

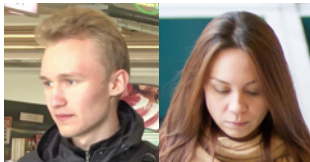
Facial recognition server software using deep learning technology

Facial recognition server software matches the faces captured by the network camera against the faces of persons already registered in the database. In addition, using operations from a client terminal, it is possible to search for the face of the person subject to the notification, and check the image which captured that person.

Key Features

High performance facial recognition

- High performance Deep Learning facial recognition function distinguishes face orientation, sunglasses, surgical mask, facial aging change



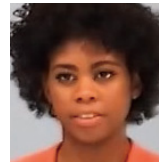
Angled face



Sunglasses



Surgical mask



Facial aging change



| | WV-ASF950 |
|---------------------------------|--|
| Range of angles* | Horizontal range : -45° to +45° Vertical range : -30° to +30° |
| Minimum size of the face image* | 30 pixel (Eye Distance : 15 pixel) |

*There might be a change of specification.

Facial recognition function

Registered face detection function

- Issue notification if there is a match with a registered person. Display history in list format.

Use Case

You do not want to overlook the store arrival of a regular customer because you want to be ready to provide priority service.

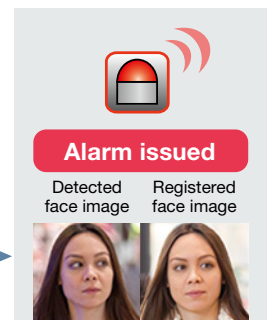
Register the faces of regular customers, and have a notification sent when one is detected.



Alarm issued for registered persons

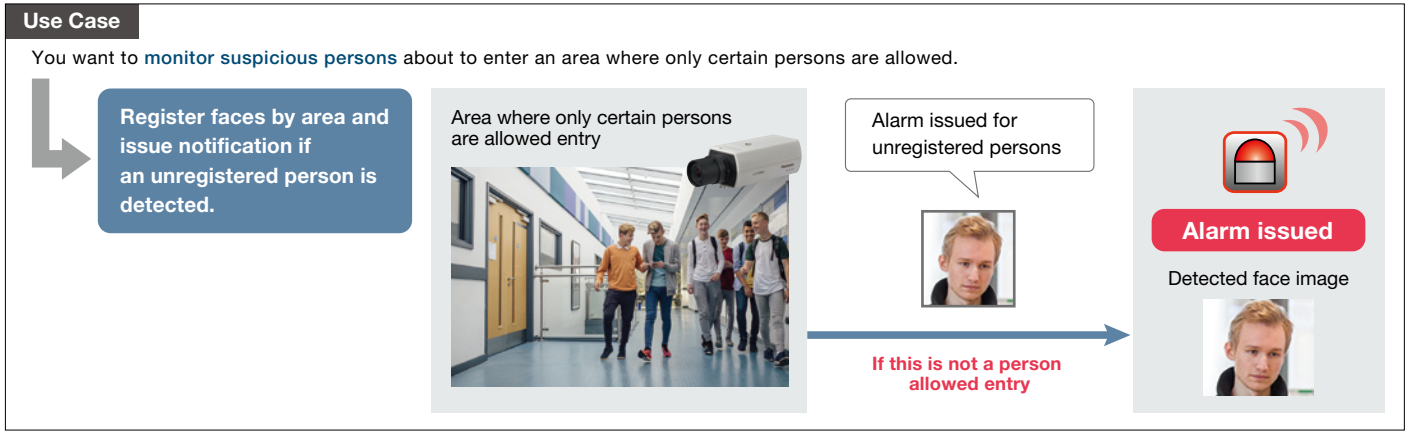


If this is a regular customer



Unregistered face detection function (detection of suspicious persons)

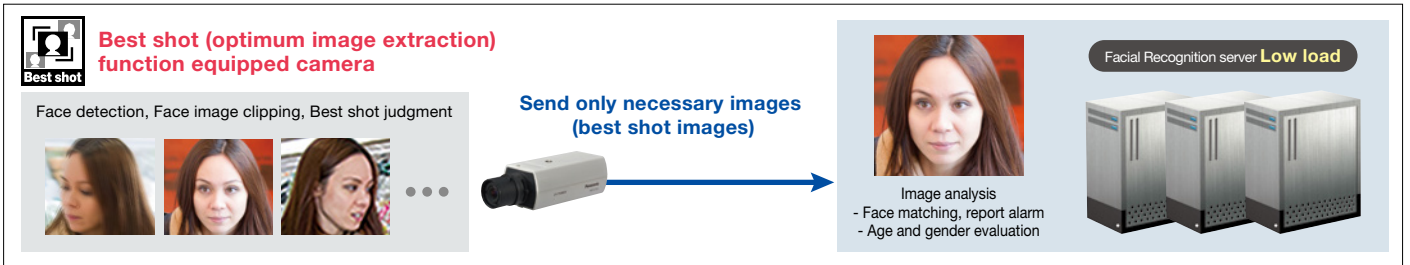
- Register faces by area and issue notification if an unregistered person is detected. Display history in list format.



