. The USB adapter is a nice addition and the gimmicky 7.1 surround sound may appeal to some people.



Accessories60
Performance70
Build Quality80
Value for money67

Specifications

Driver: 40mm; **Frequency response:** 20Hz-20KHz; **Impedance:** 32 Ohms; **Sensitivity:** 90dB SPL/mW

Contact

Logitech Electronics India
e-mail: anuranjans@denave.com
Phone: 022- 33416111
Website: www.logitech.com/en-in

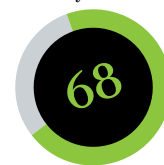
ASUS B85 Vanguard

Built to last



Price
₹7,800

At first glance you notice nothing unusual about this board as it looks like any other mATX board. It's when you rummage through the box later that you discover a certificate which certifies that the capacitors, chokes and MOSFET have all been through military grade testing, including tests for moisture resistance, thermal shock and even salt spray. Since a motherboard is not the kind of thing we would take to the beach, we'll take ASUS's word for it. Other than that, the board has some fine tuning options in the BIOS if you want to tweak voltages and as a bonus, you can take notes within the BIOS itself. Other than that and the build quality, there's nothing else that really stands out.



Features40
Build Quality85
Value for money78

Specifications

CPU: LGA 1150; **Chipset:** Intel B85; **Memory:** 4x DIMM @ 1600MHz; **Expansion:** 1x PCIe 3.0 x16, 1x PCIe 2.0 x8, 1x PCIe 2.0 x1, 1x PCI; **VGA:** DVI, D-Sub, HDMI, DP; **SATA:** 2x SATA 2.0, 4x SATA 3.0; **USB:** 8x USB 2.0, 6x USB 3.0; **Warranty:** 5 years

Contact

ASUS Technology Pvt. Ltd.
Phone: 1800-209-0365
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Netflix on Xbox

Netflix seeps into the minds of gamers. Watch IGN as they review the Netflix app on the Xbox One: http://dgit.in/x_flix



We MOBApologize

Dustin Browder makes a public apology for something he said regarding the upcoming MOBA 'Heroes of the Storm' <http://dgit.in/MOBApology>

Bazaar

HP Chromebook 14-q001tu

A streamlined OS meant for very specific use cases

If you had chided Microsoft for the lack of the start button in Windows 8, this OS will possibly invite more snorts of derision, as Chrome OS is a brand new look at desktop OSes.

For starters, and for all purposes, most of the stuff will run in the Chrome web browser, that's where you'll spend most of your time on the Chromebook. The base is the Chrome OS, and the quintessential window to the world of the Internet is the Chrome browser. You can download apps on this, but they will be web based versions. Dropbox? Web version. Pixlr image editor? Web version. What you essentially need to come to terms with is that most of these "apps" that you download from the Chrome store, are shortcuts to the web page. In other words, they're Web apps. Nothing is stored locally, as there are no programs to install. Getting used to this from a Windows environment is itself a bit of a learning curve, but then if you're used to doing everything in your browser (Chrome on Windows) it may not feel as intimidating as it sounds. The range of apps for Chrome OS is still limited, but worry not, you'll find most of the essential apps (spreadsheet, document, video, scheduler, reminder, photo editor, calendar, etc, etc.) covered.

As an OS, Chrome has its distinct advantages. It is simple, uncluttered, and to the point. There are no pretensions of taking on Windows or OS X, and that is what makes this so enticing. Chrome OS is meant for doing things on the Web and ideal for someone who is already using the Google ecosystem heavily: Chrome browser, Gmail, Drive, Calendar, etc., for their work. And also for someone who needs an easy to use laptop for web browsing, accessing emails, streaming media and playing the odd casual game.

For that particular task, the Chromebook 14-q001tu from HP does a very good job. And sets an example of why specification sheets aren't always a good indicator of the level of performance you could expect from any notebook. On paper, the Chromebook 14 has an Intel Celeron 2955U (Dual-Core) processor clocking at 1.4GHz with 4GB of RAM. For an OS as simple and streamlined as Chrome, this spec is more than enough. We really have no synthetic benchmarks for this, but it cold booted under 10 seconds. As a primary laptop for a day at work, there was never a stutter or system freeze while we watched YouTube videos, streamed



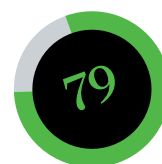
online radio, worked on spreadsheets, and more. After opening up to 20 tabs in Chrome, and the only real load indication of lag was that from a slightly sluggish cursor while working on a large spreadsheet. Not bad.

For a machine that is quite slim, its build quality is quite good. It's high quality plastic throughout, and feels well put together, although the display hinge could've been even better. The HP Chromebook 14 sports a very good keyboard with nice haptic feedback, and its amount of connectivity options also cover all bases. Typing quickly is easy, with a sharp and precise response. The only issue is that the Caps Lock key is marked as the search key, and by default, the Caps Lock method needs you to press Alt and the Search key. You can change that in the settings. There is no optical drive here, but what you get are three USB 2.0 ports, memory card reader and an HDMI out. The lid is pure white in colour, with the Chrome branding very prominent. The keyboard deck is warm grey in colour, while the base is again pure white, and holding the slim laptop in one's hand or in the lap is no problem whatsoever.

Battery life is stupendous, and for the same tasks that we would do on our primary laptop in office, the HP Chromebook 14 lasted a full 8 hours. On conservative settings, you can sail past 10 hours even. True all-day computing on this one.

If there is one issue with the Chromebook 14, it is that there is just 16GB of internal space on board. Yes, Google Drive provides an additional 100GB online, but without good Internet there's a problem. Barring that, if you needed a fresh new perspective to a desktop OS, buy this machine.

Vishal Mathur



Features	65
Performance.....	80
Build	80
Value	80

Specifications

Processor: Intel Celeron 2955U dual core processor @1.4GHz; **RAM:** 4GB; **Storage:** 16GB flash + Google Drive; **Connectivity:** 3 USB 2.0, memory card reader, HDMI out; **OS:** Chrome OS

Contact

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Galaxy Grand(er)?

Samsung unveils its Galaxy Grand 2 without too many details on its actual availability <http://digit.in/1dv3ioD>



PS4 Upgrade

Ever thought '160 GB just isn't enough'? Read through this article to know how to upgrade your PS4 HDD <http://digit.in/ps4hddplus>

AMD R9 290X 4GB

Hawaii is great this time of the year

The tech community awaited with bated breath when AMD announced that they'd be unveiling their next GPU lineup in Hawaii. There were only two models which had the next gen chipset while the rest were simply rebadged HD7000 chips. The R9 290X is the current flagship model that AMD have and it has been successful yet again at providing great performance in it's price bracket. This is one of the first cards to support Mantle, a new API by AMD which will be seen as competition to DirectX but Mantle will have direct GPU memory access.

When it comes to stock graphics cards, these models



Performance.....85
Value51
Build60

Specifications

Base clock: 1000MHz; **Memory clock:** 1250MHz; **Stream processors:** 2816; **Texture Units:** 176; **ROPs:** 64; **Manufacturing process:** 28nm. PCIe 3.0, 4K resolution support, Eyefinity support, 4GB Memory; **DirectX support:** 11.2; **OpenGL support:** 4.3; Mantle support; **Power Connectors:** 2x 8Pin; **TDP:** 300W;

Contact

Advanced Micro Devices
Email: chandrahas.panigrahi@amd.com



Price:
₹47,990

are built well and it's by no means mediocre. However, given what aftermarket cards look like in comparison to this does put it at a disadvantage. There is a single aluminium fin rack that sits over the GPU, VRM and the memory chips while a single fan channels air over the rack. Since the entire setup is enclosed in a housing the single fan does perform satisfactorily but at high loads the decibel level does become rather noticeable.

The card has 2816 stream processors, 176 texture units and 64 ROPs which puts it in league with what the competition has to offer. This card has the most number of ROPs and only dual chip graphics cards have more, the performance difference is clearly noticeable during OpenCL benchmarks.

Performance wise, this card is very close to the GTX Titan, the FPS scores are with 2-10 of each other, which is next to nothing given that these cards are churning a lot more. It's the price that makes a difference given that the R9 290 is slightly greater than half the price at which the Titan comes for. The only reason for which you'd pick a Titan is if you need the extra 2GB of video memory.

Mithun Mobandas

MSI R9 270X Hawk Edition

They hardly build stuff as good as this anymore



Price:
₹16,800
(+ Taxes)

The card is built like no other we've had in the past few months – which is very good. Even under full load, the card maintained temps under 60 deg C.

Performance wise the card doesn't differ much from a HD7870. It turns out that this is the card with the highest scores in the value for money category since it offers quite the performance at the price. Even the overall build quality of the card is way better than most cards given the lack of plastic as material for most of the body parts.



Performance.....66
Value90
Build68

Specifications

Bus standard: PCI Express 3.0; **Base clock:** 1100 MHz; **Memory clock:** 1400 MHz DDR5; **Memory:** 2048 MB GDDR5, CrossFireX support; **Stream processors:** 1280; **Texture units:** 80; **ROPs:** 32; **Connectivity ports:** HDMI, DVI-D, DVI-I, DP; **DirectX Support:** 11.2; **OpenGL Support:** 4.3; **Power Connectors:** 6 Pin x2; **TDP:** Approx 210 W; **Warranty:** 3 years

Contact

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Website: www.smcinternational.in

Sapphire R9 280X Vapor-X

The coolest GPU we've tested this year



Price
₹27,000

The card is very well built as you can see from the image, reaching 59 deg C at peak load, the lowest we saw in all the cards tested. The card offers playable FPS through all AAA titles we tested so far. OpenCL benchmarks put it behind the R9 290 and way above the entire competition so it's not a bad choice for an overall great performer. Compared to a HD7970, this card does slightly better but at a lesser price. Buy this and game all AAA titles easily for a year.



Performance.....77
Value66
Build64

Specifications

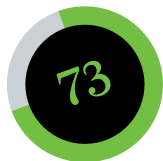
Bus standard: PCI Express 3.0; **Base clock:** 1050 MHz; **Memory clock:** 1400 MHz DDR5; **Memory:** 2048 MB GDDR5, CrossFireX support; **Stream processors:** 2048; **Texture units:** 128; **ROPs:** 32; **Connectivity ports:** HDMI, DVI-D, DVI-I, DP; **DirectX Support:** 11.2; **OpenGL Support:** 4.3; **Power Connectors:** 8Pin x2; **TDP:** Approx 210 W; **Warranty:** 3 years

Contact

Aditya Infotech Ltd
Phone: 120-4555666
Mail: response_it@adityagroup.com
Website: sapphiretech.com

Lenovo P780

An Android smartphone with great battery life



Features	80
Performance.....	60
Value	70
Design	80

Specifications

Display: 5-inch IPS LCD display with 1280x720 pixel resolution, **CPU:** quad-core 1.2GHz processor, **RAM:** 1GB RAM, **Storage:** 4GB storage expandable via a microSD card, **Camera:** 8MP rear & 1.2MP video calling, **OS:** Android 4.2, **Battery:** 4000mAh

Contact

Lenovo India
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Heavy and well built are the first thoughts that will come to your mind when you hold the Lenovo smartphone for the first time. The rear of the smartphone is metal giving it a great finish.

A lot of the UI elements of the smartphone is skinned and not stock Android. Coming to the suite of preloaded apps, you have access to a 'super gallery' (with your images and videos), AccuWeather, CamCard (reads business cards), CamScanner (which scans documents), Route 66 maps + navigation, and some games.

One interesting app that comes preloaded with the device is Lenovo Power. The app shows you the power consumption of the smartphone and also has a bunch of modes in which you can use it - extreme, long, best and customized. Each mode has its own unique feature of



Price
₹17,790

saving battery and if you want to customize, then use the customized profile.

The device ran all the apps we threw at it quite well and its performance as a phone for calling and texting is good too. The camera is average for well-lit shots and there is noise when images are clicked in low-lit situations. The battery of the smartphone can last for 2 days with ease.

The Lenovo P780 brings quite a few good features to the table. The build is solid and the battery life is great. The preloaded UI may not appeal to all but it gets the job done. The down side is that the camera is average and the battery is non removable. If you are in the market to pick up a sub 20k phone with a great battery life, definitely try this.

Sameer Mitha

Gionee ELife E6

A well-built smartphone with an interesting UI

The Gionee ELife E6 has a slim and sexy unibody design. You could easily mistake the product for a premium smartphone which is comfortable to hold.

The smartphone has a black matte finish that is a fingerprint magnet. The E6 has the microUSB port at the bottom and on its either side are the speakers. The left houses the microSIM card slot and the right has the volume rocker. The top has the headphones jack and the power button. The rear houses the camera in one corner along with the LED flash. The position of the camera isn't ideal as your finger may come in the way at times. The Gionee ELife E6 runs on Android 4.2 Jelly Bean but the device comes with its own custom UI. This is evident from the lock

screen itself. All the apps are listed on the home screen itself - very iOS in nature. Another thing the E6 borrows from iOS 7 is the way in which you kill running apps.

The Gionee ELife E6 also has a bunch of gesture controls that we have seen on other Android devices. Its full HD display is vibrant and great for multimedia content consumption and gaming. As a phone the device works well. The performance of the camera is average at best. In well-lit situations shots are good. In low-lighting however, there is a

lot of visible noise.

There's a lot to like about this phone. But at its price point, the Nexus 4 and the Samsung Galaxy S3 are definitely better.



Price
₹21,590



Features	70
Performance.....	70
Value	60
Design	80

Specifications

Display: 5-inch IPS LCD display with 1920x1080 pixel resolution, **CPU:** quad-core 1.5GHz, **RAM:** 2GB RAM, **Storage:** 32GB storage no expansion, **Camera:** 13MP rear camera & 5MP video call camera, **OS:** Android 4.2, **Battery:** 2000mAh battery

Contact

Gionee
Phone: 1800 208 1166
Email: gcare@gionee.com

Sameer Mitha



Nexus wireless charger

Charging was never easier. Well, assuming you have the supported Nexus, that is. Read more if you do: <http://dgit.in/taiqui>



Pre-Biblical Wine

The world's oldest and largest wine cellar was unearthed recently, in Israel. And it pre-dates Jesus. Read on: <http://dgit.in/agedvin>

Amkette Trubeats Metal

A good smartphone accessory, with acceptable music playback

It is not surprising that portable bluetooth speakers are becoming fairly popular, off late. Done well, most can be a good add-on for your smartphone, doubling up for music playback via Bluetooth and also as a speakerphone when work calls. Amkette's Trubeats Metal is one such speaker.

As far as form factors go, the Trubeats Metal speaker ticks all the right boxes. The rounded design makes it look even more compact. The build quality is all metal, essentially the metal alloy drum, with the black coloured base and the status LED strip above that. Weighs just over 300 grams, and Amkette packs in a good quality carry case as well. The speaker itself

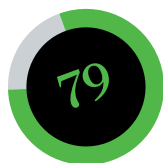


Price
₹2,995

has Bluetooth and AUX connectivity via 3.5mm headphone jack. Bluetooth connectivity is still the best way to use this.

The Trubeats Metal speaker works extremely well as a speaker for your phone calls, be it in a room during a small conference call or in a car when you have to take an urgent call. The clarity of the spoken word is very good. Having said that, this little device's music playback is a bit of a mixed bag, with Trubeats Metal doing very well in terms of clarity and vocals, but bass is largely missing. Quite expected, because this isn't aimed at anyone who likes bass heavy music. Also there are physical restrictions given its diminutive size and design. Amkette claims that the integrated battery can last for 8 hours on a single charge, and we actually got 8 hours and 11 minutes with the iPod Touch connected via bluetooth. All in all, a rather neat phone accessory to have, which is fairly flexible in terms of use.

Visbal Mathur



Features	80
Performance.....	75
Build	85
Value	75

Specifications

Frequency Response: 180Hz-20KHz; **S/N Ratio:** ≥80dB; **Bluetooth Version:** 2.1 Class 2; **Range:** Up to 10 m; **Battery:** Lithium-Ion; **Weight:** 315 gm

Contact

Amkette India
Phone: 1800-11-9090
Email: info@amkette.com
Website: www.amkette.com

Plantronics ML2 Bluetooth headset

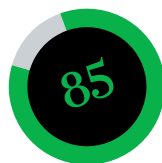
An affordable headset that feels premium



Price
₹1,199

This device looks simple and conventional, and it has just one do-it-all key that lets you switch the ML2 on or off, and also receive calls, as well as handle voice commands. Its gel ear tip is extremely comfortable.

The ML2 can pair with two phones simultaneously. While on a call, the headset suppresses background noise better than others. Ditto with its voice calling performance. Plantronics claims that the battery life of the ML2 is 6 hours, but we got 5 hours. Overall, a very good device at an affordable price.



Features	80
Performance.....	85
Build	85
Value	90

Specifications

Type: Bluetooth headset; **Compatibility:** All smartphone platforms; **Claimed range:** 10m; **Voice commands:** Yes; **Claimed battery:** 6 hours

Contact

Plantronics India
Phone: +91 124 454 5700
Email: <http://www.plantronics.com/in/support/>

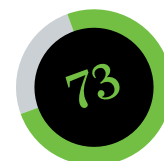
ASUS R9 270X Direct Cooling Top Edition 2GB

For when the 280X is a bit out of budget



Price
₹15,000

Think about a lower powered, smaller sized, cheaper R9-280X and you've got yourself a R9-270X! This card is cheaper by ₹7k and while it does take a performance hit by a proportional margin it does manage to play a heck lot of the games at a comfortable FPS. What we don't see is any compromise on the build quality. For its price you do get a better card in terms of the HD7870.



Performance.....	66
Value	90
Build	62

Specifications

Bus standard: PCI Express 3.0; **Base clock:** 1050 MHz; **Boost clock:** 1120 MHz; **Memory clock:** 5600 MHz (1400 MHz DDR5); **Memory:** 2048 MB GDDR5, CrossFireX support; **Stream processors:** 1280; **Connectivity ports:** HDMI, DVI-D, DVI-I, DP; **DirectX Support:** 11.2; **OpenGL Support:** 4.3; **Power Connectors:** 6 Pin x2; **TDP:** Approx 210 W; **Fans:** 2 x 100 mm; **Warranty:** 3 years

Contact

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Phone: 18002090365
Email: reachus@asus.com
Website: www.asus.in



HTC One Max

\$600 HTC Max launched and reviewed. Check out the detailed review <http://dgit.in/htc1max>



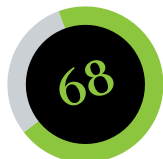
Siats Meekorum

New dinosaur found in Utah which has placed itself in the top spot of the Cretaceous list, overtaking the T-Rex. Read on: <http://dgit.in/siatsmeekorum>

Bazaar

Micromax Canvas Turbo A250

Sturdy build and good performance



Features	60
Performance	60
Value	70
Design	80

Specifications

Display: 5-inch IPS LCD, 1920x1080 px; **CPU:** quad-core 1.5GHz processor; **RAM:** 2GB RAM; **Storage:** 16GB storage no expansion; **Camera:** 13MP rear camera; **OS:** Android 4.2; **Battery:** 2000mAh battery

Contact

Micromax
Phone: 18605008286
Email: info@micromaxinfo.com

With its aluminum build, the Micromax Canvas Turbo looks like a premium device. The rear of the smartphone is in one piece, which means that you don't have access to the battery. There's no microSD card slot.

Its rear has a dark blue finish that we liked. The Micromax specific apps on the smartphone includes M!Live which gives you access to local Indian content such as ringtones, wallpapers and more and M!Unlock which gives access to the "blow" or "shake" to unlock feature, one that was introduced with the Canvas 4.

With the Canvas Turbo, Micromax has introduced a feature called ifloat. The app gives you the ability to easily access the most frequently used apps



Price
₹19,990

from anywhere on the device. No need to come back to the home screen or the apps listing page.

The display of the Canvas Turbo, at full brightness is very vibrant. The 5-inch full HD display is great for consuming multimedia content.

Surprisingly, the native video player crashed when we ran AVI files on it and that's a bummer. We have seen the same problem occur on the Canvas Doodle 2.

The keyboard on the smartphone is stock Android and there is enough display real estate for you to have a comfortable typing experience. Browsing the Internet, reading books, etc. all was a pleasant experience. A good phone, overall.

Sameer Mitha

BlackBerry Z30

A BlackBerry phone for the future

The BlackBerry Z30 is a very good smartphone, there's no doubt about it. BlackBerry has very smartly packaged the software and hardware keeping in mind the needs of a typical BlackBerry user while throwing in some new things like the 5-inch display and a quad-core GPU. And therein lies the problem. When confined to former and current BlackBerry users, the Z30 is a phone worth recommending despite its drawbacks but when the boundaries of that universe are broken down to let in all the smartphones, things don't look good for the BlackBerry. Phones like the Xperia Z1, the LG G2 and the Galaxy S4 offer more and do many things better than the Z30 (for e.g. better displays, more



Price
₹39,990

powerful hardware, better app ecosystems), and those things may ultimately matter to buyers without a bias towards BlackBerry.

So, to sum it all up, buy the BlackBerry Z30 if you are or have been a BlackBerry user and are looking to stay with the company. If watching movies or having the latest apps come second to using social networking and messaging apps, and you aren't already invested in any other mobile OS, in that case too, the Z30 will suit you. For the rest who want the latest apps and the best possible multimedia and gaming experiences on a smartphone, there are better alternatives.

Nikhil Pradban



Features	80
Performance	80
Value	70
Design	70

Specifications

Display: 5-inch Super AMOLED with 1280x720 pixels resolution, **CPU:** Snapdragon S4 Pro dual-core 1.7GHz processor, **RAM:** 2GB RAM, **Storage:** 16GB storage expandable via a microSD card, **Camera:** 8MP rear & 2MP front, **OS:** BB OS 10.2, **Battery:** 2880mAh

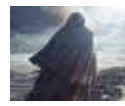
Contact

BlackBerry India
<http://dgit.in/17jle02>



NS(p)Ammed

NSA Malware spans 5 continents and over 50,000 networks. Follow the link to know more. <http://dgit.in/malNSA>



Cold open

Are the initial Xbox One games worth the long hard wait for its launch? Find out. <http://dgit.in/cldpn>

ASUS R9 280X Direct Cooling Top Edition 3GB

AMD hits back with better performance at a lower price

AMD's back in the fray with new cards featuring newer technology and a new die. Alas, this one right here isn't one of them. Most of the new R9 and R7 cards are simply rebranded Tahiti GPUs. This one in particular is a rebranded HD7970. ASUS on the other hand has worked their magic with another custom PCB graphics card. While this one features a 970 MHz GPU



Price
₹22,000

clock with a turbo boost of 1070 MHz it still outperforms every 7970 out there.

Quite simply because a stock R9-280X is clocked at 850 MHz so this card here has a base clock boost of 120 MHz. Even the memory clock is boosted by 150 MHz which is somewhat necessitated given the massive core clock increment.

Again, ASUS' Direct Cooling II technology helps maintain a low working temperature despite the maximum power consumption of 300 Watts. We managed to get it up to 72 degrees celsius at max load and it stayed at about 38 degrees while idling and there was hardly any noticeable noise at max load.

Performance wise this card beats the high end HD 7970(s) with ease. Even the best HD7970 we ever received with a similar overclock was beaten by this card. What actually matters here is the price at which the card sells at, roughly ₹10k lesser than what high end HD7970s retailed for. Even to this day this card is a better choice than any HD7970 selling currently.

Mithun Mobandas



Performance.....78
Value72
Design63

Specifications

Bus standard: PCI Express 3.0;
Base clock: 970 MHz; **Boost clock:** 1070 MHz; **Memory clock:** 6400 MHz; **Memory:** 3072 MB GDDR5, CrossFireX support; **Stream processors:** 2048; **Texture units:** 128; **ROPs:** 32; **Connectivity ports:** HDMI, DVI-D, DVI-I, DP; **DirectX Support:** 11.2; **OpenGL Support:** 4.3; **Power Connectors:** 8 Pin + 6 Pin; **TDP:** 300 W; **Fans:** 2 x 100 mm; **Warranty:** 3 years

Contact

ASUS Technology Pvt. Ltd
Phone: 18002090365
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Website: www.asus.in

Lenovo A1000

An underperforming tablet with good speakers



Price
₹8,099

The rear of the tablet has a plastic finish making it run of the mill in terms of design. The tablet boasts of front facing dual-speakers, which sound really good. It has a comfortable form factor for prolonged use. The UI is stock Android. The performance of the A1000 is sub par when compared to other offerings in the same price range. The display is washed out and isn't great to consume content on. The tablet lasted for a little under 4 hours in our video playback test, which is less when compared to the competition. For a sub 10k budget, you have better alternatives.



Features.....30
Performance.....30
Value20
Design40

Specifications

Display: 7-inch IPS, 1024x600 px, **CPU:** dual-core 1.2GHz CPU, **RAM:** 1GB RAM, **Storage:** 4GB storage expandable up to 32GB via a micro SD card, **Camera:** 0.3MP video, **OS:** Android 4.1, **Battery:** 3500mAh

Contact

Lenovo India
Phone: 1800-3000-5366
Email: consumerts@lenovo.com

ASUS FonePad 7

An Android tablet with calling capabilities



Price
₹17,499

The Asus FonePad 7 is a direct competitor to the Samsung Galaxy Tab 3 211. The tablet has some pretty interesting features such as Floating Apps, which let you access multiple apps in small windows on the display. The tablet also shows the ability to run heavy-duty apps smoothly and make calls. In our battery test the device lasted 6.5 hours, which is at par with the competition. The stereo speakers make gaming and multimedia consumption a treat on the FonePad 7.



Features.....70
Performance.....60
Value60
Design60

Specifications

Display: 7-inch IPS LCD, 1280x800 px **CPU:** Intel Clover Trail Plus Z2560 1.6GHz dual-core, **RAM:** 1GB, **Storage:** 16GB (up to 32GB), **Camera:** 5MP rear, 1.2MP front, **Voice call:** Yes, **OS:** Android 4.2.2, **Battery:** 3950mAh

Contact

Asus India
Phone: 1800-2090365
E-Mail: <https://vip.asus.com/VIP2/Services/QuestionForm?lang=en-in>

GTA: SA for phones

Grand Theft Auto: Vice City is going to be relaunched for smartphones, come December.
<http://dgit.in/smartgta>



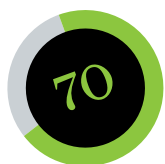
Amazon TV Live

Amazon TV started airing its shows in November. What does this channel have in store for us? Find out:

Bazaar

Acer Aspire P3

A good idea, but needs better execution



Features	70
Performance.....	75
Value	65
Design	70

Specifications

Processor: Intel Core i3 and Core i5 (Ivy Bridge); **RAM:** 4GB; **Storage:** 60/120 GB SSD; **Video Card:** Intel HD 4000

Contact

Acer India Pvt. Ltd.
Phone: 080-39408700
Email: enquiries@acer.co.in
Website: www.acer.co.in

The Acer Aspire P3 is essentially a tablet with a detachable keyboard cover that turns it instantly into a small laptop. With 11.6 inches of screen real estate, the Acer P3 isn't too big when considering the form factor, but it does clock in at a slightly thick 0.7 inches, safely taking it away from the tablet zone.

As far as the display goes, we felt that it was just about average, seeing how it lacked vibrancy and the viewing angles weren't very generous either. The tablet stutters a bit when playing back full HD videos, but it's nothing too major. Don't expect to run Photoshop or Lightroom on the P3, as it is more of a daily light routine machine than a workstation.



Price
₹74,499

One major issue we had with the P3 was the keyboard cover. Acer has clearly gone for a very Surface-like look for it, but the keyboard cover is just not built well enough. The cover is actually bendable, with no actual mechanism for locking the P3 in place on the keyboard. This causes the tablet to tip over every now and then, which can be quite frustrating. The keys on the detachable keyboard are smaller than we'd like so typing on the device will take some getting used to. At ₹74,499, the Acer Aspire P3 is expensive and though the product has its advantages, but it doesn't feel well-rounded.

Swapnil Mathur

Olympus OM-D E-M1

Pure performance packed in a sturdy, well-built shell

The E-M1 is a redesigned successor, despite the confusing naming scheme, to the OM-D E-M5, Olympus' mirrorless crown. While it still has a 16 megapixel (effective resolution) sensor, it gets a new image processing chip, the TurPic VII processor. The sensor itself has on-chip 37-point phase detection and an 81-point contrast detect AF system. Ergonomically, it's hard to find a mirrorless camera in the market that fit so beautifully in our hands. One handed operation with the E-M1 is actually quite easy, something that is counter-intuitive to the size of this thing.

The touchscreen on the E-M1 is incredibly accurate and fast, which makes shooting with the camera a whole lot easier. Right out of the camera, the images are

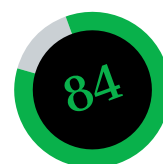
extremely good with strong contrast and a saturation level that would please pretty much anyone. However, if you like to tone your own images, the E-M1 will allow you to tweak the contrast and saturation to your own liking.



Price
₹1,05,000
(body only)

The AF performance of the E-M1 is actually quite good. You can either choose an AF point from the 81-point grid, or you could just tap anywhere on the screen and the E-M1 would fire off the shot before you can even pull your finger away. It is THAT fast. The E-M1 is a mirrorless camera that surprises at every turn. It's big, but incredibly easy to use even with one hand. It has a small sensor, yet delivers performance as good as an APS-C sensor.

Swapnil Mathur



Features	85
Performance.....	90
Value	75
Design	85

Specifications

Sensor: 17 Megapixel (16.3 effective) Micro Four Thirds; **Lens Mount:** Micro Four Thirds (m4/3); **Auto Focus:** 81 point Contrast AF, 37 point Phase Detect; **Burst Mode:** 10 fps **Video Resolution:** 1920 x 1080 (30 fps), 1280 x 720 (30 fps), 640 x 480 (30 fps)

Contact

Olympus India
Phone: +91 22 61420400
Website: <http://www.olympus-imaging.co.in/>

Wheel power

Save fuel, buy eco wheels. These electric wheels will save airlines 1.1 billion a year. <http://dgit.in/ecowheels>



A free sacrifice

Soul Sacrifice goes free on PS Plus. Go get it for yourself. <http://dgit.in/ssacfree>

NVIDIA GTX 780 Ti 3GB

Taking the GTX 780 a step further

NVIDIA's Titan was the best but it was pretty expensive and still is, so when they came out with the GTX 780 which offered better value for money it was no surprise that the GTX 780 was well received. But with the launch of the R9 series from AMD, NVIDIA sensed the urge to up the ante with an even better performer and it wasted no time in introducing the GTX 780 Ti which has outdone the entire competition. Now we wait for the overclocked after-market versions (AMP/OC/TOP/X) which are guaranteed to go a little further.

As with all stock cards in the high-end segment, even



Performance.....90
Value35
Build Quality60

Specifications

Chipset: GK110; **Base clock:** 876MHz; **Memory clock:** 1750MHz; **Stream processors:** 2880; **Texture Units:** 240; **ROPs:** 48; **Manufacturing process** - 28nm, PCIe 3.0, 4K resolution support, 3GB Memory; **DirectX support:** 11; **OpenGL support:** 4.3; **Power Connectors** - 8Pin + 6Pin; **TDP** - 250W;

Contact

NVIDIA India Graphics Pvt. Ltd.
Phone: +91-9892389229
Email: rajaramc@nvidia.com



Price
₹59,000

the GTX 780 Ti features the silvery unibody design. The fans on these cards are quite heavy and are thus stable when running at high RPM. The cooling achieved isn't that big a deal since temperatures did stay within the high 70s for most load.

Gaming benchmarks put it at a difference of about 10-20 FPS greater than the Titan under Hitman Absolution and Bioshock Infinite but synthetic benchmarks put them apart by roughly 700 points using 3DMark which is huge and at the same time expected. All this makes this card the best performing card currently available under stock settings, overclocked ones will always perform better. A factory overclocked GTX 780 runs as well as the 780 Ti so opting for such a card might save you a few bucks.

OpenCL benchmarks show that the card doesn't offer a significant improvement in performance and they are nowhere close to what the competition is capable of doing. However, this only concerns a minority of the graphics card users and is of little importance in the segment.

Mithun Mobandas

ASRock Fatalty Z87 Killer

Murderous intentions



Price
₹11,999

This Z87 board is packed to the gills with features that it thinks a gamer will need. These include support for (an incredible) 3050MHz OC on your RAM, a "FatalIty" mouse port and a "Killer e2200 networking platform" to cut down your pings. The mouse port is nothing more than a USB 2.0 port. The board itself is an ATX-sized board with support for 3-way SLI at the very least. ASRock is also quick to highlight the audio chipset, which has been isolated from the rest of the board and is claimed to have the ability to power even 600ohm headphones. It's an interesting board and is reasonably priced as well.



Features46
Build Quality85
Value for money.....80

Specifications

CPU: LGA 1150; **Chipset:** Intel Z87; **Memory:** 4xDIMM @ 3050MHz; **Expansion:** 3xPCIe 3.0 x16 slots (x16, x8, x4), 4xPCIe 1x; **VGA:** DVI, D-Sub, HDMI-IN, HDMI-OUT; **SATA:** 6xSATA 3.0; **USB:** 8xUSB 2.0, 6xUSB 3.0; **Warranty:** 3.5 years

Contact

Mediaman Infotech
Phone: 022-43441111
e-mail: sales@mediaman.co.in
Website: www.mediaman.co.in

Panasonic Lumix GX7

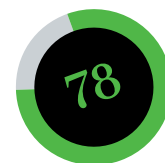
Offers a lot of control



Price
₹56,990

While aimed towards the enthusiast market, this has been designed keeping simplicity and ease in mind. Its 16MP micro four thirds sensor is complemented by Panasonic's Venus Engine Chip.

The camera boasts a lot of customizable controls, great for anyone who likes to exercise control over how they shoot. Towards this end, Panasonic has clubbed a touchscreen into the camera, which allows you to not just select, but also move the AF point around by simply dragging the finger (or thumb) across the screen. Overall, the camera has a lot to offer, not just in terms of specs, but also features.



Performance.....75
Features80
Design85
Value70

Specifications

Sensor: 16MP Live MOS; **Screen:** 3-inch, tilting LCD; **Wi-Fi:** Yes; **Video:** HD 1080p; **Weight:** 300g

Contact

Panasonic India
Phone: 1800-108-1333
Email: helpline@panasonic.in
Website: www.panasonic.com/in



Go dark side

Take a walk through the dark side of the Force by tiling up your walls like the Death Star.

<http://dgit.in/drklivng>



Turtle treasure hunter

A robotic turtle has been built for deep sea treasure hunting. Check it out:

<http://dgit.in/robturt>

Bazaar



Features	75
Performance.....	80
Value	70
Design.....	75

Specifications

Resolution: 1080p Full HD;
Native Aspect Ratio: 16:9;
Color Light Output: 2000 Lumens; **Connectivity:** Wi-Fi, HDMI, VGA, USB, RCA, RS232c; **MHL Support:** Yes
Lamp Hours: 5000 hrs (Eco - 6000 hrs); **Internal Speakers:** 2W; **Warranty:** 2 years

Contact

Epson India Pvt. Ltd.
Phone: 080 3051 5000
Email: think@eid.epson.co.in
Website: www.epson.co.in

Epson EH-TW5200

Performs admirably, priced aggressively

The EH-TW5200 home entertainment projector from Epson is a sub-1 lakh rupee device aimed at "budget" customers, and comes with all the bells and whistles

expected off a self-respecting multimedia entertainment projector.

The EH-TW5200 is quite portable at 2.8 kg and very easy to lug around. What's more, its white enamel shell with a glossy piano finish makes it appealing on the eye.

The projector's plastic exterior feels well put together, there aren't many moving parts, and the build is very good overall – with the exception of its front stand, which is mildly flimsy.

If there's one thing the Epson EH-TW5200 has in abundance is its wide array of features. And its menu item list goes on and on – password pro-

tected access, individual colour adjustments and faster image processing, to name a few.

The projector's quite bright and sharp, displaying a crisp, well-defined image on a white

screen in both a completely dark room and a well-lit room. Watching both Full HD 1080p movies and high bit-rate Blu-ray rips is handled very well by the projector, with absolutely no ghosting or visible moire, and impeccable colour

consistency. Text readability is also very good on the Epson TW5200. The bundled remote control lets you access a lot of one-click features conveniently. We wish the projector ran a bit cooler, and its inbuilt speakers aren't very loud, but that's about the only complaint we have from it.

Jayesh Shinde



Price
₹98,699

Cooler Master Ergostand Lite

Built well, runs quiet, does what it claims

We were mighty impressed with the Notepad U, and the Ergostand Lite is cut from the same cloth. It's smaller in width, able to accommodate only a 15-inch or a smaller form factor laptop – consider something else if you have a 17-inch laptop. But what it loses in width, the Ergostand Lite more than makes up for in build quality. It has a metal mesh top to place the laptop on and rubber stoppers to secure the machine in place – and they do the job quite well. The stand has five adjustable positions to let you choose the best one for your usage.

In terms of performance, the stand's 160mm fan is fairly quiet at max speed. It has a sliding mechanism to manoeuvre it within the stand's mesh

to your laptop's exact hot spot. Cooler Master has also included a fan control slider near the ports that helps to increase or decrease the fan speed as you see fit. On full load, with maximum CPU and RAM utilization, the Ergostand Lite managed to reduce CPU, motherboard and HDD temps by 7, 6, and 3 degrees, respectively. It did a marginally better job while the system was on idle, shaving 7, 5, and 9 degrees off the laptop's CPU, motherboard and HDD temps, respectively.

Not quite the best stand we've tested this, but at only ₹1,900, it's still a very well made laptop stand with well thought ergonomic features and is worth checking out.

Jayesh Shinde



Price
₹1,900



Features	70
Performance.....	70
Value	75
Design	75

Specifications

Model: R9-NBS-ESLK;
Compatibility: Up to 15.6-inch laptop; **Material:** Mesh + Plastic; **Color:** 1.12 kg; **Connection:** 2 x USB 2.0, miniUSB, **Power:** 1.9 W, 0.38 A; **Warranty:** 1 year

Contact

Cooler Master Co. Ltd.
Phone: 9820207871
Email: sanket_naik@cooler-master.com.tw
Website: www.cooler-master.in

A not so stellar 2013



Jayesh Shinde
Manager - Test Centre
jayesh.shinde@thinkdigit.com

"For a year that promised so much, one that showered us with glittering gadgets and stellar services, some tech milestones just failed to rise to the occasion."

Another year comes to an end, and here at Digit we always marvel at the speed at which the annual clock ticks over – we often refer to stories done several months ago as something we did “very recently,” and stand convinced that within the confines of our office lies a time distortion field that bows to no one. Among the haze and blur of a barrage of products and services witnessed this year, there are some that have stuck in my memory better than others. For better or worse. For a year that promised so much, one that showered us with glittering gadgets and stellar services, the following tech milestones just failed to rise to the occasion.

Let me begin with the Google Chromecast, a wireless screen sharing HDMI dongle for your TV. At US\$ 35 it's not something you think twice before buying, but after buying it, I realised there isn't much to do with it – right now. Google restricts app support to a choice few on handheld devices and the Chrome browser on PCs, instead of making Chromecast an unrestricted portal to access any media – video, photos, documents, etc – from any device on to your HDTV. While the Chromecast has a lot of potential and is undoubtedly cheap, it's too restrictive in its current state and falls short of expectations.


The Blackberry Z10 is another disappointment of 2013 for me. Already late in the smartphone game, for RIM, as a company, the Z10 (based on BB10) was a landmark device prepped to take on the Androids and iPhones of the world. While it came packed with decent hardware, not a single dominating feature was to be found, something that would give the Z10 an obvious edge over the other flagships. Also, in the quest for unique appeal, BB10's gesture-based UI lacked any familiarity to basic navigation, and was just too alien for my taste. Despite its expensive price tag, the phone failed in its basic quest to attract customers from competing platforms.

Next on my list of tech disappointments is Windows 8(1) RT. It's Windows for ARM devices, but it looks exactly the same as a full-fledged Windows 8 on an x86 system – but it's a curtailed version of the Windows 8, obviously. Too confusing, right? I think so, too. And even now, over a year after its launch, there are still way too few apps to show. With companies like

ASUS, NVIDIA and Samsung publicly voicing their disappointment with Windows RT, looks like it will only be relegated to Microsoft devices like the Surface, Surface 2, and now the Nokia Lumia 2520. I'm all for a strong third platform to go against the Android iOS hegemony, however, Windows RT doesn't seem geared for battle in its current state. Horses for courses is good, but Windows RT right now is more of a show pony and no stallion.

And what saddens me deeply is the lost opportunity on the console front, that Xbox One and PS4 are already here, and the challengers didn't quite manage to get a foothold into the market. I'm talking about microconsoles like the OUYA (the crowd-funded \$99 gaming console), NVIDIA Shield, Gamestick, Gamepop, etc. Almost all of these low-cost game consoles are based on Android and tap into Google's Play Store for gaming apps, some of them have proprietary app stores to download games from. There was a brief window of opportunity this year for these devices to score some customers, ones who weren't looking to buy an Xbox 360 or PS3 – if they would've seen a great new console with a promising platform, they would've thrown money at it. But it wasn't to be. Neither are developers seeing any great value in developing for these devices, and more's the pity. All hopes rest on the upcoming Steam Machines to take on the might of Xbox and Playstation in the near future.

On a happier note, while Diwali has come and gone, I still haven't managed to buy an expensive HDTV for myself. Not for lack of HD content – contrary to the apprehensions voiced in my column in January 2013. I've realized that Diwali is probably the wrong time to buy high-end gadgets. Same with Christmas. I'm still waiting for a great deal – I'm stingy, sue me. About time we had an Indian version of Black Friday, don't you think?

While this year had its ups and downs, let's all hope and wish for an awesome 2014, one that makes us forget 2013 sooner than ever. Until next year, then. 

TO FOLLOW THE LATEST IN TECH,
FOLLOW US ON...

The Facebook logo, consisting of the word "facebook" in white lowercase letters with a registered trademark symbol, is centered within a blue rounded rectangle that has a glowing blue border.

facebook.

thinkdigit.com/facebook

Tips & Tricks

We let you in on Tips and Tricks for some unknown Google tools while also covering some tips for disinfecting your PC and more..

Workshop

We take on Android phone management in this month's workshop.

Display drivers breaking bad, WiFi connection drops, silly optical drives...

System issues or failing gadgets never seem to deter the good folks of team digit and thinkdigit forum and they come to the rescue to troubleshoot the digital lives of our readers.

Bad optical drive

Hello Team Digit. My laptop's optical drive is unable to read DVDs or CDs. Whenever I insert a disk I can hear a low level spinning noise but eventually it stops and nothing happens. The DVD drive is visible in windows explorer and the device manager as well. The device properties say that the drive is working properly. But unfortunately I'm unable to use it. Another problem is that I'm not able to close the drive's disc tray smoothly. I can eject the tray easily using a command or by manually doing it, but closing it seems to be a problem. Forcing the tray inwards gets it stuck and I feel some obstacle is blocking it. The tray goes in only after pushing it forcibly from the sides. I discovered these problems just a day after I received my laptop from SONY service centre. Please help.

-Yash Kher

A There is something definitely wrong with your laptop's optical drive. The optical drive's head might have an issue or it may have gotten damaged somehow. And regarding the disc tray, it seems that a part of the drive itself might be obstructing it. Since you recently gave your laptop for RMA, we think that something may have gone wrong during the laptop repairs. You should take it back to the service centre and get the drive repaired.

Pen drive malady

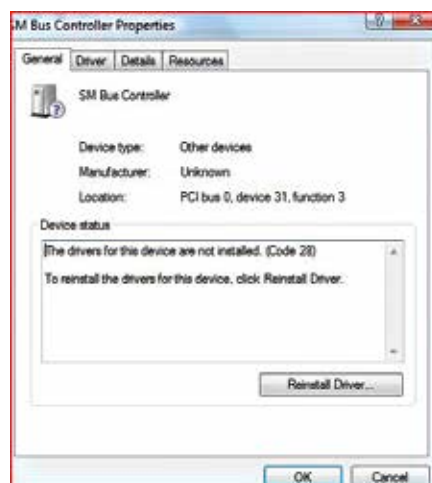
I am having trouble using a particular pen drive with my system. This pen drive works absolutely fine when I plug it in other systems but on my system, it gives me an

error saying "USB device not recognised". The port where I connected this drive is working properly because I can access other pen drives or external hard drives through that port. How should I make it work? Please let me know.

-sanny16 (tdf member)

A Looking at the properties of the pen drive, it seems that this is a driver issue. Code 28 is an error which indicates that drivers for a particular device are not installed. To fix this, first try and reinstall the latest chipset drivers from the manufacturer's website. You can also try to fix the issue by following the steps below: (You must be logged on as an administrator to perform these steps):

- Open Device Manager by right-clicking My Computer > Manage > Device Manager. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.



Reinstall drivers from here.

- In the list of hardware categories, find the device that you want to update (in your case your pen drive) and then double-click the device name.
- Now click the Driver tab > Update Driver, and then follow the instructions.

After the process is complete, you should be able to access your pen drive.

WiFi connection drops

So I own a Belkin Basic router (802.11 n) and on my desktop I have a network interface card, the TP LINK WN350g (802.11 g). Now the problem I face is that, for some reason the internet connection keeps disconnecting. I have the latest drivers on both devices, I use a software called inSSIDer to check for any network interferences and it shows me that there are none. I use my iPad in the same room as my desktop and the Wifi on it works fine. Windows tray icon for Wifi Reception and inSSIDer both show three bars with the doors in between open, and with the doors closed. The wifi router is roughly 20 Feet away from my Desktop. For some reason I remember using the same card on my old desktop and it worked fine then. I can also see the same problem when I'm playing COD4 online where it says "Connection Interrupted". I didn't have these problems when I had my desktop in my old room on LAN with the same Wifi Router. Now my questions are:

- Could my network interface card be faulty?
- If yes, then will buying a n Network interface card solve the problem?
- In your opinion what should I buy? A Network interface card or a Wireless



Hipster tech

Know any tech hipsters? Here's some stuff you can buy them
<http://dgit.in/hpstrtech>



Death by owl

Owl wings may be the key to a quieter military force. Read on to know more:
<http://dgit.in/attackowls>

Q&A

USB adapter and which will give me better performance?

-TheLetterD (tdf member)

A Generally the connection drops if the signal is not good enough. Connection drops are quite frequent and common when reception is 1-2 Bars. You can try various DIY tricks, most of them which are based on using an aluminium foil to extend the router's range and improve signal strength. Search online and you'll find many tips and tricks for this. Since it's your desktop that does not receive the signal properly, it's advisable to go for a wireless USB adapter in the long run. That will solve the issue.

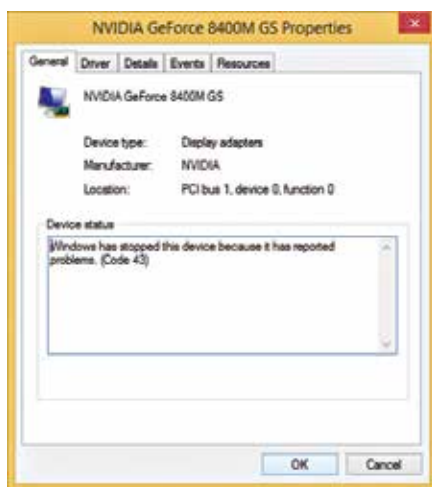
-topgear, barsbilsbarma63, Rishi. (tdf members)

Display driver troubles

I am facing a problem since last few days where windows device manager shows "Windows has stopped this device because it has reported problems. (Code 43)" for my Nvidia GeForce 8400M GS graphics card on an HP Pavilion dv6000. I am unable to play any games or movies on my laptop and I've attached the snapshot of the error. Please help in resolving this issue.