- [Important] • When you install WV-ASF950 (Ver.2.0 or later), please select "Registered face detection function" or "Unregistered face detection function." Only one of these functions can be used on a single server.
- When the "Unregistered face detection function" is used, the time that it takes to issue the alarm is several seconds longer than the conventional recognition function.

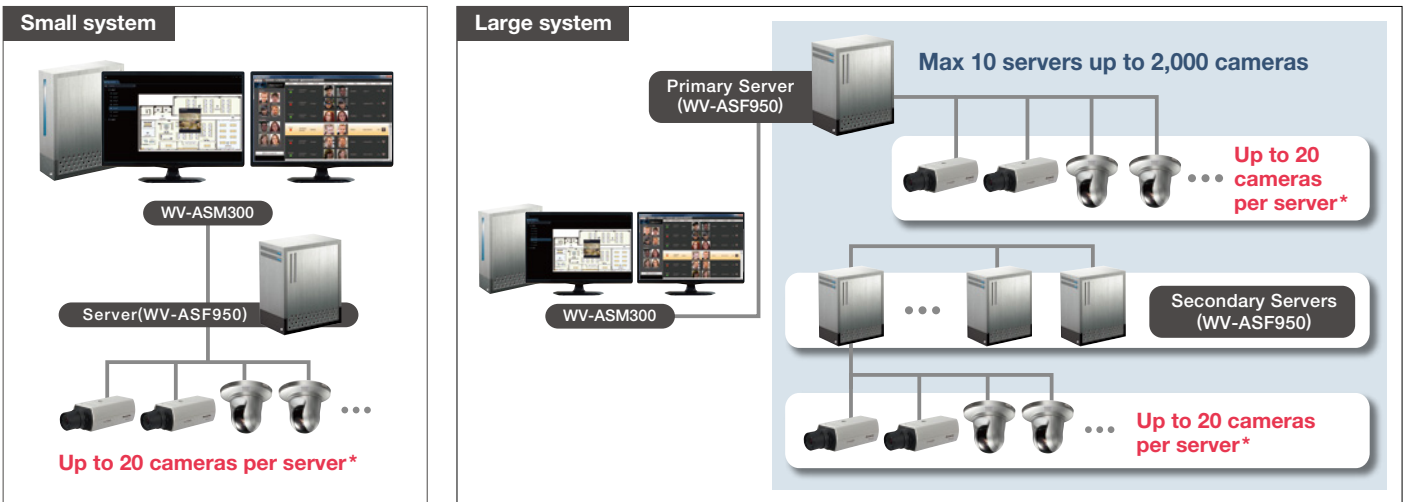
Cost Reduction

- Up to 20 cameras that have best shot function can be connected to one server. Reduce the system total cost such as server cost, network cost etc.
- *The number of cameras that can be connected is determined by the number of people passing and the retention period of the face image.



System expandability

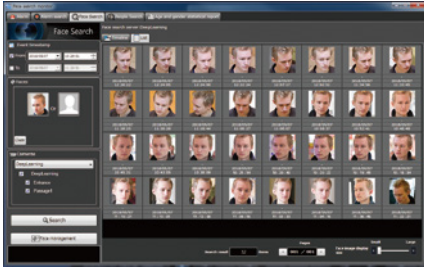
- Up to 30,000 faces can be registered and WV-ASF950 can be used in large facilities.



*The WV-ASF950 includes license for 4 network cameras. To connect more than 5 cameras to the WV-ASF950, purchase WV-ASFE901 or WV-ASFE904 sold separately. When unregistered face detection function is selected, up to 10 cameras.

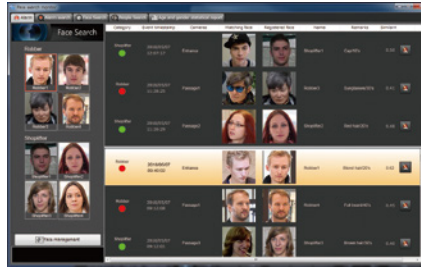
Face search

- Face images that camera detected are stored, and it can be searched later.
- By searching the face database, you can display the result of each cameras in chronological order and find movement locus of persons.
- Specify camera or date in detected face images and display the result in the list in similarity order.