-askjeeves (tdf member)

A It seems that your graphics driver is going through the motions. First, uninstall your current GPU drivers and remove the leftover registry entries or files using Driver Sweeper (Fusion now). Next download and install the latest drivers for your GPU from NVIDIA's website. After you've done installing the drivers, restart



your laptop. This should solve the issue but if somehow the issue still exists, then reinstall the operating system. Check whether the problem persists. If yes, then download and install temperature monitoring utilities such as HWMonitor, RealTemp and GPU-Z. Now check and make sure whether any of the components are overheating.

-topgear (tdf member)

GTA IV not working

I recently bought a copy of GTA IV and installed it on my PC and it installed correctly. I had to later do a system format as my PC was infected by malwares. Once I was done formatting the system and it was up and running, I tried to install GTA IV. I did this after referring to the game's guide book which told me that I can install the game unlimited number of times. As soon as I entered the Disc,

a dialog box appeared with two options: "Launch Rockstar Games Social Club" and "Cancel". As soon as I click the "Launch Rockstar Games Social Club" tab, the dialog box disappears and nothing happens. Is it due to the possibility of not having an Internet Connection? Or is it something else. Please help.

-Souveek Pradhan

A An internet connection is prerequisite for initially activating GTA IV and this is why you're unable to start the game. Connect to the internet and then follow the same process. You should now be able to launch it. If it doesn't work, then go to the game's website and install the latest patch for the game which should fix the issue.

Overheating CPU

I recently checked out the CPU temperature of my PC and was shocked to see the load temperature was at 78° C. I am using this PC from the past two years and it worked fine but since the temperatures are so high I think it's a cause for concern. To fix this I cleaned my PC cabinet and though the load temps decreased, the fall in temperature was only 2° C. What should I do? Please help

-Atharva Kadam

A Open your PC case and carefully remove the heat sink installed over the CPU. Next, clean the CPU surface and the heat sink base using a soft cloth. Now, apply a small amount of thermal paste on the CPU surface. Reinstall the heatsink.

ASUS
IN SEARCH OF INCREDIBLE



ASUS recommends Windows 8.

ASUS Transformer Book T100
Transform your mobile lifestyle
2-IN-1 ultraportable laptop with 25.6 cms (10) tablet

Laptop and tablet combined
Small and light, with an Intel® Atom™ processor

Work and Play
Comfortable keyboard dock and IPS display

Long Battery Life
Up to 11 hours battery life for all-day mobile use



GOOGLE TOOLS YOU SHOULD KNOW ABOUT

Google's come a long way from the research project it used to be back in 1996. From the world's first commercially successful search engine, this company's branched out to become one of the world's most trusted cyber-world corporations. From delivering your emails and showing you the way home to managing your money and social life, The Big G takes care of it all. Although this has made several people more paranoid about trusting a virtual entity, it does seem to make life a lot more convenient in more ways than one. There are several features Google offers that haven't been explored to their full potential yet, and some that most people may know absolutely nothing about. Here are a few interesting facets of Google's wide-spread portfolio that you should know about:

Plan your free time with Schemer:

Everyone plans, plots, and schemes. Google's Schemer is like having a social networking website solely for the sake of your own personal plans and schemes. It's the 'Facebook events' of websites. A place where one can make plans to Goa and call a mixed group of friends (and, if you're feeling socially experimental, then maybe a bunch of complete strangers that you couldn't possibly know anything about). The app could use some refining and possibly a touch of publicity but it has potential for harebrained plans and arranging cultural events and rallies, maybe even a flash mob or two (an authentic flash mob. Not the planned stuff that happens in malls and public places in India). Admittedly, the range of this app is somewhat limited



Google Tools you should know about60

Disinfecting Your PC62

Tumblr64

{ Tips & Tricks has its own page numbers, and does not follow the rest of the magazine's page numbers. This is done to ensure that you can cut out and save T&T in a separate folder for later reference. }

for our country, but there is a scope for improvement, and one should keep an eye for any kind of update.

You can try out schemer for yourself at the official website: <http://www.schemer.com/>

Jazz up your text with Google Fonts:

Google Fonts (which was previously called 'Google Web Fonts') is an open source database of fonts available for both private and commercial use. The font developers use this as a platform to display their talent, and you can make your website and

professional showreel look a bit more unique than it would have otherwise.

Check out Google Fonts for yourself at: <http://www.google.com/fonts>

Look to the Google Sky:

A spin-off of Google Earth, Google Sky goes a few light years beyond physical experience. Putting together data and extrapolations of NASA and other space agencies, this software brings stargazing straight to your computer screen. Not quite like having the Hubble at your fingertips, but the closest

we can get to that. <http://www.google.co.in/sky/>

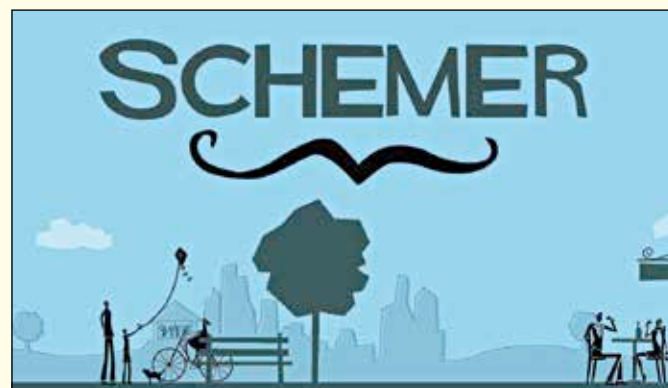
Organize your thoughts with Google Keep:

Much like the numerous diary apps on the Apple, WP8 and Google Play stores, Google Keep is an app to consolidate your daily thoughts and ideas in one place and store them on the cloud. At first glance, Google Keep does absolutely nothing different. The only reason one would suggest this feature to you is the fact that it syncs data with the very popular Google Drive. This makes it easier for people to sync their Keep notes with every device they own, making it a virtual storage space for those inspiring moments where you need to write your thoughts down for reference, and then can't remember when you need to because it's on your PC (or in the classical way, you wrote it down on the first piece of paper you found, which vanished a few minutes later. Download the app from your respective phone app store and find out more about this feature at: <http://dgit.in/googlekeepintro>

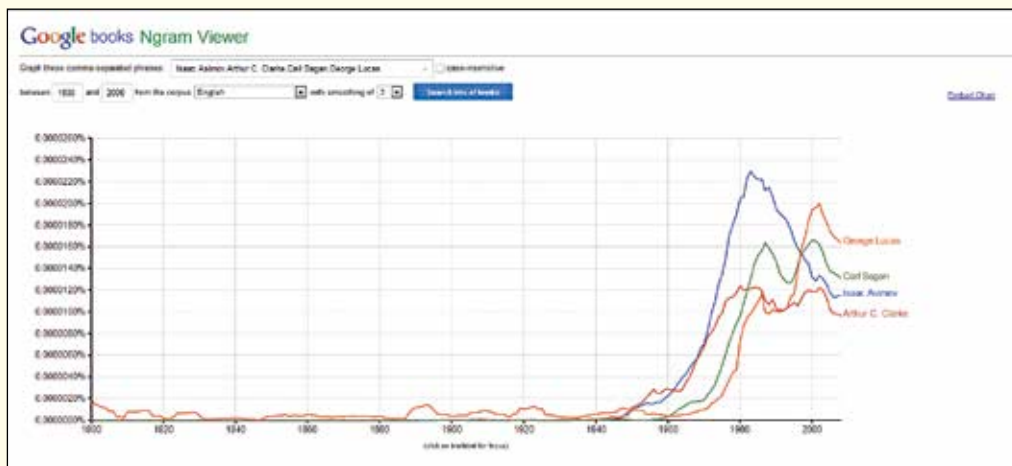
Code your way to Dart:

Not to be confused with DoubleClick, which used to be called Google Dart, Dart is Google's self-developed open-source programming code. Its initial purpose was, in the words of Mark S. Miller, "ultimately to replace JavaScript as the lingua franca of web development on the open web platform." It is a class-based, single inheritance, object-oriented language with C-style syntax. It was designed to be so simple that even beginner developers could use it.

The code is available for people online at: <http://www.dartlang.org/>



Google's Schemer



Instances of Asimov, Clarke, Sagan, Lucas appearing over time

Expand your research with NGrams:

Google's Ngram Viewer is a handy little tool. It lets you search millions of books over half a millennium for keywords. This comes in handy when you're trying to find trends over a period of time. The Ngram Viewer also has advanced options to make this more effective. This helps expand your search if you're looking for keywords that are specific parts of speech or if

you want to combine keywords. For example, here's the graph for Isaac Asimov, Arthur C. Clarke, Carl Sagan and George Lucas in fiction: <http://dgit.in/sci-fivisionaries>

Multilingua Franca avec Google Chat Bots:

Google Translate's chat bots are an interesting feature for Google talk. If you tend to chat with people of a certain nationality very often, it makes typing in their language much easier.

Adding a chat bot is quite easy: Check the bot username from the list of available chat bots here: <http://dgit.in/firangibots>

Add them to your GTalk list with the domain '@bot.talk.google.com' (for example, the English-French bot would be called 'en2fr@bot.talk.google.com')

Type in what you need translated, and the bot will reply with the translated text. Check the image for an example.

Manage Your Website and Business:

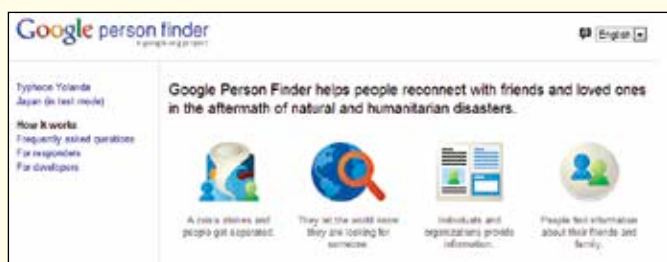
Webmaster Tools, coupled with Google's Data Markup Helper and Places for Business has made website management a skill more easily available for people. These tools help monitor a site's health, traffic and eyeballs.

Google's Places for Business: Google's Places for Business is the LinkedIn of enterprises. It's a place where you can consolidate all the information you need to put forward with respect to running your own business enterprise. It's a great instrument in the hands of people who can really use it to its full potential. It's also good for entrepreneurs who want a place to meet people and expand their influence in the right circles. Check it out: <http://dgit.in/tntwbms>

Trendy and Insightful: Google Think Insights and Google Trends is very useful for people who want to study emerging patterns in the behaviour of the masses. Keeping an eye open on this helps people know more about their constantly changing target audience.

Google Trends (as the name suggests) tracks the trends of people online based on searches run and pages which have been more frequently viewed by people. Try it out: <http://www.google.com/trends/>

Google Think Insights does the same, but with some more detail. It gives the user a list of studies conducted, trends and ideas across industries, platforms as well as audiences in one place. Everything from high-level visions to deck-ready data points is tracked and laid out. The website is effective, clean, and easy to use. <http://www.google.com/think/>



Google People Finder

DESIGNO SERIES MX299Q Ultrawide 21:9 Cinematic LCD Monitor

Wider Panorama of Vision and Sound

Wider Means Better

Ultrawide 21:9, 2560 x 1080 resolution LED display with a frameless, edge-to-edge design

Vivid Visuals Come Live

Enjoy lifelike images through an A-grade AH-IPS display with 178° wide-view angle and 80,000,000:1 ASUS Smart Contrast Ratio

Premium Immersive Audio

ASUS SonicMaster Technology, co-developed with Bang & Olufsen ICEpower®

Robust Connectivity

Featuring DisplayPort, HDMI/MHL, and Dual-link DVI ports for multi device connections

* Conditions Apply | All Specifications are subject to change without notice. Product availability may vary by region.

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Google Chat Bots can be a lot of fun



Finding those who are lost:

Google People Finder is Google's initiative to help people in times of crisis when families and loved ones are separated from each other. When there is a major natural crisis, GPF creates a database of information provided by organizations and people in general in case they find someone who has been lost in the chaos. This information is available online for people looking for their loved ones, possibly from the other side of the globe. Currently GPF has been running databases on people still missing in Japan as well as the casualties of Typhoon Yolanda in the Philippines. It's an admirable effort, and seems to be quite effective in its own right. It may not always have good news, but it does offer closure to people who have lost track of their family and loved ones in crises, one way or the other <http://dg.it/googlepeoplefinder>

As mentioned before, Google's come quite far from the search engine it used to be. Over time, it has expanded to occupying a more prominent space in modern culture. It has captured the trust and (almost blind) faith of people all over. Quite the street cred.

DISINFECTING YOUR PC

So we've all had this problem. At some point of time in life. Computers have their own shelf

life, but virus and malware issues cut that time exponentially. Even if you follow preventive measures to the letter, computer viruses are so named because they have the knack of evolving faster than people can



There's always a danger of getting infected

find a way to counteract them. They are a seemingly never-dying breed, but then it's an occupational hazard that comes with owning technology.



First prevent infection

Preventing infection is easiest with a brand new machine. It's even easier if you decide to keep your computer completely isolated. Don't connect it to the internet. Don't plug it to an external hard drive or pen drive. Don't install anything on it from any external source. If that is the case, stop reading this article right here. You're doing everything right with respect to owning a completely uninfected computer. If, however, your PC is more than just an expensive paperweight, read on.

The first thing you do when you get a new computer is get a good antivirus. Now you can choose to go for a paid solution but free ones such as Avast are good as well.

Install the antivirus on the PC, then update it online. Your first line of defence is set, more or less. This should take care of most of the problems you may have faced early in the game.

Avoid downloading anything that you know nothing about. There's a lot of free-ware out there that is riddled with viruses piggybacking on them. When installing a new program, make sure you don't install any add-on software unintentionally. Usually these add-on extra software are listed as options in the install process, with boxes prematurely checked and ready. Go through individual steps of the install procedures, instead of just clicking 'yes'

and 'next' throughout to hasten the process.

Try verifying the safety of a website before you visit it. Yes, the antivirus is supposed to block malicious online content, and it certainly does, but you need to remember that everything, including your awesome, antivirus isn't infallible.

The most important advice of all: watch what you download. A lot of the Trojans and other malware that make their way to your PC are a result of zero vigilance. Keep your eyes open when downloading off ANYWHERE from the internet. You never know what's infected.



Establish cause and effect

How do you know if you've been infected? First off, verify that it is indeed an infection that is plaguing your PC. There have been several scenarios where people say 'My computer is infected, but on further examination, the 'infection' turns out to be faulty hardware or badly installed firmware. Cross out the less dramatic options before you jump to the conclusion that your PC is, indeed, infected.



Read the signs

There are some distinct signs that would indicate

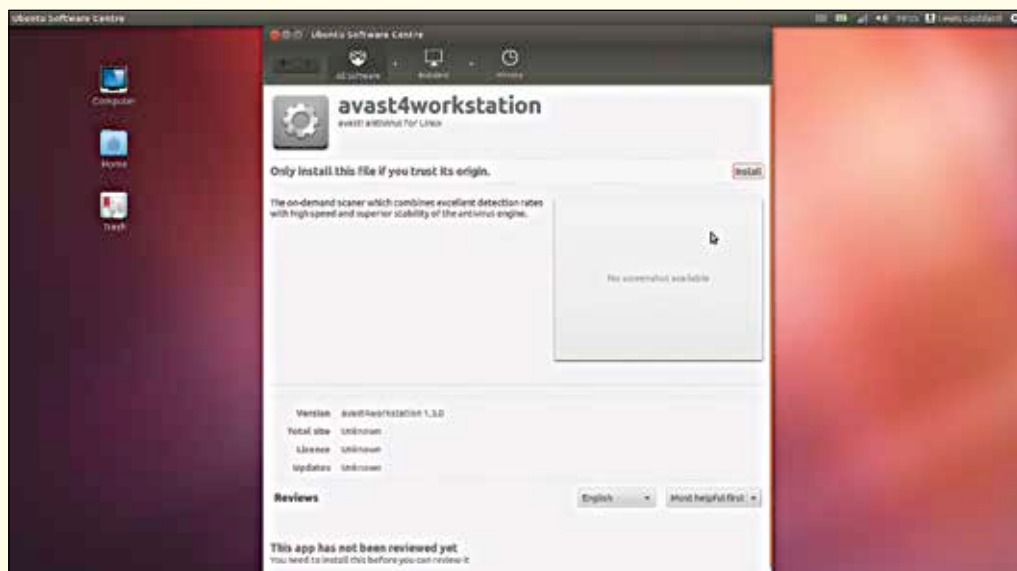


Invest in a premium antivirus

malware or viruses. A slow computer would be one sign. This is because your system processes are being used by other malicious software. On occasion, your computer would restart for no rhyme or reason. Another sign would be the fact that certain windows features that help you manually remove the malware would cease to work like your Registry Editor (regedit), Task Manager (taskmgr.exe), Command Prompt (cmd.exe), System configuration utility (msconfig), Group Policy Editor (gpedit.msc). If this happens, move on to disinfection. Other telltale signs include your web browser starts acting up by giving you search results which have nothing at all to do with what you were actually searching for. Installed programs start crashing randomly or start behaving in an odd manner. Sometimes, Microsoft Update starts giving you error messages, and the official websites would be inaccessible.

The clincher of a sign that your PC is infected is your antivirus starts acting up and nothing you do it would make it work. Websites which offer antiviruses won't let you download any programs either.

Disclaimer: Please note that BSOD is very rarely a sign of virus attacks. It's mostly a result of your hardware being in a state of disrepair.



Avast on Ubuntu



Disinfect via safemode

The most common method usually involves rebooting your PC in safe mode. This is mainly because this helps during troubleshooting various software and your operating system as a whole. Keep in mind that in some cases the user is denied the option to boot in Safe Mode or Safe mode with Networking. This would mean your infection has spread too far, and you need to try one of the other (possibly radical) measure mentioned in the tips that follow.

Booting the computer in 'safe mode' or 'safe mode with networking' ensures that the PC loads only the basic and absolutely necessary system drivers and services. These

steps are a lot more effective because there is a much better chance that the virus will not be loaded at startup. The 'safe mode with networking' option lets you download the required security software to run a full scan for viruses and clean the system.

Keep in mind that when disinfecting with this method, it is imperative that your account has Administrator rights.



Get into safe mode

To enter Safe Mode, boot your computer and press F8 before Windows starts loading to enter the Windows boot menu. Use this menu to access Safe Mode. When you reach that menu, select Safe Mode with

Networking from the list of boot options. Booting with Networking is recommended — it's better if you have internet access to solve your virus problem. Once your PC has booted in Safe Mode, open Internet Explorer. Yes, we know we're all fans of Chrome and/or Firefox, and most of us may have even removed IE from our system, but it's an unfortunate fact that using any other browser while running Windows in safe mode often causes more problems than it tries to solve. So grow up, get online and download a reliable antivirus software to try and clean your PC. We would suggest Avast! or AVG if you don't intend to spend any money in this process. Either

ASUS
IN SEARCH OF INCREDIBLE

ASUS desktops - leading in satisfaction with reliability
Based on PCWorld USA 2012 reader survey of tech satisfaction, reliability, and service*



One machine
Dual device
Triple play

ASUS recommends Windows 8.

Windows 8 enabled
Powerful Desktop Performance

King Size Tablet with
Android Jelly bean 4.1

18.4in Full HD
IPS Display



ASUS Transformer AiO



*Condition apply. All specification are subject to change without notice. Product availability may vary by region.

*ASUS 1 Year Service Warranty average price is ₹2000 calculated. *http://www.pcworld.com/article/2020964

www.asus.in | Toll Free No. 1800-2090-365 | For Feedback Email reachus@asus.com or info_india@asus.com



Use the bookmarklet to quickly bookmark

buy the install disc and install it in safe mode, or buy online from a clean PC, then download the setup and install it on the infected one. Which-ever scanner you use though remember not to rush the scan. Go for the most thorough scan. The scan will (it should) take a few hours. So take off for the day. Take a road trip with your closest friends and remember to complain about how bad your PC's infection was, and remember who to thank for helping you fix it.



Clean using Ubuntu

If the safe mode method didn't work, and your problem is much bigger, i.e. your computer isn't booting and you don't have access to the OS. Well - be afraid. Be very afraid.

No, not really. Relax. It's probably a boot sector virus.

What is a boot sector virus? We're glad you asked.

A boot sector virus is a virus that places its own codes and commands into a harddrives's boot sector (also known as its Master Boot Record). When this kind of virus infects a system, the Master Boot Record usually gets corrupted. This means that the computer's boot sequence has changed.

Boot sector viruses can be dangerous and very creative. They are loaded onto a computer every time one starts up, and in time, they can spread to the rest of your disks. An infection by a boot sector virus generally leads to Booting and start up problems, instability in your computer's performance, data retrieval issues and the inability to detect your hard drives on your PC.

This problem, however tedious, is quite curable. Of course, there is the option of running a high-level format on the hard drive, and yes, that would fix your problem, but it would also wipe out any data that is on the drive. If you need to keep the data, the answer is quite simple: Ubuntu.

A Windows boot sector hard drive has no impact on the Linux kernel. Plugging in your hard drive into a PC which runs on Ubuntu and running one of its virus scans on it would do the trick. In case you don't have a Ubuntu PC handy, read Digit's last issue - the Workshop section has a handy method of installing Ubuntu on a pen drive.

Once you boot in Ubuntu, scan the hard drive with any number of the Linux-compatible antiviruses available.

Avast! and AVG both have Linux versions as well, and Bit-defender, ClamAV and F-Prot are good options too.

The Ubuntu method works for most Windows antivirus issues. If you want to be extremely sure that your PC is clean, we suggest you go through both techniques for a full cleanse.



Better safe than sorry

Though we've mentioned this several times above, remember, it's a lot better to get a full-fledged antivirus software to take care of your cleanup needs. Even after you disinfect your system, keep a keen eye open for virus issues, and keep running AV scans on your system regularly to make sure you're virus-free. You can never be too safe, and you will always be way too sorry.

TUMBLR

Tumblr though technically a blogging platform, has over the years evolved to become so much more than just that. It's now a thriving melting pot of culture, expression and identity for a generation of web natives who skipped the whole "portal" and "homepage" era of the web. Its biggest user demographic is in the 18 to 24 bracket - people who dictate online trends.

The product was deemed to have enough potential to justify a billion dollar takeover bid from Yahoo! So, in short, if you'd like to be rolling with the "it" crowd here are some tips you need to master.



Search on any tumblr blog

A lot of Tumblr blogs out there do not have a search box. Fret not, there is an easy way to search these blogs. In the URL of the blog, append / search/[your search term] and press enter.

Eg:- [Blog Name].tumblr.com/search/iphone



Share stuff easily

The simplest and quickest way to share a link, photo, or anything for that matter on Tumblr is to use the Bookmarklet provided by Tumblr. It is a simple JavaScript code that you can add to your browser bookmarks bar. To share away to glory go to tumblr.com/apps and click and drag the 'Share on Tumblr' button to your bookmarks bar. The next time you want to share something that you are browsing or simply want to post an opinion on Tumblr, click the 'Share on Tumblr' button on the bookmarks bar and a Tumblr pop-up window will open to do your bidding.



Tumblr experience can be customised with extensions



"Nice Tumblr" customization extension



Missing E will add a whole new set

Change the look and feel

Bored of your blogs looking the same? Are Tumblr themes not enough? If these questions are something that have been both-

ering you then the Nice Tumblr chrome extension is for you. It gives you the power to change the look of Tumblr by allowing you to set different themes available on Nice Tumbler and also

allows you to use custom CSS. To do this Go to chrome.google.com/webstore and download the Nice Tumblr extension for your browser. Once installed, the Nice Tumblr icon will appear in the dashboard on the top right hand side. Click the Tumblr icon to access the Nice Tumblr menu. From here, you can change the background, select a custom theme or better yet, use custom CSS. As simple as that.

Pimp your tumblr dashboard

Missing E is available for Chrome, Firefox and Safari. It allows you to apply extremely useful tweaks to the dashboard, posts and also has some social tweaks. You can replace Dashboard controls with icons, add mass delete button to your Drafts, Queue and published posts, show number of notes when hovering your mouse over posts in the Mass Editor, etc. The Widescreen Dashboard tweak is worth checking out too. Go to missing-e.com/download to download the extension. The website automatically identifies your browser and gives you a download link. Once you are on the extension's control dashboard, tweak to your heart's content. The best part is that you can export and

import your settings and it works like a charm.

Dim sponsored posts

X Kit is another browser extension that boasts a number of tweaks and is available for Chrome, Safari, Firefox and Opera (Yay!). It has plenty of tweaks to enhance your experience from stopping GIFs on dashboard to making links open in new tabs. The best feature though is the 'dim sponsored posts on dashboard' tweak. To get started go to xkit.info/seven/ download to download the extension. After it installs, it will automatically show the X Kit control on Tumblr as a modal box. The X Kit button can be seen beside the settings button of the dashboard.

Migrate from Blogger to Tumblr

This has happened with so many of us; up to a point of time



Import your content from Blogger in a few easy steps

ASUS
IN SEARCH OF INCREDIBLE



ASUS recommends Windows 8.

ASUS Transformer Book T100
Transform your mobile lifestyle
2-IN-1 ultraportable laptop with 25.6 cms (10) tablet

Laptop and tablet combined
Small and light, with an Intel® Atom™ processor

Work and Play
Comfortable keyboard dock and IPS display

Long Battery Life
Up to 11 hours battery life for all-day mobile use



X-kit control panel

we have used Blogger only to find out that Tumblr was our true calling. But we simply can't abandon all the posts that we have on Blogger can we? And starting from scratch is not a pleasant option. Fret not, migrating tools to the rescue! One such tool is www.blogger-totumblr.com that helps you to migrate all your posts from your Blogger account to your Tumblr account. The best part is the simplicity of it all. All you have to do is enter the URLs of both the blogs and it transfers everything after authentication.

Go to www.bloggertotumblr.com and in the homepage type in your Blogger Feed URL/ Blog URL ([YourBlogName].blogspot.com), and your Tumblr blog URL ([YourBlogName].tumblr.com) in the respective text boxes and click 'Next'. You can also click on 'advanced

options' and add a tag to all the imported posts, besides their original tags which will also be imported. The Import Status page will show you the titles of the posts that will be imported. Click 'Authorize with Tumblr' to authorise the app in Tumblr. Once the 'Authorized successfully' message appears on the, click the 'Publish on Tumblr' button and voila! all your posts from Blogger have been imported in to Tumblr. Note: the tool imports and stores the text in Tumblr but does not import and store the embedded images but instead links them to the original post in Blogger. So don't delete your original posts.



Mass edit posts

Considering the number of posts one can have on a Tumblr blog, it can get difficult to edit multiple posts

for tags or to locate unwanted posts and delete them if you try doing them one by one. Instead you can use the Mass Editor provided by Tumblr to select multiple posts and edit their tags or simply delete them if you wish. If you have numerous posts then you can also choose to see of a particular month or year. On the posts tab, click on Mass Post Editor or simply type tumblr.com/mega-editor into the URL of the browser. The Mass Post editor shows all your posts sorted according to the month.



Become a keyboard ninja

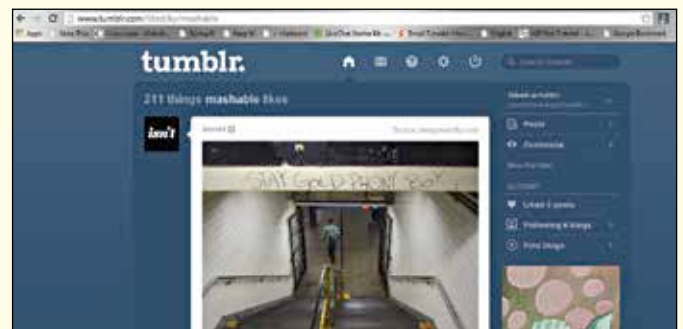
We geeks always try to find out the keyboard shortcuts of every

college or office? Never fear, email is here. Tumblr has made it extremely easy to post to Tumblr via email. All you have to do is send an email to the custom email address allocated to you. You can even reset the address in case it leaks out. You will find this email ID in the blog settings under 'Post by Email' or simply go to this URL [tumblr.com/blog/\[Your Blog-Name\]/settings](http://tumblr.com/blog/[Your Blog-Name]/settings).



See what a blogger likes

Want see what a blogger likes? Perhaps you want to get some idea about what that cute looking friend in your list likes so that you can plan a



See what others like using this is simple URL hack

software, online or offline, and Tumblr is no exception. Tumblr provides some quick keyboard shortcuts for common tasks like creating a new post, switching between the dashboard and blogs, reblogging, moving through posts, etc.

gift or maybe you are just plain curious about a blogger. Look no further as it is quite easy to see all the posts that a blogger likes.

Type the following URL in the browser [tumblr.com/liked/by/\[name of blog\]](http://tumblr.com/liked/by/[name of blog])

Action

- J,K - Move through posts
- L - Like a post
- N - See a post's notes
- Spacebar - Play a video post
- Shift+R - Quick reblog
- Z+C - Compose a new post
- Z+Tab - Quickly switch between dashboard and blogs



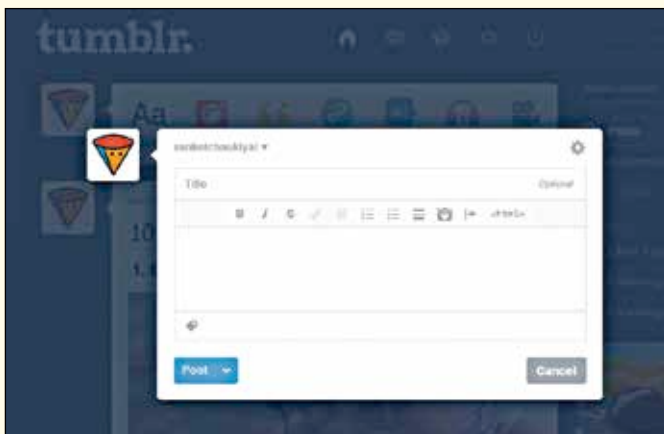
Post via email

Are social media sites blocked in your school,

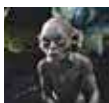


Browse in Chronological order

Looking to read particular posts related to a tag? In Tumblr it is possible to browse specifically tagged posts in chronological order. Type the URL [\[blog name\].tumblr.com/tagged/\[tag name\]/chrono](http://blog name.tumblr.com/tagged/[tag name]/chrono) in the browser and you will find the posts listed chronologically according to the tag you used in the URL. Happy tumbling. 🍷



Compose a new post



Health Gadgets

Ever considered that health gadgets may not be what they sell themselves as? See what this guy has to say: <http://dgit.in/hlthinacc>



Cool Aids

Hearing aids for the iPhone. LiNX receives a nod from apple, and from every person who really need this little gadget <http://dgit.in/iphaid>

Workshop

Droid Control

Learn how to micromanage your Android device using one of these various software

Prakrit Dhondiyal

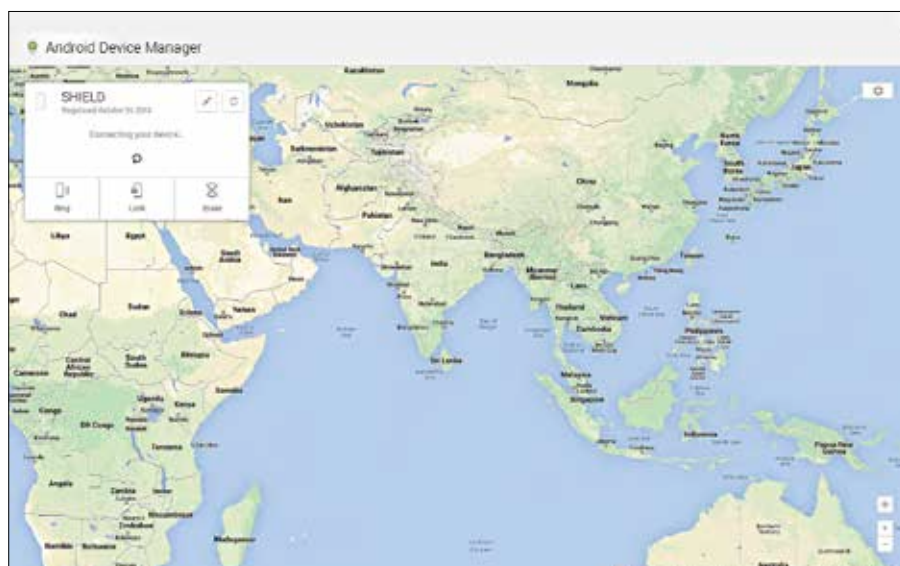
readersletters@thinkdigit.com

With Android practically dominating in OS sales in the smartphone and tablet market, it seems logical that people will look for more convenient methods to manage their phone data. Although most phones' default applications get the job done (Samsung Kies, HTC Sync Manager, Sony PC Companion, etc), one must appreciate that managing an Android phone could be made a lot smoother and convenient with the help of a third-party software. If there's one thing the world has learnt living through the evolution of the telephone, it is that mobility is a bottomless pit. No matter how far you stick your head in, there's always more scope to go further. Here we list out some software that you can use to unlock a little more of your Android device's mobility, style and convenience.

Google's Android Device Manager

This was Google's attempt at creating an anti-theft contingency for Android phone users. It provides a simple online service that gives you just enough access to your Android device to locate it and remotely lock it or make it ring, and if required (in case of extreme scenarios) erase it. Following Google's approach to software design, the Android Device Manager is quite simple, with just what you need on the screen. It's easy to use and requires no installation as it runs directly off your web browser. All you need is a Google account through which you can access your device, and the said device to be set up beforehand to allow anyone with access to your Google ID to, in turn, access your device. Simply log in with the same Google account that your device uses.

Go to <http://www.google.com/android/devicemanager> and get started!



Google Android Device Manager: Easy to use, minimalistic and direct

Moborobo

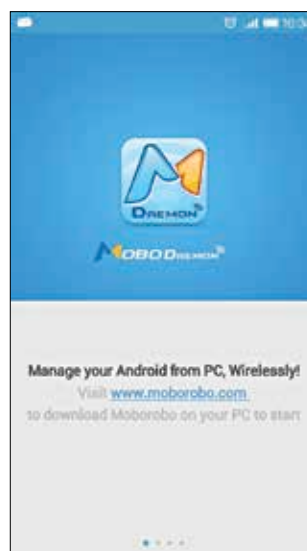
Moborobo is a freely available and widely accepted method to manage your Android phone. It has several services available, split up into (for the time being) six different software to make your smartphone experience better. These are namely: Moborobo, Mobo Market, Mobo Daemon, Mobo Launcher, Mobo Read and Mobo Play.

Moborobo is the LOTR of Android managers. One app to rule them all. In every sense of the word. The PC app handles everything from managing your music, videos and apps to maintaining a record of your messages and call logs. With the whole Mobo suite, one can micromanage an Android device to near infinity (and beyond).

Mobo Daemon is the phone's connect to the PC app. Sure, you can try

connecting your device to the PC via a USB cable – but why do all that when you can download Mobo Daemon to your device and sync your data wirelessly? The height of electronic convenience is the complete removal of wires from the equation. Mobo Launcher is Moborobo's contribution to the Android theme launchers which are

all over the Google Play Store. The Mobo Launcher offers users a variety of themes to choose from to remodel the look of their Android device, much like the popular AWDLauncher and Go Launcher Ex. Mobo Read is an e-book reader for Android. Simple, effective and easy-to-use, this reader is probably as good as any of the other Android readers in the market. Mobo Market and Mobo Play (as the names suggest) are the brand's own app store for all things Android and a music syncing app for your phone.



Moborobo: Mobo Daemon

Yuletide Geek

Need to buy a Christmas present for a geek? Bring in your naughty and nice list and cross-check here <http://dgit.in/xmasgeek>



Telltale Thrones

Telltale Games, the studio that made The Walking Dead, plans to develop a Game of Thrones video game <http://dgit.in/tlothrns>

As far as Android management tools go, Moborobo is simple, efficient and a definite favourite for control freaks and people suffering from obsessive compulsive disorder.

To install, go to <http://www.moborobo.com/> and download Moborobo. After installing, launch Moborobo. Once it starts, plug in your phone and wait for Moborobo to detect it. In a few seconds, your phone will be visible on your Moborobo dashboard, and the software will take the liberty of installing Mobo Market and Mobo Daemon on your device for you. If you don't wish to use any of these, go ahead and uninstall them. It will make no difference with respect to your PC application. Mobo Launcher, Mobo Read and Mobo Play are all readily available for download in the Google Play Store.

Airdroid

Airdroid takes phone management to the level of cloud computing. It syncs with your Google account and allows you to access your device wherever you are, assuming you have a working internet connection and a web browser at your disposal. It also has a PC desktop suite if you're more comfortable handling your phone management via USB. Above all, Airdroid's 'Intruder' feature is interesting. It allows you to access your phone and has anti-theft protocols, much like Google's Android phone manager. However, its intruder feature takes it to a different level. If a person tries to enter a locked phone and fails, it uses the front-view camera to take a photograph of the intruder and sends it to the owner. Simple and effective.

Installing Airdroid involves a certain amount of work. You need to have both your PC and the Android device at hand. On the PC, go to <http://www.airdroid.com/> and register with your Google, Facebook or Twitter account. If you have neither, use any email account. Meanwhile, download Airdroid from the Google Play Store on your device. If you prefer QR codes, go to <http://v2.airdroid.com/> and scan the QR code to do the same. Once you've made your account, sign in to it from your PC and device. In a few minutes – Voila! Airdroid is active. Go crazy.




Airdroid User Interface on a web browser

Files Drag and Drop

No, that heading isn't just an instruction. It's also the name of an app that does exactly that – drags and drops files onto your Android device from your PC. Drawing from the use of apps like File Drop, this app makes it easier for people who occasionally transfer files to and from their phones, with no need for

confusing instructions about file managers and so on. It comes in handy for people whose usage of file transfer mechanisms is limited to transferring that one song or that one folder onto their device once in a while. This kind of file transfer happens over Wi-Fi where the PC and the Android device are both on the same network.

To install, download the Files Drag and Drop app from the Google Play Store. At the same time, download and install its PC counterpart from <http://www.filesdnd.com/> download once installed, run both programs. Select 'Start the Service' on your device, and it will show up as a device on your PC. Drag and drop files onto the device icon to transfer them. Note: Both devices need to be on the same network for this to work.

To be perfectly honest, all software that deal with managing your Android device more or less do the same thing. Something which you would have noticed in this article. The trick in doing it right is picking the right software to suit your own personal needs, and (possibly more importantly) picking the software that you as an Android owner are most comfortable using. Comfort is an important part of micromanagement. It's like choosing the right guitar. The right one just feels right in your hand – so our advice of the month to you is this: try what we've mentioned, and settle on the one that feels right. 



Files Drag and Drop

worldview

OUR PICK OF THE BEST TECH ARTICLES FROM AROUND THE GLOBE

(MUST READS)



DO WE LIVE IN THE MATRIX?

A question even Digit has taken a crack at in the past, now scientists have discovered tests which may reveal that we are part of a giant computer simulation. But seriously, do we really want to know?

<http://dgit.in/wwwmatrix>

A DAY IN THE LIFE OF AN APPLE EMPLOYEE

Think working for Apple would be the coolest thing ever? Well it might just be, but not so much if you happen to work in an Apple store and have to directly deal with irate customers. Sure you get the Apple employee discount which would make you extremely popular, but there's a price to pay.

<http://dgit.in/aplgenius>

HOW LONG DO HDDS REALLY LAST?

If you ask a cynic you'll probably get the answer as "until exactly one week longer than your warranty". Until Backblaze released a study recently, guesses like that were all we had. Now we know how long you can reasonably count on a hard drive. Read on to know more.

<http://dgit.in/hddlfe>

HOW GOOGLE LOST

In the aftermath of the Apple Maps fiasco, everyone thought Google came out the winner in that little skirmish. But in reality ComScore research shows that while Apple suffered a PR disaster over maps, Google lost 23m iPhone users in the US! Find out more here:

<http://dgit.in/aplggle>

[Scientific American Corner]

ELECTRON APPEARS SPHERICAL, SQUASHING HOPES FOR NEW PHYSICS THEORIES



The most precise measurement yet of the electron's shape casts doubt on ideas such as supersymmetry that predict a zoo of undetected particles in the universe. <http://dgit.in/elctrnrd>



How many friends can your brain handle?

It seems there are advantages to being a social butterfly. Certain brain areas are enlarged and white-matter tracts were better connected in people with larger social networks!

<http://dgit.in/frndsgud>



What shaped our evolution?

A new study links the emergence of new hominin species, expanding brain capacity and early human migration with the appearance of deep freshwater lakes – all results of plate tectonics and climate change.

<http://dgit.in/evoapemaan>



Do people really care about wearable tech?

A Harris poll finds that many Americans wonder how smartwatches and smartglasses would fit into the average person's life. Listen to this Scientific American podcast for more:

<http://dgit.in/wearpodc>

HAAAAAVE YOU MET STEVE?

Everyone thinks they know Steve Jobs, but what was Jobs like when he wasn't changing history? Here's a collection of 17 stories taken from Quora of what happened when ordinary people happened to meet the great Jobs.

<http://dgit.in/jobsmeet>

IRONIC: OBAMA DOESN'T LIKE BEING SPIED ON

When President Obama travels abroad, his staff packs briefing books, gifts for foreign leaders and something more closely associated with camping than diplomacy: a tent. It's his portable zone of secrecy. Find out what shielding gadgetry it contains:

<http://dgit.in/nospoyob>

DELETE YOURSELF FROM THE INTERNET

If your growing weariness of being constantly tethered to the internet has become overwhelming, it might be time to scrub yourself from the social media sphere altogether. Or who knows if you are an international spy this guide is just what you need.

<http://dgit.in/shiftdel>

QUORA TELLS ALL ONCE AGAIN

A job at Google is career heaven, right? How could a gig at the biggest, most ambitious tech company on the planet possibly be bad? Well here's an article based on a Quora thread in which current and former Google employees dish the dirt on working for Big G.

<http://dgit.in/biggbad>

5 reasons why the Nexus 5 should be your next phone

Looking for a reason to pick up the Nexus 5? We give you five!

- By Sameer Mitha

From what we have read, heard and seen, the Nexus 5 is a pretty badass phone. I have had the pleasure of using the phone for a short period of time and it is a wonderful device.

If you are in the market to pick up a flagship smartphone, and are spoiled for choice with the likes of the LG G2, Galaxy S4, HTC One, Xperia Z1 and more, we give you five reasons the Nexus 5 is worth considering.

Great Hardware

Kicking things off, of course, are the specifications of the tablet. The smartphone has a 4.95-inch True HD IPS Plus display with a 1920x1080 pixel resolution giving it a pixel density of 445ppi. Under the hood, a 2.26GHz quad-core Qualcomm Snapdragon 800 processor coupled with 2GB of RAM powers the device. It has an 8MP camera with OIS and the front has a 1.3MP camera. A 2300mAh battery powers the smartphone. The device is available in two storage variants - 16GB and 32GB. This is a bump up when compared to the Nexus 4, which came with 8GB and 16GB built-in storage.

The Nexus 5 stands tall bringing the same hardware that is powering the LG G2. Sure, the battery is a mere 2300mAh but we think it can last through a day, at least.

Android all the way!

The prime reason why anyone would pick up a Nexus device is the vanilla Android experience. The smartphone runs Android 4.4 KitKat straight out of the box and keeping Google's policies in mind, the

smartphone will receive all major Google OS updates for the next 18 months. The Android 4.4 KitKat update is available for the Nexus 4 and it will take a few days to hit Nexus devices in India but when it does, the roll out will be very smooth. If you want to be the first to receive the Android updates, then the Nexus 5 should definitely be your weapon of choice.

If you are someone who likes skins overlaying the OS, the Play store has a large number of paid and free skins and themes to choose from.



Price

The 16GB Nexus 5 is priced at ₹28,999 and the 32GB Nexus 5 is priced at ₹32,999. Let's put this into perspective. The 16GB iPhone 5S is priced at ₹53,500. The LG G2 is priced at ₹40,490 for the 16GB and ₹43,490 for the 32GB. The 16GB Samsung Galaxy S4 is priced at ₹38,999 and the HTC One is selling for ₹46,999 for the 32GB. The Sony Xperia Z1 is priced at ₹38,700. The G2, Z1 and the S4 boast of expandable storage.

From those prices, it is evident that the Nexus brings with it some great hardware

at a more affordable price when compared to what the competition has to offer.

Display


The 5-inch 1080p display of the smartphone has a True HD IPS+ panel and a pixel density of 445 ppi. On paper, the display is the same as the LG G2 and the G2 has a display to die for. It has great viewing angles, is very vibrant and vivid. Put simply, it's one of the best displays we have seen on a smartphone.

The same was the case with the Nexus 4 and the LG Optimus G. The Optimus G had an incredible display which didn't translate to the Nexus 4. Even if it's the same with the Nexus 5, you still get a great display.

Build

One of the biggest pros and cons with the Nexus 4 was the build of the smartphone. The Nexus 4 had a glass back that made the smartphone look really sexy. The downside was that one drop could break the panel.

This time around Google has gone with a safer bet. Rather than a glass back, you have a rubberized finish very reminiscent of the Nexus 7 2013. The device is comfortable to hold, and the build, though simple, is great. The smartphone may not turn heads like the Nexus 4 but the bigger, bolder Nexus branding at the back is sure to garner attention. The smartphone is available in two colours - black and white some accessories are available on the India Play store as well.

If you are one who is interested in picking up a Nexus 5 can do so from the Google Play store or from eBay. 

IS THE QWERTY DEAD?

Sean Hollister from The Verge thinks the once-vaunted smart-phone keyboard

is the victim of a fickle market. In this article he analyses the fall of the physical keyboard and wonders if any company will go that way ever again.

<http://dgit.in/qwertyph>

SIX SCIENCE MYTHS BUSTED

People have this tendency to occasionally lob whatever untruth comes flying at them right back at somebody else like a game of ping pong. Here are six of those that we've been hearing since our school days. About time to set the record straight.

<http://dgit.in/sixsci>

EXPOSING THE NSA

How much big brother knows has been the subject matter of a lot of debates and articles.

In this fresh look at the subject post the Snowden exposures, we get to dive into the dark world of governmental espionage. This is a long but enlightening read.

<http://dgit.in/sauroined>

PLAYSTATION 4 REVIEW

It's going to take some time for the PS 4 to hit Indian shores. Until then you should definitely check out Polygon's comprehensive review of the next gen gaming console. The controller is a major leap, the Wi-Fi standard could've been better and right now it's just waiting for better games to appear.

<http://dgit.in/ps4revu>

Google Chromebook: Is it the right laptop for you?

Chrome OS is a completely new operating system and clearly, meant for a very specific user base. Find out if it's made for you.

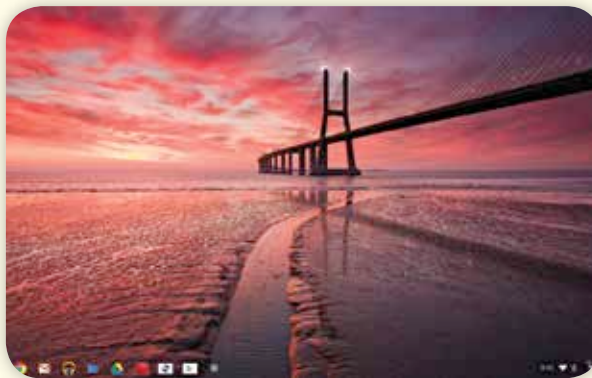
- By Vishal Mathur

The last couple of months have seen a fair amount of movement on the alternative OS front, for the want of simplicity and ease of use. Google pushed Android on some AIOs recently and HP was leading that march. But, the new Chrome OS is a more refined alternative to Windows and Mac OS X. All laptops that come pre-loaded with Chrome OS are called Chromebooks, irrespective of brand or model. Currently, Acer, Samsung and HP are making some Chromebooks but more laptop makers surely join in in due course of time with a wider range of products.

For anyone who is looking to shift from their current OS, do keep this in mind - it will be a major change, in some regards, with respect to productivity.

Usability, from the GO!

If you had chided Microsoft for the lack of the start button in Windows 8, this OS will possibly invite more snorts of derision. But then again, the purpose and the method of achieving it are completely different. And that is the learning curve with Chrome. Sign into your Google account, and what awaits you is the traditional desktop, with a difference. On the taskbar (called Shelf, in this case) are the icons for Chrome browser, Gmail, Google Search, Google Docs and YouTube. If you use an Android phone, you will immediately recognize an icon very similar to the one that takes you to the app drawer. This is where the "apps" sit - stuff like the



file manager, Tweet Deck or anything else that you may have downloaded.

For starters, and for all purposes, most of the stuff will run in the Chrome web browser. Too much Chrome branding to get confused with, but bear with us! The base is the Chrome OS, while the quintessential window to the world of the Internets is the Chrome browser. You can download apps on the Chromebook, but they will almost always be web based versions. Dropbox? Web version. Pixlr image editor? Web version. Tweet Deck? Web version. Clicking on their icon / shortcut means the Chrome browser will open them with relevant content. What you essentially need to come to terms with is that most of these "apps" that you download from the Chrome store, are shortcuts to the web page. And that, for most users, is a major change.


The file manager / file browser (simply called *Files*) will not run in the web browser. If you miss the folder structure traditional to Windows or Mac, this will bring some

sense of familiarity. Two major tabs here - Google Drive and Downloads. On the top right of the window is the settings option, allowing you change the view, or create a new folder. Fairly basic, and should get most tasks done. However, we could not find a way to create more folders, apart from Drive and Downloads.

Who can switch over to a Chromebook, and who shouldn't

Using it as the primary machine at work for a few days had a steep learning curve. If you are using the Google ecosystem right now - Mail, Docs etc, and not relying too much on third party software installed on the PC, then adopting the Chromebook should be the simplest task in the world. Otherwise the change may not be smooth. Keep in mind that any reliance you may have on Dropbox will also be shifted to Google Drive.

Cannot neglect the sheer advantages

As an OS, Chrome has its distinct advantages. It is simple, uncluttered, and to the point. True, there are no pretensions of taking on Windows or OS X which is what makes this new platform so enticing. Chrome OS is meant very specifically for someone who is already using the Google ecosystem for their work or for someone who needs a simple to use laptop for web browsing, emails, streaming and playing the odd casual game. 

SMARTER EVERY DAY

Destin's podcast takes everyday situations and explains life as a whole through elementary science. He's got quite



the fan following and has his funny moments. Check in and watch his videos if you want to know how cats land on their feet, kinematics of a grasshopper or even if you want to know what an AK-47 looks like when fired underwater.

<http://dgit.in/evdaywww>

(QR Code)



For a list of all the links from this section, head over to <http://dgit.in/wwdec13> Or point your phone to the QR code above

(PRODUCT LAUNCHES)

PLAYSTATION 4



Powered by an x86-64 AMD Jaguar processor with 8 cores and featuring a Radeon GPU that can produce 1.84 TFLOPS of compute power, the PS4, brings in next generation console gaming. The DualShock 4 controller is being hailed as Sony's best controller yet. Price: \$399

IPAD AIR



Weigh one pound, iPad Air is 20 percent thinner and 28 percent lighter than the fourth generation iPad. The device now has a narrower bezel and is powered by the A7 chip with 64-bit architecture. Its got a better camera and the M7 co-processor to help save battery. Price: \$499 for 16GB Wi-Fi.

XBOX ONE



Relying on pretty much the same hardware as the PS4, the Xbox One is Microsoft's gambit to capture the console market. Although using the same series CPU, this one is rumored to be clocked a little higher. And no, we don't mean just the cost of the console. Price: \$499

WORDJUMBLE

B	Q	G	F	T	R	E	D	A	O	L	U	T	D	K	E	R	N	E	L
P	M	A	L	W	A	R	E	B	K	Y	S	R	X	X	Q	R	C	C	T
T	K	Z	K	L	T	V	D	E	S	L	A	T	E	X	C	I	P	V	A
Q	E	H	K	T	H	F	Y	U	N	O	X	G	Z	L	I	V	T	S	F
F	Y	B	C	S	G	L	T	L	B	D	M	R	I	N	T	E	U	Y	O
P	W	J	H	Q	O	U	I	R	H	M	S	N	L	M	A	T	L	A	B
M	O	X	H	G	O	I	E	E	R	D	K	T	G	X	Z	O	Q	C	G
A	R	P	G	L	T	H	K	E	D	R	A	I	L	M	C	T	H	K	O
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Q	W	H	A	F	K	Q	F	Z	A	C	V	L	N	I	F	E	E	O	M
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M	T	I	J	N	B	H	K	P	K	I	I	N	F	N	D	A	Y	D	V

ABSOLUTE
TIMEPASS

We've hidden 18 terms from the Encyclopedia Technica in the word jumble alongside. Find them all

Top 3 YouTube Picks

Make sure your boss doesn't catch you goofing off with one of these videos playing on your screen



Epic Split

Duration: 1 min 16 seconds

If you haven't already, watch Jean-Claude Van Damme carry out his famous split between two Volvo trucks. <http://dgit.in/vanefindamn>



6 essential Mac tricks

Duration: 1 min 30 seconds

To silence once and for all, those of you who claim we don't show enough Mac love, here you go. <http://dgit.in/6mactr>



The Force is Real

Duration: 3 min 38 sec

For all you Star Wars fans out there, who thought that the Force was just about midichloreans: <http://dgit.in/forceclick>



Interview with
Magnus "Gordon"
Gardebäck,
Co-founder and Technical
Lead, Simogo

Who's got the game at the NASSCOM Game Developers Conference 2013?



Our third straight year at NASSCOM Game Developers Conference – where the crème de la crème of Indian gaming gather annually – and we've only seen it go from strength to strength. Here's some of the major highlights of the event held in Pune last month.

This year's NGDC had over a thousand industry professionals participating, not to mention gaming luminaries not just from every corner of the country but all around the world, signalling towards the maturity of the gaming industry in India. Mr. Rajeev Vaishnav, Vice President, Member Outreach, NASSCOM, and Rajesh Rao, Chair, NASSCOM Gaming Forum, also took the opportu-

nity to inaugurate and release a booklet on relevant laws and policies governing the space of social and casual gaming in India – they did this in the presence of a representative from the State Government of Maharashtra, which was a major sponsor of this year's event. Good tidings, eh?

Apart from the usual mingling between gaming professionals and peers, this year's NGDC also had a lot of stalls from companies and studios that were presenting on stage – the likes of BlackBerry, Microsoft, Autodesk, Amazon, etc. The Oculus Rift was also spotted here, and not surprisingly attendants made a bee-line at its stall. The show had a very good mix of local and

international speakers bringing their insights from the world of gaming. There were four hands-on workshops on topics like PR, game design, and legal advice.

For the first time, NASSCOM Gaming Forum Awards was held at this year's show, with the Indie Game of the Year bagging a cash prize of ₹1,00,000 and the Student Game of the Year receiving a cool ₹50,000.

Who won? Yellow Monkey Studios' HUEBRIX won both the Game of the Year and Indie Game of the Year awards, while Chaos Theory by Diptoman Mukherjee bagged the Student Game of the Year award.

If you're a game developer, this is a great annual event to meet like-minded people and industry heads. >

*side panel



*Sparks fly

>> Google's latest project is a Chrome app-based Integrated Development Environment codenamed Spark. Spark has been built and coded entirely on Dart (Google's own open-source code) and powered by Polymer. Read more about it on the page linked below:

<http://dg.it.in/gspark>

*Keys to the 'programming playground'

>> Stephen Wolfram seems to be developing his own programming language for developers with a mind-boggling amount of functions built right into it.

http://dg.it.in/s_wolf



*OSv

>> A cloud computing-focused operating system built to run as a guest on top of a virtual machine. It released on September 16th, 2013. Read more on:

<http://dg.it.in/1a4XXOI>



For latest news, updates and features, join us on Facebook at
facebook.com/devworx.in

Make your own app using Google App Engine

>>This workshop shows you how to build a registration mechanism that'll use a Google account to authenticate potential users> by Ashesh Lal

In this current era of modern web technologies and application development, Google has come out with yet another project – Google App Engine. The App Engine allows developers to make web applications that run on the appspot web server and uses Python, Java and Go as the supported programming languages while php is still in the experimental phase. The WSGI (Web Server Gateway Interface) is a standard used for web application development. Web application frameworks such as webapp2 handle these details for you, so you can focus your development efforts on your application's features. Google App Engine supports any framework written in pure Python that speaks WSGI, including Django (www.djangoproject.com), CherryPy (www.cherrypy.org), Pylons (www.pylonsproject.org), web.py (<http://webpy.org>), and web2py (www.web2py.com).

Getting Started

Before you begin with this workshop, make sure you have the following:

1. A Google account – gmail or appspot will do
2. A mobile number for administrator authentication
3. The App Engine SDK for python that can be found at <http://digit.in/dappengine> along with Python 2.7 SDK that can be found at <http://digit.in/pythondnld> or you can look for them in our Omega DVD.
4. A basic knowledge of Python and a Python editor. We used Sublime Text 2, which can also be found on the DVD.
5. A basic knowledge of HTML and character escaping.

Let's Begin!

1. Go to <https://appengine.google.com/>
2. Click on Create Application. Once you have found an available Application Identifier(your-app-id), fill in the Application title and leave the authentication at default.
3. Submit by clicking on Create Application.
4. You now have a custom domain “your-app-id”@appspot.com

Programming with App Engine

For a demo, go to <http://digit-app.appspot.com>

This workshop will give you a basic gist about how to go about programming with App Engine using Python on the Windows Platform. This will be done by creating an application that uses the users google account to authenticate and sends a mail to confirm the same.

1. Launch the Google App Engine
2. Go to Edit > Preferences

3. Browse for the path of Python, App Engine and your preferred text editor. Go to File > Create New Application
4. After you have filled in your application name and browsed for your target destination, submit by clicking on Create. In the App Engine launcher, click on the Edit option. This will open your text editor with a sample ‘Hello, World!’ program in main.py file or atleast the app.yaml file will open. You can thereafter add the target folder by going to File > Open Folder and clicking OK.
5. Replace the contents of main.py with the following code:

```
import webapp2
from google.appengine.api import users
from google.appengine.api import mail
class MainHandler(webapp2.RequestHandler):
    def get(self):
        self.response.write('''
            <form action="/signup" method=post>
            <input type="submit" value="Sign Up"/>
            </form>
        ''')
class SignUp(webapp2.RequestHandler):
    def post(self):
        self.response.write('<h2>Hey there!</h2> <br><br>')
        user = users.get_current_user()
        if user:
            greeting = (''Welcome, %s!
                <br>
                (<a href="%s">Sign
out</a>) <a href="%s"> Not you?</a>
                <br>
                <h3>Please check your
e-mail for further information</h3>''')
                % (user.nickname(),
users.create_logout_url('/'), users.create_logout_
url('/'))
            message = mail.EmailMessage()
            message.sender = "Ashesh Lal
<ashesh.lal@gmail.com>"
            message.subject = "Welcome to
digit-app, %s" % user.nickname()
            message.to = user.email()
            message.body = ""
            You have completed the
registration process.
```

For more information
log on to <http://www.thinkdigit.com/>
The 9dot9 Team ""

```

        message.send()
    else:
        greeting = ('<a href="%s">Sign
in or Register</a>.' % users.create_login_url('/'))
        self.response.out.
write('<html><body>%s</body></html>' % greeting)
    app = webapp2.WSGIApplication([
        ('/', MainHandler),
        ('/signup', SignUp),
    ], debug=True)

```

If you're new to python, you should understand that indentation is pivotal in the language and copy-pasting will not do you much good in most cases.

8. Save your work.
9. To locally test your application. Click on Run, then Browse. All errors can be found in Logs.
10. Deploy your app using App Engine Launcher using your google account and close when prompted.
11. Your application can now be found at your-app-id@appspot.com if no error occurs.
12. At appengine.google.com, you can find your dashboard where the Quota limitations for your free application can be checked and upgrade to a paid account can be made as well for more traffic purposes.

Code Explanation:

Everything there is to know about App Engine using Python can be found at <http://dgit.in/py4dumis> but we'll be discussing only what's relevant to this workshop.

Webapp2 is a python framework used to make web applications. Two services have been used in the making of this project – users and mail. The mail service however cannot be tested locally and the users service does not authenticate locally and therefore any test e-mail id can be used. The class MainHandler is configured to execute at '/' i.e. the home page. It takes webapp2.RequestHandler as an argument. RequestHandler classes process and build responses. It has only one 'get' function that takes the current instance 'self' as the argument. While print command is used to execute to the console, self.response.out.write belongs to the response class and is a StringIO instance. Typically, the WSGIApplication instantiates a RequestHandler and initializes it with a Response object with default values. After which, the contents of this object are sent as the body of the response when the request handler method returns. The contents of the method is a form element that submits on clicking Sign Up and redirects to '/signup'. The triple quotes (""") are used to write on multiple lines. The .out can be avoided. The class SignUp is configured to execute at '/signup' by the WSGIApplication method. It also takes in the same parameter as MainHandler and has only 'post' function that takes 'self' as argument. 'Hey, there!' is set as a default greeting to check whether the function is running correctly and that the problem probably lies in the subsequent lines of code. This is a common debugging technique. The users class has a method called get_current_user() which is stored in the variable user. If the user variable is not null, then a welcome message is stored in the 'greeting' variable along with options of Sign Out and Not You? and a mail is sent to the current user. The %s are replaced in order with the variables at the end enclosed as %(-,-,-). The string replacement in this case is done using the other functions of user class viz.

nickname(), create_logout_url() and create_login_url() which can be read about at <http://dgit.in/ldr1axT> and <http://dgit.in/1aGiUly> The next lines of code are written to configure the outgoing e-mail that is sent to the user. There are other alternatives to this method but we prefer this for its clarity. An EmailMessage instance represents an email message to be sent using the App Engine Mail service. This instance is stored in message. The following lines of code initialize the sender, subject, to and body fields for the constructor. The mail is finally sent using the send(). More about the functions and fields of mail class can be found at <http://dgit.in/1aOpbe1> and <http://dgit.in/17XfuXc>

If the user variable is null, then the link for Sign in or Register is stored in the greeting variable.

According to the case, the greeting variable is displayed on the screen. A string type variable can have many associated function that can be learnt about from <http://docs.python.org/2/library/string.html> These lines of code configure the webapp2 by using the WSGIApplication instance that routes incoming requests to handlers based on the URL

In this workshop, we have not edited the app.yaml file for simplicity but there are a few things you should know about App Engine and the configuration file.

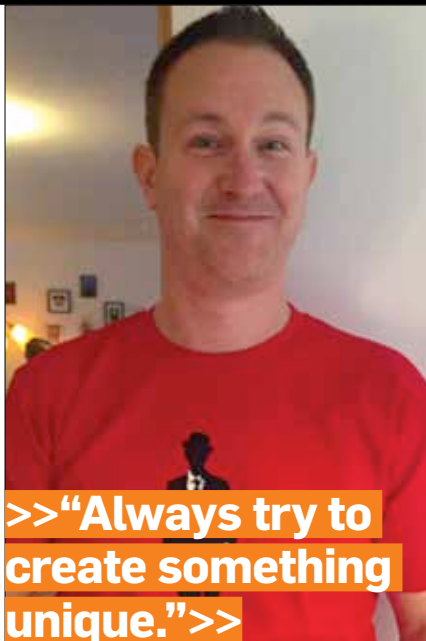
1. In the app.yaml file, make sure your application has the same identifier as the one given by you during creating your application at appengine.google.com
2. The version number allows the developer to rollback to a previous version after deploying a newer version with the modified app.yaml file.
3. The handler for the .ico url can be removed but for the url: /* the script must remain the same as the name of the file which contains the class configured to execute at the url. For ex. main.py contains MainHandler class that is configured to execute at '/' and thus the script for the url must be main.app
4. You can learn more about it using the reference provided at <http://dgit.in/1aOpfdF>
6. The web server knows to look for changes and executed these changes on refresh which means that while your app is running, you can continue to make changes to it without stopping it.

Possibilities

If you like the possibilities of creating applications using Google App Engine, your next steps should be to learn the back-end framework, datastore which runs on google's own querying language GQL and also learn how to use jinja templates and link static files like css to improve the presentation of your application on the web. For a tutorial by Reddit co-founder Steve Huffman

on the subject, visit <https://www.udacity.com/course/cs253> available free of cost. If you'd like to get a glimpse of the possibilities that can be accomplished using the App Engine visit this gallery of apps: <http://dgit.in/appitnow> or if you'd like to check out projects that were modified or extended using an App Engine application using an App Engine Patch check out: <http://dgit.in/appaspatch>

So at no cost, you get to develop 10 web applications or complete websites with a significantly small price of quotas which are quite large for a small-scale project like a blog. We hope to see further developments in the App Engine environment with support for additional functionality. Thank you for reading! And don't forget to make your application thread-safe. >



>>“Always try to create something unique.”>>

>>Magnus “Gordon” Gardebäck,
Co-founder, Simogo

One gets a sense of “less is more” in all of Simogo games. Can you tell us more?

Even though it's a less-is-more approach, I must say that all of our games have been challenging for me as a programmer. For example the physics in Bumpy Road that's made from scratch, to keep everything in sync to the music in Beat Sneak Bandit and such a simple thing as the ambitious scope of Year Walk. Both of us are also very picky when it comes to how things look and feel. We can spend huge amount of time polishing and tweaking until we're satisfied with the result. We use Unity for all our games which really helps me to focus on the gameplay related challenges but there's still stuff you need to deal with such as multiple resolutions, performance issues on older devices and asset pipeline to make production as smooth as possible.

Apart from the SDKs, which other developmental tools do you use to design and code your games?

As I mentioned, we use Unity but their built-in IDE for programming is not very impressive so I use Visual Studio instead since it's the best one out there. All code is written in C# and the code completion in VS really speeds up the development. I'm using a Mac Mini with both Mac OS and a virtual instance of Windows via Parallels. This setup works really well and I've been using it since we started development of DEVICE 6. In the past, we only worked on Windows machines and a Macbook laptop when compiling to device. With the current

setup, it's much faster since I can compile to device on the same machine and still have the advantages of Visual Studio. For content creation Simon uses Photoshop, Maya and some ancient software called MadTracker that is his favourite for making music.

Unity's the engine powering all Simogo games. What's so special about it?

It's a bit tricky to get started especially when you make 2D games but when you figure it out you can really make wonders on a short period of time. If nothing else, our track record is living proof of that. What we love the most about Unity is the non-existing compile time when editing code but that also goes for content. You can iterate without having to think about losing any time. Also the fact that we have the option to publish our games to multiple platforms without having to port a large codebase was important to us. Additionally the Unity community and forums are a great resource of knowledge that's really helpful when you're new to this engine.

How did you start coding games and why do you still do it? What keeps you going?

I started to experiment with programming already on my Amiga 500 back in the early nineties but I didn't pursue that career until later on. My first job was as a programmer of video surveillance software. After 5 years in that role, I quit my job and got a university degree in computer science with game development in focus. When I was done

studying, I managed to get a job in the games industry at a studio that mainly developed downloadable console titles for XBLA and PSN. There I met Simon and then the rest is history. Making games is always interesting in that sense that it involves problem solving on a daily basis and you get to explore your creativity at the same time. And when making these smaller scope games that we do, you're always up for a new set of challenges and that keeps it fresh.

When you started Simogo, what are some of the rookie mistakes you committed?

We released our debut game in December and on the App Store that's a big no no. Such decisions as pricing, cross promotion and free campaigns to mention a few required a lot of discussion. And as a new developer you don't have anyone to talk to outside the team that can share experiences and provide tips of how to do things.

Any advice for indie game devs?

Always try to create something unique – do not replicate proven success. Take shortcuts to reduce development time – everyone does not have to implement their own game engine. And last but not least – try to attend as many game developer conferences as you can. They do help.

“Gordon” is the co-founder of Simogo. He joined the games industry back in 2007 and has been a part of several productions released on XBLA and PSN prior to starting Simogo in 2010 together with Simon Flesser.>

*coding matters



Java... Dead?

>>Rumours of Java's death may have been a bit more than just exaggerated. Is Java dipping in popularity to the point of complete extinction? Read the article below, as Andrew Binstock investigates the claim that Java is part of a dying breed.

<http://dgit.in/jvdtex>



The return of flow-based and functional programming

>>After decades, the flow-based programming of the 1970s seems to be making a comeback with programs like NoFlo (a kickstarter venture) making an appearance online. To know more, read on:

<http://dgit.in/transpro>

Killer Rigs

We have a computer configuration that suits your budget, check out Killer Rigs for a reference build

Price Watch

Smartphones under ₹25,000 have made their way into this month's Price Watch, find the one for you

Routing right

Setting up a network can sometimes be a burden and it seems Agent 001 faced one recently

Agent 001

agent001@thinkdigit.com

So there I was with a few friends watching Ender's Game and one of my them springs a "tech question", something about setting up a router at his place. Now that's a pretty quick job and shouldn't take a few minutes after all it's something I end up doing every other month or so and even more frequently at the Digit Test Centre. So began our journey and the first step was to get a lay of the land i.e. check his place out. I took my router along and we shortlisted a few spots around the house where there was a phone jack in close proximity and we started off one by one.

At each spot, the router was placed and the signal strength was measured at different places throughout the house. My pesky little router is an ancient Linksys WAG200G router, something that has lasted me ages and was accessible from all corners of my home. Unfortunately, this place was a bit weirdly designed and one of the bedrooms couldn't manage to keep a connection for long. On top of that, my friend's mom was pretty adamant of not having an ugly router bang in the centre of her home and we simply couldn't go against the lady of the house – thus began a dilemma.

My first approach was to move the router to another location and see if that helped, there would be some difference but nothing significant. That damned room must've had lead walls. So my friend starts throwing a few suggestions around about how a higher power router might do the job. I'd heard this before and it's a common approach when a certain



thing doesn't work/fit/open then you use more force and make it happen. It doesn't work that way for routers, a high transmit power just makes the signal more prominent but that's just part of the entire picture and since these values are restricted based on your region you might not get any device that has more than the permitted threshold.


Let's say your router allows you to increase the transmit power to 200mW and if you still can't get a proper signal in a particular room then you are at a disadvantage. Which means the only way to increase the output would be to get high gain antenna which are directional. Since that would require a lot more searching and frankly wouldn't be worth the effort I picked up a few routers from the Test Centre to see if that helped. The following conditions had to be met,

- ADSL support
- 802.11n support
- Removable antenna
- Budget friendly
- High-gain antenna if possible

There were two mid-range models (N600DB and TD-W8968) lying around and I took them both. We tried the N600DB first and it did work well though the mysterious bedroom didn't

have that good a signal strength. However, this router would have put my friend back by around ₹6,499 which isn't too high but he wasn't willing to put that much down. The other option was the TD-W8968 which compared to my ancient router was way better. With that we were able to connect to the network but there were connection drops which again was a bother.

Desperate times call for desperate measures and we went out and got an extension cable similar to the one pictured here. It was 10 metres long and cost about a 1000 bucks. We hooked the router up and removed one of the antennae. The cable was attached to the router and then the wire was routed outside the house and dropped into the bedroom with the antenna attached to it.

Finally! We had a fairly good signal strength not only inside the bedroom but throughout the home and no complaints from the lady of the house. At the end of the two weeks we managed to get a good setup working for less than ₹4,000 that too without compromising on quality. While there haven't been any complaints so far, it won't be long before I'll get another troubleshooting call. Till then, buh-bye! 



Intel opens up

Intel CEO Brian Krzanich mentions about plans to allow others to use its chip making facilities <http://dgit.in/1cMtzd1>



Modular Moto

Motorola to pair up with 3D Systems for "Project Ara" a modular phone system <http://dgit.in/1ewNbUB>

Phone slowing down...

Dear Agent 001,

My father has a Samsung Galaxy Ace GT-S5830. It has been more than one and a half year since he bought it but now the phone is very slow in all aspects. He doesn't wish to change the phone, yet he is not satisfied with its performance. What can be done so that the phone works as it used to when it was bought? The specifications of the phone are as follows:

- Model number: GT-S5830
- Android version: 2.3.6
- Build number: GINGERBREAD.DDKQ8

Note: I have once updated the system myself....

Please help..

–Jayashankar Jayan

A Have you ever factory reset the phone? If you have downloaded a lot of apps, have a lot of WhatsApp, SMS or any app data stored on the phone, it tends to slow down. Take a backup of the contacts and other important data and try factory resetting it (you can do this through the settings options). Hopefully the phone should go

is best according to performance and battery life between Canvas Magnus a117 and Canvas 4. Please suggest me the best phone with best performance within my budget which is around 16K. Thanks.

–Chatar Singh

A The Micromax Canvas Magnus A117 runs on the MediaTek MT 6589T chipset while the Micromax Canvas 4 on the 6589. The difference is that the clock speed of the 6589T is higher than the 6589. The performance of both the smartphones is good and the difference isn't much from a real world usage perspective. The Magnus is cheaper and has lower built-in storage when compared to the Canvas 4. If the built in storage is a deal breaker, then go in for the Canvas 4. If not, then you can consider the Magnus. Hope this helps.

Smart car audio solution

Read an article on Thinkdigit that spoke about integrating an old smartphone/tablet into the existing audio system within a car. I was actually thinking about doing that. But the problem is that my car has



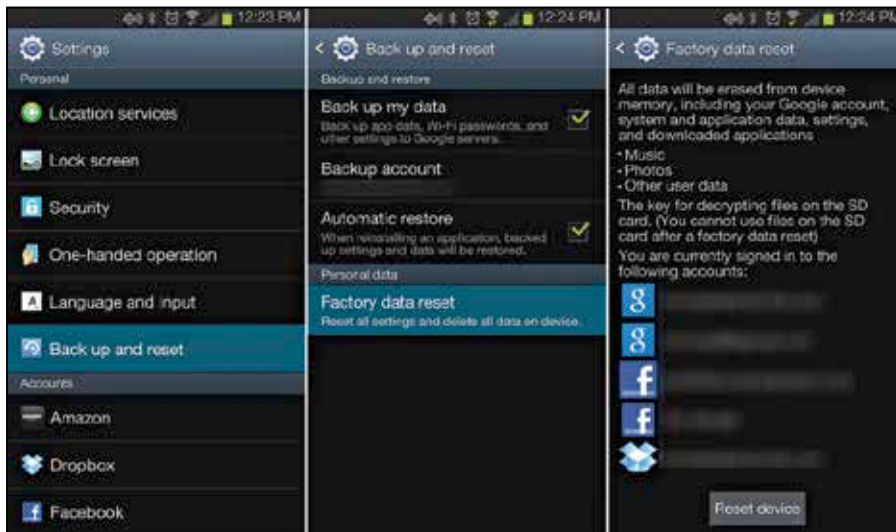
Memory card

phone/tablet to the speakers installed in the car. However, if there is a good accessory installation person close to where you live, we suggest speaking with him once. He may be able to offer a pass-through solution, either via an interface, or even through another aux-in setup.

Memory card crash

Yesterday my smartphone's 8GB memory card suddenly crashed after I rebooted it – never thought that would ever happen. Anyway, the mobile phone in its current state does not read or gives me any access to the memory card and tells me that the memory card is corrupted or damaged. It tells me to format the memory card... which I do not wish to as I have a lot of personal data on it. The card has nearly 3GB worth of files on it. What to do? Please help

–A Digit Reader



Factory reset

back to its original performance. In future, always checked cached data for our most-used apps, and regularly keep deleting it from the system settings.

Which Micromax smart-phone to buy?

Dear Agent, Please tell me which phone

an old cassette player which doesn't work anymore. Is it possible to add a male 3.5 mm jack to the speakers, thus completely overriding the cassette player?

–Prashant Bharadwaj

A I don't think there is an interface that allows you to directly plug in a smart-

A Don't panic, follow these instructions carefully and see if they work. Put the card into a laptop and see if it reads on the laptop. If you get the same error messages for the card on the laptop, then you will be forced to format. Immediately after you format, do NOT write any data to it, instead get Recuva (piriform) and search the memory card using a deep search in Recuva. This should recover most of your files.

Make sure you DO NOT format the card on the phone, and make sure you have installed Recuva BEFORE formatting on the laptop. Also remember to recover data to the laptop, and not to the memory card itself. **d**

digit KILLER RIGS

Everything you'll ever need to build your own PC. Whatever your budget.

■ Basic rig = ₹26,220 ■ HTPC = ₹29,237 ■ Entry-level gaming = ₹40,550 ■ Optional Accessories= Variable ■ Mid-range gaming = ₹68,245 ■ Ultra high-end = ₹2,66,056

BASIC RIG

Processor	Intel Pentium G2020	3,800
Motherboard	Gigabyte GA-H61M-D2H	3,720
RAM	Corsair 2GB DDR3 1333MHz	1,560
HDD	Seagate Barracuda 500GB	3,600
Monitor	AOC E2043FSK	6,580
Graphics Card	None	0
Cabinet	Huntkey T-91	1,650
PSU	Corsair VS450	2,360
Speaker	Logitech Z103	1,500
Optical Drive	Samsung 22x SATA DVD Writer	950
Mouse	Amkette Ash Black (Bundle)	500
Keyboard	Amkette Ash Black (Bundle)	0
Sound Card	None	0
Total		₹26,220

HTPC

Processor	AMD A8-5600K	7,250
Motherboard	MSI FM2-A75MA-P33	4,500
RAM	Kingston HyperX Blu DDR3 4 GB	2,400
HDD	Western Digital WD20EZRX 2TB	6,600
Monitor	None (your TV)	0
Graphics Card	None (HD7560D onboard)	0
Cabinet	Cooler Master Elite 120 Advanced	2,977
PSU	Cooler Master Thunder 450W	2,700
Speaker	None	0
Optical Drive	Samsung 22x SATA DVD Writer	950
Mouse	Microsoft Desktop 2000 wireless combo	1,860
Keyboard	Bundled	0
Sound Card	None	0
Total		₹29,237

ENTRY-LEVEL GAMING

Processor	AMD A10-5800K	8,850
Motherboard	ASUS F2A85-M-LE	6,500
RAM	G-skill F3-10600CL9S-4GBNT	3,000
HDD	Seagate Barracuda 1TB	4,550
Monitor	AOC I2251FWE IPS	8,350
Graphics Card	None	0
Cabinet	Huntkey T-91	1,650
PSU	Cooler Master Thunder 450W	2,700
Speaker	F&D F680	3,500
Optical Drive	Samsung 22x SATA DVD Writer	950
Mouse	Amkette Ash Black (Bundle)	0
Keyboard	Amkette Ash Black (Bundle)	500
Sound Card	None	0
Total		₹40,550

OPTIONAL ACCESSORIES

Surge Protector	Belkin 6 Socket Surge Protector	887
Controller	Xbox 360 Controller (wired)	2,500
UPS	APC 1000VA - BR1000G-IN	8,500
Webcam	Microsoft LifeCam Cinema	4,816
Headphones	KOSS Portapro	3,870
Mousepad	Razer Goliathus Fraggd Control	849
Wireless Router	TP-LINK TD-W8968	2,349
Sound Card	ASUS Xonar Essence STX	9,850
External DVD-Writer	Lite-On eUAU108	2,700
Thermal Paste	Arctic Silver 5 (3.5 grams)	600
CPU Cooler	Cooler Master Hyper 212X	2,649
Fan Controller	NZXT Sentry Mesh	1,725

MID-RANGE GAMING

Processor	Intel Core i5-3470	13,300
Motherboard	Gigabyte GA-B75M-D3H	4,850
RAM	Kingston HyperX 8GB (KHX1600C9D3B1K2/8GX)	4,935
HDD	Toshiba 1TB DT01ACA100	4,620
Monitor	BenQ G2420 HD	10,500
Graphics Card	ZOTAC GTX 650Ti Boost	13,300
Cabinet	Antec One - S3	3,540
PSU	Seasonic S12II 620 Watts	5,650
Speaker	F&D F680	3,500
Optical Drive	Samsung 22x SATA DVD Writer	950
Mouse	CM Storm Devastator (Bundle)	3,100
Keyboard	CM Storm Devastator (Bundle)	0
Sound Card	None	0
Total		₹68,245

ULTRA HIGH-END GAMING

Processor	Intel Core i7-4770K	24,400
Motherboard	ASRock Z87 Extreme4	13,000
RAM	Kingston HyperX Beast DDR3 16 GB RAM (KHX18C10AT3K2/16X)	16,625
HDD	WD WD30EZRX 3TB + Samsung 840 Pro	25,094
Monitor	BenQ XL2720T	32,499
Graphics Card	NVIDIA GeForce GTX 780Ti	59,000
Cabinet	Corsair Obsidian 900D	25,499
PSU	Cooler Master V1000	16,240
Speaker	Logitech Z906 5.1	23,000
Optical Drive	LG Blu-ray WH14NS40 RW	6,500
Mouse	Roccat Kone XTD	4,000
Keyboard	Corsair Vengeance K95	9,699
Sound Card	ASUS Xonar Phoebe	10,500
Total		₹2,66,056



3D printing is the in thing

Three signs which says that we might be facing the next big bubble
<http://dgit.in/1iO4PFY>



Glass devs in a fix

Google Glass app developers claim to not have enough documentation to start making apps <http://dgit.in/1aQo3r8>

SPEND SMART

Smartphones under ₹25,000 seems to be the favourite budget range for most of us and we've curated a simple list for you to pick your next phone

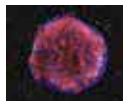


SMARTPHONES UNDER RS. 25,000

Brand	Model	Display Size	Processor	RAM	Storage	OS	Price in ₹
Micromax	A90S	4.3-inch	MediaTek MT6577 Dual-core 1GHz	512MB	4GB, expandable up to 32GB via a microSD card	Android 4.0	10,390
LG	Optimus L5 II E455	4-inch	MTK 6575 1GHz	512MB	4GB, expandable up to 32GB via a microSD card	Android 4.1	10,499
Xolo	Q700i	4.5-inch	Quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	10,995
Lava	Iris 506Q	5-inch	Quad-core 1.2GHz	512MB	4GB, expandable up to 32GB via a microSD card	Android 4.2	11,499
Xolo	Q800 X-edition	4.5-inch	MediaTek MT 6589 quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.1	11,499
iBall	Andi 4.5d Quadro	4.5-inch	Quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	11,549
Nokia	Lumia 620	3.8-inch	Qualcomm Snapdragon S4 Dual-core 1GHz Krait	512MB	8GB, expandable up to 64GB via microSD card	Microsoft Windows Phone 8	11,999
Intex	Aqua i5	5-inch	Quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	12,249
Xolo	X1000	4.7-inch	Intel Atom Z2480 2GHz	1GB	8GB, expandable up to 32GB via microSD card	Android 4.0	12,875
Videocon	A55HD	5-inch	Quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	13,499
Xolo	Play T1000	4.7-inch	Nvidia Tegra 3 Quad-core 1.5GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.1	13,999
Sony	Xperia M Dual	4-inch	1GHz Qualcomm Snapdragon S4 Pro Dual Core Processor	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	14,290
Spice	Pinnacle FHD Mi-525	5-inch	MediaTek MT 6589T quad-core 1.5GHz	1GB	8GB, expandable up to 32GB via microSD card	Android 4.2	14,290
Micromax	Canvas Magnus A117	5-inch	MediaTek MT 6589T quad-core 1.5GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	14,499
Xolo	Q2000	5.5-inch	MediaTek MT 6589 quad-core 1.2GHz	1GB	8GB, expandable up to 32GB via microSD card	Android 4.2	14,799
Lemon	A4	5-inch	Quad-core 1.2GHz	1GB	16GB, expandable up to 64GB via a microSD card	Android 4.2	14,999
WickedLeak	Wammy Passion Z Plus	5-inch	MediaTek MT 6589T quad-core 1.5GHz	1GB	4GB, expandable up to 64GB via a microSD card	Android 4.2	15,000
Xolo	Q1000S	5-inch	MediaTek MT 6589T quad-core 1.5GHz	1GB	16GB	Android 4.2	15,799
BlackBerry	9720	2.8-inches	806 MHz Tavor MG1	512MB	512MB, expandable up to 32GB via a microSD card	BlackBerry OS 7.1	15,800
Gionee	Elife E5	4.8-inch	1.5GHz quad-core processor	1GB	16GB, expandable up to 32GB via a microSD card	Android 4.2	15,999
Sony	Xperia L	4.3-inch	Qualcomm MSM8230 Snapdragon Dual-core 1GHz	1GB	8GB, expandable up to 32GB via microSD card	Android 4.1	16,290
Lenovo	K860	5-inch	Exynos 4412 Quad Quad-core 1.4 GHz	1GB	8GB, expandable up to 32GB via microSD card	Android 4.0	16,490

Apple buys PrimeSense

The makers behind Kinect's motion tracking chip technology to be acquired by Apple
<http://dgit.in/1940szn>



1000 Mach shock wave

Check this out to know what a 1000 mach shock wave would seem like
<http://dgit.in/1fhiV8>

Price Watch

Brand	Model	Display Size	Processor	RAM	Storage	OS	Price in ₹
iberry	Nuclea N1	5-inch	MediaTek MT 6589T quad-core 1.5GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	16,599
Micromax	Canvas 4 A210	5-inch	MediaTek MT 6589 quad-core 1.2GHz	1GB	16GB, expandable up to 32GB via a microSD card	Android 4.2	16,699
Micromax	Canvas Doodle 2 A240	5.7-inch	MediaTek MT 6589 quad-core 1.2GHz	1GB	16GB	Android 4.2	16,750
LG	Optimus L9 P765	4.7-inch	TI OMAP 4430 Dual-core 1GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.0	16,790
Karbonn	Titanium S9	5.5-inch	Quad-core 1.2GHz	1GB	16GB, expandable up to 32GB via a microSD card	Android 4.2	16,990
Nokia	Lumia 720	4.3-inch	Qualcomm MSM8227 Dual-core 1GHz	512MB	8GB, expandable up to 64GB via microSD card	Microsoft Windows Phone 8	17,190
Panasonic	P51	5-inch	Quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	17,950
Huawei	Ascend G700	5-inch	Quad-core 1.2GHz	2GB	8GB, expandable up to 32GB via microSD card	Android 4.2	17,990
iBall	Andi4a Projector	4-inch	dual-core 1GHz	512MB	4GB, expandable up to 32GB via a microSD card	Android 4.1	17,990
Lenovo	S820	4.7-inch	MTK 6589W Quad-core 1.2 GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	17,999
Samsung	Galaxy Grand Duos	5-inch	Dual-core 1.2GHz	1GB	8GB, expandable up to 64GB via microSD card	Android 4.1	18,400
Lenovo	P780	5-inch	MediaTek MT 6589 quad-core 1.2GHz	1GB	8GB, expandable up to 32GB via microSD card	Android 4.2	18,499
Sony	Xperia C	5-inch	MediaTek MT 6589 quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	18,999
Micromax	Canvas Turbo A250	5-inch	MediaTek MT 6589T quad-core 1.5GHz	2GB	16GB	Android 4.2	19,299
Intex	Aqua i7	5-inch	MediaTek MT 6589T quad-core 1.5GHz	2GB	32GB	Android 4.2	19,899
Samsung	Galaxy S2+	4.3-inch	Dual-core 1.2GHz	1GB	8GB, expandable up to 64GB via microSD card	Android 4.1	19,949
LG	G Pro Lite	5.5-inch	MT6577 Dual-core 1GHz	1GB	8GB, expandable up to 32GB via microSD card	Android 4.1	19,300
Lenovo	Ideaphone S920	5.3-inch	MediaTek MT 6589 quad-core 1.2GHz	1GB	4GB, expandable up to 32GB via a microSD card	Android 4.2	19,999
HTC	Desire 500	4.3-inch	Qualcomm MSM8225Q Snapdragon 200 Quad-core 1.2GHz	1GB	4GB, expandable up to 64GB via a microSD card	Android 4.1	19,999
Gionee	Elife E6	5-inch	MediaTek MT 6589T quad-core 1.5GHz	2GB	32GB	Android 4.2	20,999
Samsung	Galaxy Mega 5.8	5.8-inch	Dual-core 1.4GHz	1.5GB	8GB, expandable up to 64GB via microSD card	Android 4.2	21,499
Sony	Xperia SP	4.6-inch	Qualcomm MSM8960T Snapdragon Dual-core 1.7GHz Krait	1GB	8GB, expandable up to 32GB via microSD card	Android 4.1	21,799
Samsung	Galaxy S4 mini	4.3-inch	Qualcomm MSM8930 Snapdragon 400 Dual-core 1.7GHz Krait	1.5GB	8GB, expandable up to 64GB via microSD card	Android 4.2	22,400
Nokia	Lumia 920	4.5-inch	Qualcomm MSM8960 Snapdragon Dual-core 1.5GHz Krait	1GB	32GB	Microsoft Windows Phone 8	21,999
LG	Google Nexus 4	4.7-inch	Qualcomm APQ8064 Snapdragon Quad-core 1.5 GHz Krait	2GB	8/16GB	Android 4.4	21,669
BlackBerry	Q5	3.1-inches	Qualcomm Snapdragon 4 Dual-core 1.2GHz	2GB	8GB, expandable up to 32GB via microSD card	BlackBerry 10 OS	22,999
Samsung	Galaxy S3	4.8-inch	Exynos 4412 Quad Quad-core 1.4GHz	1GB	16GB, expandable up to 64GB via a microSD card	Android 4.1	24,899
Huawei	Ascend Mate	6.1-inch	Huawei K3V2 quad-core 1.5GHz	2GB	8GB, expandable up to 64GB via microSD card	Android 4.1	23,500

Space age

We look at planets that exist where none should have. Read on to find out why they're so mysterious.

**Sea levels**

Measuring sea levels is a lot more complex than it seems. Read on to know how: http://digit.in/c_lvl

A Geneteel way of doing things

Why gene therapy could be the answer to all of the world's biggest and baddest diseases and why progress has been so slow, so far.

Cyril Vatteli

readersletters@thinkdigit.com

"There is a killer inside you. You don't have to deny it. We were created to be that way."

While Liquid Snake's 'grand' speech to Solid Snake in the finale of the PS1 game, highlighted a convoluted story, Metal Gear's projection of the possibilities of gene therapy were admittedly not based on as much hogwash as it would first seem.

What exactly is gene therapy?

Genes contain the recipes required to make proteins which your body needs for energy and repair and maintenance, among other things. If a gene goes bad, as expected, the proteins too get messed up. You solve this problem by adding a nice new copy of that gene so that it can make the protein is how it is supposed to be. That is gene therapy. One of its biggest advantages over pumping the patient with drugs is that, in this case, the underlying base cause of the patient's problems is removed.

How do you treat an ill gene?

Well, that depends on how serious the problem is. Picture a professor who purposely teaches his students incorrectly because of which his students have all their concepts muddled up and don't know why he keeps flip-flopping. That is a problem. So, we introduce an interesting professor who really knows his subject.

In the first scenario, the new professor (the good gene) begins teaching



Before nanomachines, so many of these series were obsessed with genes

the students and slowly but surely the confusion of the students dies. Here what has happened is that a new gene has been merely added to the body, which takes over the protein which the defective gene was responsible for and helps create the protein as it as it should be.

In the second scenario, our evil professor (the malfunctioning gene) walks into the class while the new professor is teaching and stands in the centre of the room and begins lecturing very loudly. Nobody is able to hear our nice professor over the evil professor and so the students continue to remain confused about the subject. That professor is what is called a 'dominant negative'. Here merely adding a working gene will not be enough. This has to be cured by either repairing the defective gene, or replacing it entirely. (In this case by getting rid of the evil professor who was deliberately injecting the class with knowledge that was not only incorrect but was also responsible for plenty of confusion and disarray).

How is this gene inserted?

By fighting fire with fire. What may surprise you is that one of the preferred vehicles for a new gene to be transplanted in the body is a virus. Yes the same kind which causes HIV/AIDS. But why? Because the damned things are good at what they do – they are good at targeting and entering cells. And when it comes to kicking asses of diseases, scientists hold no grudges.

Take Professor Harrich from Queensland Institute of Medical Research for instance. He developed a way to use HIV to beat HIV, although it is still in the initial stages. By creating the 'Nullbasic' protein by mutating an existing HIV protein through genes, Harrich was able to stop the spread of the HIV virus.

So...Supermen?

Just go ahead and say it. Can we make super-people?

Well not as of yet. Super-babies? Probably (very, very 'probably'). See, to

Obama cornered...

...in 4k. VFX studios use Obama's visit to dreamworks to protest their grievances
<http://dgit.in/vfxprotest>



Kindle Fire hdx 8.9

The Kindle Fire HDX 8.9 reviewed with all its pros and cons. Read more if you're thinking of buying one <http://dgit.in/kfire89>

From the labs

successfully alter a physical or a behavioral trait, you cannot just deliver a gene to a group of cells. You'll have to deliver it to each and every cell in the human body. All 100 trillion of them. So the better idea would be to get them while they are young, before the cells have divided into an ungainly amount. More specifically, transferring of a gene into the cells of an early embryo, just after the sperm and the egg meet. If you are in a hurry, you could even transfer a gene into a sperm or an egg cell prior to their rendezvous. This alteration would be permanent throughout the life of the baby.

Are we doing anything with gene therapy?

Well, we do have web-spinning goats. Researchers took the silk-spinning gene of a spider and inserted it into the DNA of a goat in such a way that the animal would make the silk protein in its milk. The protein can then be taken out from the milk and used to create a material with properties comparable to and even surpassing steel, called Biosteel, which is exactly what it sounds like.

But let us take this even further. Theories suggest that the protein responsible for the toughness of our skin- keratin, can be replaced with this tough silk protein, which can supposedly deflect bullets.

Gene therapy has also, in one instance, given us cows which fart and burp less. This is great since cow-gas is considered 20 times more potent than carbon dioxide as a greenhouse gas.

Also, poison cabbage. Scientists are in the process of taking out the gene responsible for programming poison from a

scorpion's tail and inserting it into a cabbage. This has been done with the aim of reducing the use of pesticide, and the poison would be modified to be harmless to humans.

Some South Korean scientists were able to create cats which literally glow (in ultraviolet light though) by inserting, through a virus, genetic instructions for making red fluorescent protein in the cats. While the scientists said they did this as it would help them treat human genetic diseases, we know the only reason why it was done. Glowing kitties.

What about people?

On September 14, 1990, four-year old Ashanti De'Silva was the first successful gene therapy patient. She had lacked a certain enzyme due to which her immune system was lacking. Doctors took white blood cells from her, inserted the normal genes for making the required enzyme into them, and then reinjected it into her.

In another instance, gene therapy through a single injection improved to a slight extent the eyesight of 12 people who were suffering from retinal degeneration caused due to a rare inherited sight disorder, out of whom one kid recovered to almost normal light sensitivity.

There have even been breakthroughs in research of gene-therapy being used for advanced heart failure patients.

If it is so useful, why isn't it in common use yet?

Because there were some awful mess-ups.

In the late 1990's, gene therapy was applied to some children suffering from X-linked Severe Combined Immune Deficiency, or the 'Bubble-boy Syndrome' where the child has an almost non-existent immune system, thus being forced to remain in a sterile environment, which can translate to living in a bubble.

The children were all cured, but two got leukemia, or cancer of the blood. While the leukemia was also subsequently cured with chemotherapy, the



Bubble boy syndrome

fact that the kids even got leukemia raised some serious doubts about the whole process. But this was tame compared to Jesse Gelsinger's fate.

The 18 year old boy suffered from a rare metabolic disorder that prevented his body from getting rid of the toxic product caused by the breakdown of proteins in the body, ammonia. Since this was a single-gene defect, and thus would be easier to cure using gene therapy, Gelsinger enrolled in a clinical trial for gene therapy in 1999. Unfortunately, not long after the researchers had injected the boy with the genes, things went haywire and his ammonia levels went alarmingly high. He suffered brain damage and organ failure within a few days, was in a coma, and eventually his family took him off life support.

Gene therapy, seen then as the new cure on the block, suffered a huge setback due to this tragedy. While certain treatments were definitely practiced, the cases were more isolated and gene therapy struggled to reach the acceptance it had in the early 1990s.

And now gene therapy is back?

Scientists have always been working on gene therapy and its uses on human beings. Unfortunate incidents like the Jesse Gelsinger case just made scientists realize that more caution was required.

And yes, Gene therapy is back. As recently as this year, three children with the bubble boy disease were treated, twenty years after the first treatment of the disease with gene therapy.

Except this time no one got leukemia.



Spider silk in all its glory



King Tut Unwrapped

If you thought Tutankhamun's name was the most unusual part of this ruler, read on to know more
<http://dgit.in/weirdtut>

Neutrino Discovery

28 deep space neutrinos were discovered by the IceCube Neutrino Observatory in the Antarctic in November
<http://dgit.in/dsneutrino>

SPACE - THE FINAL #WTF

We explore the oddity of planets that shouldn't exist

Rohit Chetri
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Multiverses. A hundred thousand million galaxies. Seventy sextillion stars. One sentient species capable of sophomoric puns. On one little blue dot. The sheer improbability of our planet's existence continues to impress us. And despite our attachment to this little blue marble we dream of other worlds. Hoping that someday we too, like the heroes of Verne and Clarke, may walk on strange soils under quixotic skies. So we search. And all we get from the universe is a giant plasma finger.

The search for planets, that may be similar to Earth, has thrown more curve balls than expected. Could the unusual discoveries from space be true paradoxes or (in karmic terms), is the universe screwing with us?

Exoplanets and Space Oddities

Man's first vision of a world beyond Earth first took shape thousands of years ago in ancient Greece when bearded men in surprisingly white robes promulgated that terra firma wasn't terra singularis ("unique" for the latin illiterate).

The idea germinated with the progress of scientific inquiry and found its



The Universe is playing a game of peek-a-boo with us.

way into heresy when Giordano Bruno, a Catholic monk, spoke of "countless suns and countless earths all rotating around their suns" in 1584. But already, in 1532 a 59 year old rascal called Nicolaus Copernicus published a theory 18 years in the making (read: Heliocentricity), that dethroned Earth as the centre of the

universe and ushered in the era of universal possibilities.

Fast forwarding a few centuries; humankind ventured out into space, landed on the moon, sent robotic envoys to its neighbouring planets and started telescopically vacuuming up the larger cosmos in search of more planets.



MAVEN Departs

NASA's Mars Atmosphere and Volatile Evolution (MAVEN) satellite makes its way to Mars <http://dgit.in/flyMAVENfly>

Lazy Sun Sundrome?

The calm nature of the sun's surface may be something to be concerned about. Read on to know why <http://dgit.in/zzzsun>

Space Age

The pace of discovery really took a leap when Edward Hubble, from atop Mount Wilson, sighted a tiny nebula in the distant space outside the Milky Way. This led to the discovery of neighbouring galaxies, each with hundreds of billions of stars, and even more fertile possibilities for that one cosmic grail - the possibility of other planets like ours outside our solar system.

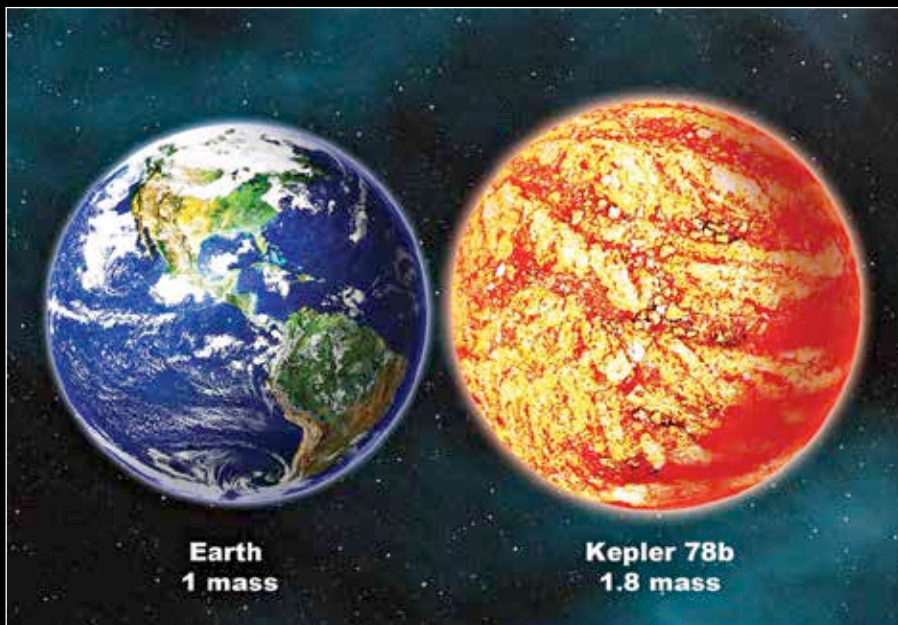
But it almost took another hundred years before a verifiable claim could be made over the discovery of an extrasolar planet or exoplanet. On a cold Pennsylvania morning in January 1994, a Polish astronomer by the name of Aleksander Wolszczan made the discovery that started off a new age of cosmic exploration - he discovered an exoplanet, two of them in fact. And the universe in all its whimsy made sure they were weird - these planet didn't orbit stars but pulsars - a dense rapidly spinning dead star - assuring that life wouldn't be possible there. But it was a start.

Since Wolszczan's discovery 1043 planets in 791 planetary systems have been discovered and verified, with thousands more awaiting review. These discoveries have been possible only due to the innovation and determination of an international assortment of scientists. And a very large USD \$550 million spacecraft known as Kepler.

The Kepler mission is quite literally the flagship in the search for Earth like planets. Already 4 years and 8 months in to its tumultuous 7-plus year voyage, the behemoth of a space observatory has already discovered thousands of possible Earth sized planets. And as the astronomers winnow through the pictures of the cosmos being sent back by this distant envoy they are already guesstimating that as many as 40 billion Earth-sized planets could be orbiting the habitable zones of stars within the Milky Way.

As is usually the case, when Gods want to punish us they grant us our wishes.

So in the long list of these planets a few discoveries deserve special mention. If not for their uniqueness, then for their evidence as proof that even rocket scientists don't know it all. Scientist have termed these discoveries as "weird" or "unusual" or "strange" or "anomalous" or simply "huh?".



Kepler78-b Earth's hellfire cousin the planet is only slightly larger by cosmic standards. The Kepler camera adds an extra 1.05356e25 pounds.

We take a look at five of the planets discovered so far that have the world's best minds reconsidering everything they learnt in Astronomy 101.

The Rebel Without A Cause: Kepler-78b

This fine specimen is the very definition of a planet that shouldn't exist. A scorching hell planet like Mustafar (2,830 °C; 5,120 °F peak surface temperature - Revenge of the Sith anyone?), Kepler-78b orbits its star (Kepler-78) at a distance 40 times closer than Mercury is to the sun. Remarkably similar to Earth in its composition, with 69% more mass and 20% greater size, Kepler-78b orbits causes



Show me your birth certificate Mr. HR8799b!

a "wobble" (yes, thats a technical term) in its star's orbit. Since its discovery in mid-2013 the planet's origin and evolution have remained a mystery for science can't fathom how it could've evolved in its current location or how it may have arrived there. Spooky.

The Uncomfortably Close Twins: Kepler-36c and Kepler-36b

These two planets defy all approximation of binary trajectories as they dance dangerously close to each other in their respective orbits around Kepler-36. Moving to an intimate rhythm, the two planets end up in perfect alignment every 97 days with less than 1.2 million miles between them, thats nearly 27 times less than the difference between the orbits of Earth and its closest neighbour Venus. The planets are also very dissimilar in their composition; one of them only 50% larger than Earth with a dry rocky make up while the other is a gaseous ball four times bigger than Earth. The never before seen proximity of these two planets in their orbit around its star had 46 scientists from Harvard and other less famous universities scratching their heads. They have yet to figure out how two heavenly bodies of such stark difference could end up in such close orbit to each other. Clearly they

Mount Sinabung Errupts

A Volcano in western Indonesia erupts, sending people fleeing from their homes in panic
<http://dgit.in/Indovol>

Exploding Black Hole

The formation of a black hole on 27th April spawned the highest recorded explosion ever. Read on to know the analysis of the phenomenon <http://dgit.in/buhboom>



The oldest star system known to man, the planets around HIP 11962 were created just after the Big Bang. Just don't ask them their age in public. Sensitive topic.

haven't seen Arnold Schwarzenegger and Danny DeVito in Twins.

The Aging Hipsters: HIP 11952b and HIP 11952c

Some planets are just too old school to put up with modern science. Believed to defy "conventional thinking" (whatever that is!), these two planets are decidedly the oldest exoplanets known to mankind, with 13 billion years of history behind them. Having formed around a star called HIP 11952 these two oldies of the universe are believed to have no reason to exist by scientist, except for the fact that they do. Due to the "metal poor" status of their star - human-speak meaning that the stars don't have enough heavier elements like metals in their constitution - it couldn't have sustained the creation of these planets. But scientists are backtracking their amazement with rationalisations that the star could've been rich in the "old days" and grew "poorer" as time went on and it migrated from another galaxy to ours. Sure scientist. Sure. Blame it on emigration.

The Party Crasher: HR 8799e

Scientists had already spotted three massive sized planet in the orbit of star HR 8799 but were shocked to discover a fourth that they just can not explain. The

young star is 130 light-years away and hosts four planets that are all roughly seven times the size of our Jupiter. The orbit of HR 8799e is remarkably close to the star for a planet its size and doesn't fit into any computational model of stellar movements. Despite theories being thrown around by astronomers, such as the possibility of massive disks of dust around the star facilitating the planet formation, scientist are still left wondering about the planet's high absorption of methane as compared to its three siblings. Yes ladies and gentlemen, it farts. So as scientist prepare to run expensive computer simulations, in order to determine the principles behind their observations, we have no way of knowing if they aren't huddled up in their laboratories, just playing with the new Oculus Rift's on their Omni treadmills. We know we would.

The Baby Planet: TW Hydrae

Never let it be said that size matters. It doesn't. Just ask my girlfriend. In the case of TW Hydrae, a small planet discovered to be orbiting the star at a ladylike distance of 7.5 billion miles (twice Pluto's distance from the sun), is believed to be one of the youngest planets in existence, with only 8 million years under its belt. Not even old enough to order beer from

the restaurant at the end of the universe. Scientist's can't explain how such a young star could've raised such a young planet without the assistance of adoption services. The star being only half the size of our sun and the planet being 7.5 billion miles from the star lead scientist to calculate that it should've taken the planet 2 billion years to form instead of its precocious 8 million. And even as scientist argue whether to officially term this (6 to 28 times the size of Earth) heavenly body as a planet (common you know it is one), they nevertheless remain dumbfounded by its existence.

So Scientists Suck, Right?

No.

Even as astronomers the world over attempt to integrate the cosmic behaviours of these heavenly bodies into the knowledge they have gathered over centuries, it is enough to remind us, that humility in the face of the unknown and curiosity in the face of ignorance, still remain the defining qualities of the human spirit.

It would be easy to dismiss facts that don't conform to dogmatic knowledge or criticize scientists for being confounded. But very rarely do we experience moments of complete wonderment - moments where our knowledge and experience is overwhelmed by the sheer awesomeness of nature - and we discover a hungry emptiness in our minds that only our intelligence and imagination can fill. Its easy to be amazed and do nothing. Like magic or religion it is a superficial high. But true ascension comes when we ignite our intelligence to reach out through the veil of imagination, across the stars and touch the face of god.

"Imagination will often carry us to worlds that never were. But without it we go nowhere."

– Carl Sagan

Honorable Mentions:

- The Clingy One: Kepler-19c
- The Puppel Master: KELT 1b
- The Gentle Giant: TrES 4
- The Roadie: PSO J318.5-22
- 136108 Haumea or Haumea To All Her Friends 🍷



Becoming Big Brother

Setting up a complete surveillance system with all the bells and whistles isn't that difficult a prospect. Here's how to go about getting a professional class system in place with minimal investment.

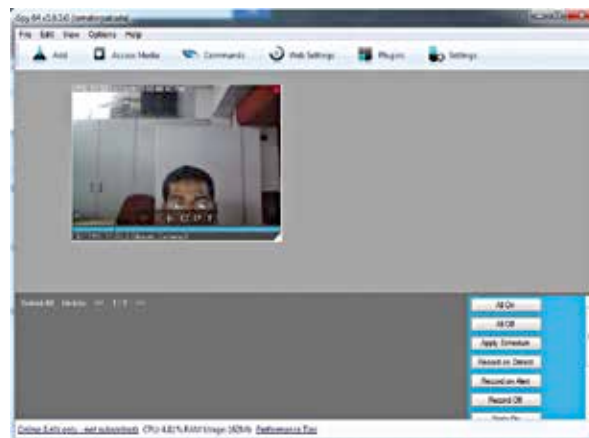
Mithun Mohandas
readersletters@tbinkdigit.com

While the title might set off alarm bells for some of you folks it isn't that bad an idea to have eyes on everything and everyone all the time. Surveillance is sometimes a necessity and sometimes considered a belligerent action on part of the authority but we're not here to judge. The benefits of having such a system are undoubtedly numerous and we've listed a few scenarios below.

Usage scenarios

Home Surveillance

One simply can't ignore the importance of having an eye on your precious belongings. Keeping a constant eye on your house especially when there are people other than you at home is not only unnecessary but is also perceived as downright paranoid and creepy, however, it might be necessitated if you are a bit suspicious of the person with whom you leave your house in charge (kinda ironic given that you don't trust the person your trusted your house with). Maybe you don't want your house to turn into another "Project X" or you simply want to know if your home has been burgled or which one of your neighbours steals your newspaper. What about when you've entrusted your child with a new nanny? You might want to keep an eye on them for a first few weeks or maybe you're



The main interface is simple and self explanatory

going away for a week and you couldn't find someone to look after your pet.

Office Surveillance

Small offices often tend to be short on an operating budget and hiring an HR team to keep an eye on your work force might not be feasible. In this case, you can not only have an eye on everyone but also monitor each employee's monitor individually. Instead of going in for an expensive professional setup which could set you back by a few lakh rupees you could use an open-source software like we have and get everything done for as low as ₹500.

Hazardous environment

If your work environment is prone to catching fire or your assembly line has a few robots failing every other week then you could have a monitoring

system in place which would detect a lack of movement (indicating stopped machinery) or detect small fires and alert you before it can get big enough to damage your equipment.

Silly stuff

The person who wrote the software we're going to be using wrote it for spotting UFOs and ghosts. We can understand how this

is possible because cameras

observe a much wider spectrum of light than humans do and the software is very sensitive even to minor changes in local lighting within a scene. But why do it is a question best left unanswered. Also it could be used for keeping an eye out for local wildlife near a campsite, however, this would be difficult given that there would be a lot of ambient motion in such an area which means your system will be triggered even if a hummingbird flies by.

For this setup we'll be using iSpy

An open-source software which does all the work of analysing each and every camera connected to your system and recording streams once a trigger condition has been satisfied. iSpy has a few plugins available including one for facial recognition and another for number plate



Women in Tech

Research shows that the tech sector is hiring more women than before. True? Find out: <http://dgit.in/tchwmn>

No Mir for Ubuntu

Canonical's product will not make it into Ubuntu desktop 14.04 due to release next year <http://dgit.in/ubtmir>

recognition, though you may need to do some hands-on coding to enable recognising local number plates for India given the urge for some of us to “pimp up” our number plates. There are more plugins available and enough documentation for you to come up with your own plugins.

An ordinary web camera

If you've got the proper drivers installed then iSpy will pick up a feed immediately and that's all you need from your camera manufacturer's side. Ensure any power saving features like auto-shutdown are turned off. And utilising more than one software for the same hardware might cause problems with the feed.

A computer

The hardware requirements for a basic 4 camera setup consists of a Windows OS(64-bit version would be preferred for a setup with more than 6 cameras running at 320x240 resolution), 2GB RAM, and an Intel i3 processor. The more cameras you add the greater your requirements will be and increasing the resolution of the video feed also requires more resources. If you have a setup with all cameras pulling full HD content then be prepared to switch to an i5 or greater. Don't worry about your computer crashing as you add more cameras the software limits the amount of CPU cycles it can consume so if the load on the processor is too much then it will scale down the resolution and wait for the CPU load to go below the threshold. But if you do have more than one unused computers lying around then you can assign a few cameras to each machine thus distributing the load. Hard drive space depends upon the amount of cameras connected and the configuration since an “always on” setup would require much more storage space than one triggered by motion sensing. And as always the resolution of each camera too matters.

Setting it up

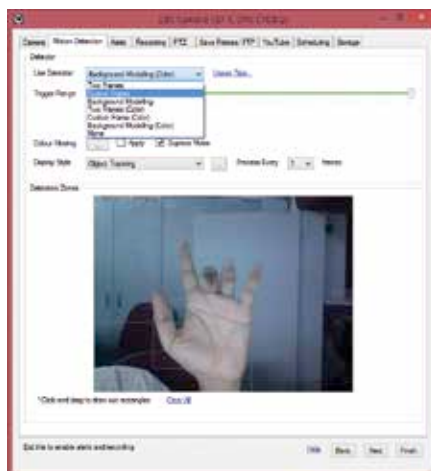
1. Plug in your web camera and install the drivers for your OS.
2. Download iSpy and install it with all the plugins that you'd be needing. Avoid unnecessary plugins if you are never going to be using them.



Set alerts for when the camera is triggered




Setup a schedule for the system to turn on



Tweak the motion detection parameters

3. If you wish to connect to microphones and cameras that are hooked to other devices then you'll need iSpy Server installed.

4. Setup your web login if you wish to access the cameras remotely or on the same network. Remote access over the internet requires you to obtain the basic “iSpy Connect” subscription costing \$795, which goes towards running a server through which your content will be streamed. You could get around this by working on the source code which they've graciously provided on their website but for the amount they are charging that hardly seems worth the effort.
5. Click on the Add button in the main interface and select the camera which you wish to monitor. Once you click on OK you'll be provided with another window where you get to adjust the parameters of your camera like the resolution at which it will record, the directory where you get to store the recorded stream. For features like motion capture and facial recognition you can set the sensitivity so as to remove ambient movement beyond the trigger threshold or else you'll have an always on camera. If you wish to focus on just a small region of the entire scene then you can drag a box around it and all the algorithms will apply to just that little area.
6. Other than recording the stream once motion is detected, iSpy can even send you an SMS, an email alert or even a tweet. Since carrier charges are incurred the SMS feature is offered as an add-on to a normal subscription.
7. For PTZ(Pan Tilt Zoom) cameras you can set the cameras to follow an object when it is detected, thus, allowing you to cover a wider canvas using just one device.
8. The storage is local primarily but you can upload your captured streams to your youtube account so that manual management of the recorded material is not required. It's more essential for high-value establishments. Then again, these establishments would likely go for a professional setup which can be held accountable.
9. That's it. Now while away while your surveillance system keeps an eye out for you and lets you know whenever anything worthwhile is detected. 



Smart Pen

Livescribe 3: A smart yet demanding smartpen for writers of all blends: <http://dgit.in/scribeaway>

Cloud? No cloud?

This article compares cloud computing and on-site computing pretty well with some good arguments for both: <http://dgit.in/cloudnocloud>

Industry Connect

Suit up in tech

Discussing wearable smart devices with Brian Bedrosian and Jeff Baer from Broadcom

Jayesh Shinde

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We had the chance to talk to two bigwigs at Broadcom and though they had no comments on their roadmap, they did tell us a bit about wearable smart devices (WSDs).

1 Which WSDs should we expect Broadcom to offer smart features to, apart from smart watches?

The wearable device market is still emerging and changing as new products are being introduced almost daily. While smart watches have been some of the earliest wearables to come to market, there is huge opportunity in the medical and fitness space for this type of technology. Some of the more interesting use cases include jewellery with proximity detection, baby socks that monitor sleep patterns, clothing that can cool consumers and more. These are just a few new areas wearable technology is headed, and Broadcom's technology is designed to support innovation in all categories.

2 Will the WSD solutions from Broadcom work only with Broadcom SOC's?

Broadcom technology is designed to be vendor-agnostic and work seamlessly with various solutions, including SOC's.

3 When do you think wearable technologies will no longer depend on a smartphone?

As wearable devices get smaller, lighter and more efficient, the connection to powerful smartphones or tablets that can process and send data to the cloud is critical. For this reason, smart mobile devices have become the hub for interconnecting everything. The value of a wearable device lies in its ability to connect to a smartphone or the Internet with minimal impact on battery life. Given Broadcom's

long-standing leadership in connectivity, we are uniquely positioned to widen business opportunities in this emerging space by offering the breadth of IP and customized components that enable creative new smart wearable devices to be connected.

4 Do you think we will see the integration of fitness devices such as the Nike Fuel Band and more with a smartwatch?

Fitness is an extremely important category for the growing Internet of Things and activity trackers are quickly gaining popularity in the market. Different from single-use or event-centric devices, activity trackers monitor multiple characteristics of the human body including movement, calories burned, body temperature, and sleep tracking, providing a new level of value to the consumer. Activity trackers are expected to grow at a 40 percent CAGR and overtake the 2013 shipment leader, heart rate monitors, in 2017.

5 Will we see a device from Broadcom competing with Qualcomm's 'Toq'? Can you talk about the details of the product?

We do not comment on competitor products or our future product roadmaps. What we can say is that given Broadcom's history of leadership in wireless connectivity and highly integrated offerings, we are well-positioned to capitalize on the market opportunity for wearables. Our advantage lies in integration, simplicity and cost.

6 What advantage do you think Wi-Fi Direct gives WSDs over NFC and Bluetooth?

The important thing here is to understand that different tools are meant for different purposes, and we support our customers no matter how they choose to add connectivity to wearable devices. Broadcom's expertise in Near Field Communication (NFC), Bluetooth Smart and Wi-Fi will help wearable devices to seamlessly connect to smart mobile devices and unlock new



Jeff Baer, Business Development Director, Embedded Wireless, Wireless Connectivity Combos

use cases. By using NFC, consumers can buy a new wearable device and simply tap it to their smartphone so the devices can instantly and securely establish a connection. Bluetooth Smart and Wi-Fi allow the consumer to collect data from their wearable device (i.e. calories burned, heart rate, etc.) and transfer it to their smartphone or into the cloud without draining the battery. By integrating Wi-Fi Direct into the WICED platform, we are enabling OEMs to rapidly develop wearable products that communicate seamlessly to the cloud using smartphones and tablets. By supporting Wi-Fi Direct, a specification that allows two devices to communicate with each other securely via Wi-Fi without an access point or computer, Broadcom is inspiring the development of new smart accessories, clothing and other wearable sensors.

7 In the face of criticism about the ambition and limited functionality of the smart-watch, what do you think is a perfect and practical WSD solution?

As the wearable market is in such an early stage and growing at such a rapid pace, the definition of a wearable is still being determined. However, what we see as critical success factors for the wearable market to take off include low-power, location-aware products that can connect anytime, anywhere. Wearables need to be small, comfortable, energy efficient and often fashionable. **1**



Meet the Glif

A tripod mount for your phone, the Glif also couples its usage as a stand
<http://dgit.in/lookglif>



Game Hunt

Looking for better games? read up on the Steam User Review printouts
<http://dgit.in/steamur>

Netgear talks networking trends

A leader among consumer networking solution providers, Netgear's a household name anyone who's ever tried to buy a wireless router. We caught up with Richard Jonker, their VP for Emerging Markets (which includes India), to get a sense of what's happening in the world of networking, and India's place in it all. Excerpts from our exclusive interview:

Jayesh Shinde

jayesh.shinde@thinkdigit.com

Tell us a bit about Netgear and your role in it.

Netgear is an American global technology company based in Silicon Valley. I run the part we call the emerging markets, a collective term for the fastest growing countries around the world. Among these new markets, India is one of the most interesting ones I would say. Netgear's split in three business divisions: Commercial, Consumer and Service Provider business. And I run the business under all three verticals in the countries that are under my purview.

What are your thoughts on India and the wireless broadband wave?

Today you can see that almost all the information that people possess, everything that people do is moving to the internet. So it's a new wave and there are couple of trends going on that I would like to talk to you about. Particularly here in India where things tend to go faster than other countries, you won't expect that but it's the reality. This is my fourth time in Mumbai, I can see things change, I can see the smartphone explosion, and how fast that goes here. I think Indian people are very tech savvy, very technology focused. And the trends here in India are similar to other countries. But it's more massive, because of all the number of people that are connecting to the Internet. That's possible because there is a healthy situation here with multiple carriers that are competing, and competition brings innovation. So the rollout of wireless mobile broadband for example is extremely fast here, as the adoption is there.



Richard Jonker, VP, Emerging Markets, Netgear

Any particular networking trends that you've observed here or globally?

So roughly the trends that we saw started to emerge couple of years ago, but they are really exploding, is the fact that people want to access any information they have – could be home, pictures, data or stuff from there work – on any screen at any place at any time. And that has driven a massive technology change. The fact that it became available at lower cost means it drives lots of innovation. So I think the big vehicle here is anything cloud, the fact that you don't have stuff on your local premises any more, it moves to the internet.

So we find that there is a hybrid model possible and that's the trend going forward. For example, you store the stuff that's important to you, your picture, videos, etc you store in local storage but you want to enable yourself to share that over the cloud, and you want to do both. you want to backup your data in such a

way that you can retrieve it but you don't want to keep it at home, because while you're travelling you want to access your data, pictures, music, videos over the cloud, but in such a way that it doesn't matter where you are any more, or whether you use a laptop or desktop or tablets. So that's really where we're driving at, so lot of our engineering efforts go into making that seamless experience possible – but without a lock-in model like Apple. We want to make sure that people can access in any data, so we plug into the the technologies that are upcoming at the moment, that has to do with cloud. One of the technologies that makes possible for you to access data or content everywhere would be mobile broadband which adopts quicker in India because of the investment – putting fibre in grounds to half a billion households is not going to happen in India. It has to go over the air, that's why the investments are here, that's why it's great that telecom companies are investing heavily in mobile infrastructure.

How's the router influencing any of these trends?

Wireless networking for a home is becoming faster than wired networking and this is a major trend, because for years wireless has been lagging to gigabit networks and now with Wireless 802.11ac what you have to do almost do 2 gigabit of throughput through a wireless router, which is massive. Also, we have a brutal dual core processor in all our routers with clocks higher than 1 GHz, which allows us to run applications on a router and that's another trend we see, that the router's going to be the enabling factor for cloud and smart home, and that's another trend. The smart home, powered by mobility and cloud. **T**

Unwind

Now that you've gone through the Zero1 Awards check out the Zero1Zero Awards as well

Community

Our keen readers have written about PHP and Information Security in this month's community

Digit 101 - Wireless connectivity

Wireless transmission isn't that tough to get your head around, there are plenty of abbreviations and numbers flying around and here is where you'll get the low down on all the mumbo-jumbo.

The days of using purely analog means to get the message across has long passed and we are now doodling with so much data that we've pretty much stuffed the airwaves with information. Right this very moment there are hundreds or maybe thousands of megabytes worth of data swirling around you. Let's have a look at some of the technology that goes behind all this.

Bluetooth

Bluetooth is a wireless data transfer protocol that is found on almost all mobile devices. 802.xx is the IEEE (Institute of Electronics and Electrical Engineers) protocol for wireless communication. 802.15 specifically stands for bluetooth. The range is significantly shorter compared to other protocols but the latest revision has helped increase both range and throughput speeds. Bluetooth is limited to just 8 active devices of which one is called the Master or the Server. There can be 255 more devices connected to the same network but only 8 may be active at any given time. As of Bluetooth 4.0 the protocol has started to use technology similar to the one in Wi-Fi to achieve higher speeds. The table below will elaborate further on the range and throughput speeds of bluetooth.

Bluetooth		
Version	Speeds	Range
1	721 kbit/s	10m
1.1	721 kbit/s	10m
1.2	721 kbit/s	10m
2	2.1 Mbit/s	10m
2.1	3 Mbit/s	10m
3	24 Mbit/s	100m
4	25 Mbit/s	100m

Wi-Fi

Everything has Wi-Fi in it, and the technology has entered the gigabit era as of 802.11ac standard. There are multiple standards under WiFi itself and there is a new one every other year. They enjoy increased speeds as they evolve. Ever since WiFi direct feature has made its way into the protocol, bluetooth has started losing favour. The following table lists the

Wi-Fi		
Version	Range	Speeds
802.11b	140m	11 Mbit/s
802.11a	120m	54 Mbit/s
802.11g	140m	54 Mbit/s
802.11n	250m	150 Mbit/s
802.11ac	250m	1300 Mbit/s

protocols and the speeds they offer along with the range. Do note that the range is depends on which band is currently in use.

Cellular					
Gen	Name	Full Form	Speeds	Type	Remarks
0G	Push To Talk, Mobile Telephone System, Improved Mobile Telephone System,	-	-	Analog	
1G	AMPS, NMT	Advanced Mobile Phone System, Nordic Mobile Telephone	-	Analog	
2G	GPRS	General Packet Radio Service	114 Kbps	Digital	
2.5G	EDGE	Enhanced Data GSM Evolution	384 Kbps	Digital	Transitional
3G	3G	Third Generation	3.1 Mbps	Digital	
3.5G	HSDPA	High-Speed Down-link Packet Access	14 Mbps	Digital	Transitional
3.75G	HSPA+	Evolved High-Speed Packet Access	168 Mbps	Digital	Transitional
4G	LTE	Long Term Evolution	299.6 Mbps	Digital	

Cellular

Cellular data communication was primarily analog when it came out and has migrated to digital since 2G (Second Generation). Currently 4G devices are getting more mainstream though only select regions in the country actually enjoy proper coverage. Data transfer via wireless medium came into being from 2G devices onwards where internet connectivity could be used alongside calling functionality. Here you have another table with all the specifications for cellular data transmission technology.

NFC

Near Field Communication is a relatively new protocol which works within a few inches only. It has been adopted as a means of payment authorisation (credit/debit cards and payment tokens for public transportation) and also as a digital visiting card. NFC is not meant for high throughput transmission. There are active and passive modes of transfer, while active has its own power source the passive mode uses the electro-

magnetic radiation from the active device to power itself.

RFID

Radio Frequency Identification is yet another technology where passive "tags" are used to identify objects and so on. Passive RFID tags are severely limited in range but active RFIDs can extend over kilometers. They are often used to track objects across

assembly lines, logistics and to track students around campus.

IrDA

The key difference between the remaining technologies and IrDA is that IrDA requires a

IrDA	
Revision	Speed
SIR	9.6-115.2 kbit/s
MIR	0.576-1.152 Mbit/s
FIR	4 Mbit/s
VFIR	16 Mbit/s
UFIR	96 Mbit/s
GigaIR	512 Mbit/s - 1Gbit/s
5/10GigaIR	5-10 Gbit/s

clear line of sight between the communicating devices in order for it to work. So this technology can be said to be a lot more secure and since the maximum range specified is one meter it all the more adds to the security. IrDA was popular in most phone models in the late 90's and early 2000's. Once again, we have a table highlighting the specifications across different versions. [\[1\]](#)



Revisiting Ocarina

Games Radar revisits The Legend of Zelda: Ocarina of Time for the Nintendo 64.: <http://dgit.in/orcania>



Cold ISON

Newfound evidence found that chunks of ice may have broken off the ISON comet recently <http://dgit.in/ice-on>

Digit Diary: The year in review

Time flies when you're having fun and boy did we have a lot of fun this year! So much fun in fact that anything that happened before the last couple of months is nothing more than a hazy memory. For the sake of our (and your) short term memory, here's a roundup of all the cringe-worthy, and also the awesome stuff, we indulged in.



Apocalypse now?

The new year came and went with no Earth-busting meteor, but Robert's amp goes up in smoke and Mithun, to celebrate this new lease on life, finally buys the PC of his dreams. This was also around the time we started on the Nimish Mk.2 program. A process of reconditioning that would bring our happy-go-lucky friend to Digit's level of awesome.

Quakestravaganza

The arrival of Siddhant (the Ant) Sharma to our test labs shakes up the entire heirarchy of Digit's Quake performance charts. Within four months of joining, the Ant manages to beat both Anirudh and Siddharth, one on one. Within seven months of joining he takes on Robert and gives him a run for his money. The force is strong in this one. Very strong.



Intern of the year (former)

April 2013 saw the Ant bag our Intern of the year award. Why mid-year you ask? Well, the hardy young lad was subjected to a most rigorous and strenuous mental workout that would turn an average human-being inside out, and he still came out on top, shaken but unchanged. We *will* turn this lad into a debonair "man" about town, eventually.

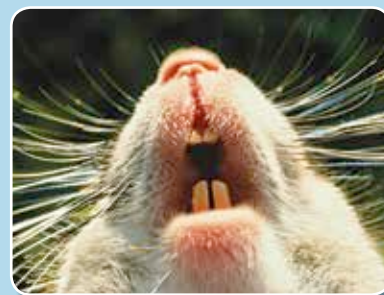


Gunned down

Anirudh's air rifle was (inadvertantly) responsible for a number of casualties in our office. The first was a side panel from Mithun's cabinet (he's very possessive about such things), followed by Nimish's much beloved Penguin and even a swivelling plastic something that our venerable Vijay Bhai liked to do the boogie on. He claims it was exercise.

Data woes

People deal with loss in various ways. Take Anirudh for instance, he accidentally formatted a drive containing 2.4TB and ended up in a state of semi-paralysis for a few moments while his brain re-adjusted itself to the fact that the data was gone. Forever. The Ant on the other hand prefers to wail. A long, low and pitiful wailing that can wake the dead.



Rats. Yes, rats.

It was in July that we discovered them. Beady eyed little devils with terrifying, 3mm teeth, scampering around our office like they owned the place. One even had the audacity to make a pass at Siddharth, a trespass for which it was summarily executed by firing squad. Well, not a squad exactly, but the number of pellets we had to use made up for it.

Venus Dust Ring

A new dust ring has been discovered near the orbit of the planet Venus
<http://dgit.in/venusdr>



I <3 PC Gaming

Thomas McDonald talks about why he loves PC Gaming so much. It's heartfelt and to-the-point
<http://dgit.in/pclauv>

Unwind

How we unwind



Zero1Zero winner: Interns

Words are everything, the deadliest of weapons and the strongest of armour. Words, when wielded well, can wreak havoc, but they can also betray you. It was words that took Prakrit, our pony-tailed hero, from mere intern to our Zero1 Zero winner! The Ant was in tears, but we're not sure if they're tears of joy or of sorrow.

Whose line is it anyway?

The original (American) version with Drew Carey had the team in stitches and we were very sad to see the show end. Thankfully, at long last, the show is reborn with Aisha Tyler at the helm and we're glad to say, it seems to have lost none of its early charm. Who's up for a hoedown? Wait! Where's the hoedown?



Intern Enrichment Program

We're getting a bit cranky around here. We've decided to take matters into our own hands and revitalise the younger generation, one intern at a time and the Intern Enrichment Program was born. A tear-down and rebuilding of their mental faculties. We've already started the ground work on our guinea pigs.

digit DIARY

What a month. Seriously, WHAT a month! We've had gadgets oozing out of every nook and cranny of the office. Zero1 can be a hectic time but boy is it a fun time as well. You PC geeks out there, prepare to drool for here's a list of all the awesome gear we received this month. Deep breath, here goes, Intel i7 4960x, the Nvidia 760, 760ti, 780, 780 Amp! edition, 780Ti, Titan, AMD's 270x, 280x and the 290x, high-speed RAM, DIY liquid coolers, super-size cabinets and professional-grade monitors, not to mention a bunch of gaming keyboards and mice, half a dozen headsets and, the pièce de résistance, an OCZ Z-Drive R4 that goes for upwards of ₹10,00,000. Yes you read that right, that's a one followed by six zeroes.

This list doesn't even include the gaming laptops, audio-ophile headphones, tablets, smartphones, SSDs, HDDs and other miscellaneous tech goodies that we've been wading through to find our winners. It's literally like Diwali, Christmas, Black Friday, Steam's Summer Sale, and every other major tech event all rolled into one and we've revelled in it. These ridiculous gadgets have spoilt us silly and as someone once said, "a luxury once sampled becomes a necessity." Gaming without a 780? Unthinkable! Music on a Klipsch s4i? Tchah! It'll be really sad to see them go *sniff*.

We really must talk about our interns though. Ant's been the reigning champ as Intern of the year for a long time (close to six months) and quite a few interns have come and gone but we never thought he'd lose the crown. Well, we were proven wrong. Prakrit Dhondiyal just wafted into our test labs, pony tail in tow and so effortlessly snatched up our Zero1Zero award for Interns that we were left speechless at first. He's yet to bag "Intern of the year", our other intern is doing his very best to hang on to it, but given enough time, we're sure Prakrit'll manage it. How do we define our winner? With a

series of tests of course. We run them through a course of JayWalking followed by mental gymnastics in the form of math questions such as the product of 8.5 and 2 – our interns have struggled with that one, we kid you not – and other questions in a similar fashion.

We also ask them to identify raccoons and poodle moths and engage them in the most esoteric conversations covering everything from basic profit and loss to metaphysics and pop-culture. All interns are then graded on their ability to provide us entertainment in the course of these tests. This ensures that a not-much-fun know-it-all won't win. The reason our Pony won the award is simple, while the Ant has been regaling us with his antics, the Pony has been entertaining us with his theories on the difference between applications and software and other similar tales (Pony Tales we're calling 'em).

While the Pony was whinnying away to the top of the chart, a traitor paid a visit. Not just any traitor, THE Traitor, he-who-will-never-be-named-and-shall-die-in-ignominy-for-abandoning-his-team. We paid him no heed for quite some time that day, even going to the extent of setting up an impromptu story idea meeting (in the middle of the month mind you). Sid however wasn't strong enough. The raised brow, the glittering eye and the mocking smile of his former pal and drinking buddy beckoned. We're keeping an eye on that one, his heart is not in the right place and as you well know, thought-crime is true-crime. It's no different from stealing candy from a kid.

Speaking of the Sid, he's ordered a Nexus 5 for himself, all the way from Umreeka. He was hoping to be one of the first Indians with the phone, but eBay beat him to the punch by putting the device up on sale just two weeks before he was to receive the phone. Bragging rights? Denied!



Kern It!

You think you know kerning? You don't know! Nothin' 'til you play this, boy! Wha'chu waiting for?
<http://dgit.in/kernit>



After the Disco

A sci-fi web series starring Anton Yelchin and Kate Mara. Take a look:
<http://dgit.in/brokenbatd>



This month we highlight some aspiring tech writers and their spirited attempt to get published in the magazine. Let's have more!

Readers' write-ups



Praneet Sab

PHP: 5 reasons to code in it.

What does PHP have that makes everyone love it? The answer is simple. It offers you an all inclusive canvas to let you bring out

the best of your skills in server side scripting. PHP is really easy to write, easy to learn, and it's easy to begin coding with. There may be many people who don't know coding but just to give you a hint, first start off with HTML, next with CSS and then directly get into PHP with MySQL and finally dazzle the internet with your skills.

If you want your site to be dynamic, object oriented, need a user system and more; then PHP is your answer. There are more than 244M sites using PHP which includes Facebook, Wikipedia, Twitter and many others that you visit frequently. If you're finding reasons to code in PHP then read the following.

1) Ease of access:

PHP is built in such a way that it's easy to learn and use for beginners while being complex enough for professionals as well. There are simple functions and a few of them have the potential to perform many things. For testing purposes, installing xampp for windows on your own PC would solve your server problems. To learn PHP you don't need to buy books, as there are already thousands of free videos tutorials and websites which are enough to turn you into a professional coder.

2) Feature-rich:

PHP can do calculations, it can generate graphics, send e-mails, can be used in making a blog or forum, allow login/user system. The possibilities are unending

and it just depends on how you use PHP and what you make out of those functions.

3) Widespread & Availability:

There are many hosting servers that provide hosting with PHP for free, whereas hosting with other languages such as C++ is not easily available on free servers. Most of the coders use PHP and thus most scripts sold online are in PHP only. This makes easy integration of other's PHP scripts with your own site. Moreover, if you face a problem with your PHP code, then you can post your query on forums to get it sorted out by professionals.

4) Integration:

PHP allows you to write HTML, CSS, MySQL codes in one PHP file; in fact you can use HTML tags within the PHP braces, thus it makes all the code go into one file.

5) Earn money:

You can earn money using most languages and PHP is no different. Write a code about anything and put it up for sale online. If it's really good then you're good to go. You can put up a portfolio of yourself on freelancer sites and people would hire you to code their sites.



Kedar Deore

Introduction to Information Security

Or `Cybersecurity` for those of you who prefer meaningless buzzwords. Any term with cyber suf-

fixed to it is done for because of two reasons. One is marketing and the other is when you don't know of a more appropriate term to use. Please, stop using and promoting the use of `cyber`. It used to

be relevant once, but not anymore /rant over. One fairly relevant word that you will come across is 'hacker'. The term 'hacker' is most often associated with wrongdoings related to computers. A hacker is an expert, and expertise can be applied both ways. The hacker mindset involves subverting restrictions, making devices and appliances do things they aren't supposed to, making modifications that increase performance and efficiency, automating mundane tasks in fascinating ways. Doing things because they "can" be done. Hacks can be done for fun, or profit (or both). If you think of ways in which you can take stuff past that police checkpoint with your car, not because your intent is malicious, but because it can be done and this signifies a weakness in security control. Not every InfoSec professional is a hacker, but it's what separates the better ones from the rest. InfoSec is a huge field consisting of various sub-fields, from cryptography to reverse engineering. I will discuss some here.

Cryptography is for math lovers out there. And I don't mean those whose knowledge ends at Caesar and Vigenère ciphers. It's an extremely specialized field requiring degree-level knowledge in math to know the ins and outs of crypto protocols. If Prime numbers, Euler's totient function, Euclidean algorithm, Diffie-Hellman, Bob and Alice sound familiar, you may already be into cryptography. When I mention these requirements, I mean to stress on the amount of knowledge required to write a protocol, audit and find weaknesses in one. Depending on your level of interest and expertise you may find weaknesses in the application of RC4 / XOR (hint Whatsapp) or fake DKIM signature in email headers to spoof email from one Google co-founder to the other.



Denied!

Judge denies Samsung motion to stay Apple patent damages trial. Read more: http://dgit.in/de_nied



Crimson Dragon

Is Crimson Dragon the same as Panzer Dragoon, with a different name? Find out <http://dgit.in/crimd>

Digit Squad

Professionals from other sub-fields are required to have at least a basic understanding of all or most of other sub-fields. Jack of all trades and master of one is basically how it goes in InfoSec. Programmers can look into code auditing, writing vulnerability scanners and crypto applications.

Another major area is Penetration Testing or pentesting. The clichéd 'hacker' that you see in movies is actually a pentester. This is one of the most fun fields to get into if the idea of breaking into networks and having total control over all the machines and data of an organisation sounds good to you. Not only do you get to break into stuff but you also get paid for it. You also have to write reports, which many have publicly voiced their displeasure for. But it's no deal breaker.

InfoSec as a field is rapidly evolving, so simply popping root shells and getting domain admin (pentester terms for 'I own your machines and network', similar to gamer term 'totally pwned') isn't cool any-

more. You have to work towards making sure it doesn't happen this easily again, and when it does, the organization knows about it ASAP and should have a response team ready and procedures to follow to minimise impact. Things are never that simple though.

Reverse engineering(RE) involves taking apart a final product to find out how it works and in the process discover vulnerabilities that can be used to make the product do what you want it to do. Imagine taking apart a TV remote to find out that if you press particular four buttons at once, you can unlock any channel with parental lock. It is also used to discover hidden features in software that isn't entirely legitimate. Malware can be reverse engineered to find out how it communicates, what exactly it does once it is run. Imagine your housemaid making duplicates of all the keys to the house and selling them to someone else. This is how these 'clean your PC, you have 1337 Trojans' programs work. Reversing them

tells you what exactly happens behind that shady looking interface. A Botnet is such a network of malicious housemaids that have infected several thousand households or more. The infection is most severe when you don't even know you have a housemaid. Bad analogies aside, if you like taking stuff apart to find out how it works, RE is a brilliant field for you.

InfoSec is also a lot about giving back to the community. Be it research that you're making public or a tool that you are open sourcing or giving a talk at a conference. When it comes to defending against adversaries, if one finds an effective technique, they may share it with everyone. Same goes for attacks. O-day sales and disclosure practises are beyond the scope of this article but extremely interesting and relevant nonetheless.

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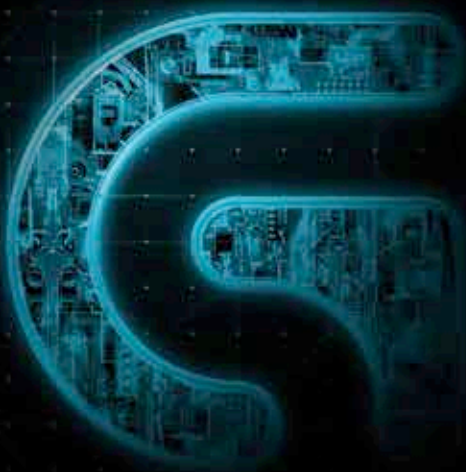
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How does Sachin safeguard his priceless memories on his multiple devices?



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