Face Matching

- When it is matched with registered people, alarm of face matching is output in real-time, and display an alarm history in the list.
- Specified screen image can be played back on control monitor with double-clicking on an alarm history.



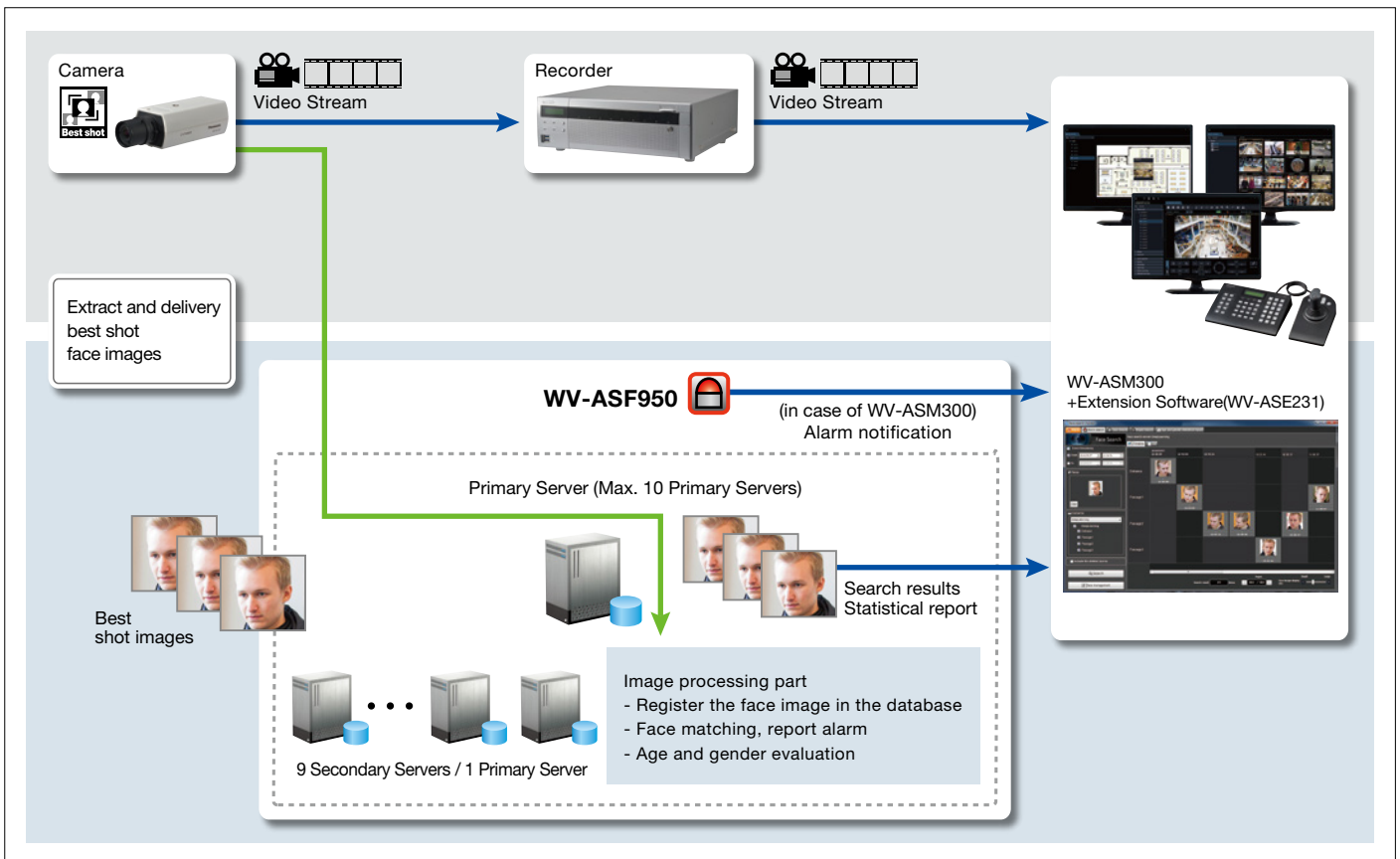
People counting, Age and Gender Statistics

- Count people of detected face and evaluate their age and gender
- Display the result on the screen with statistical graph
- The statistical data can be saved as a CSV file* for analytical use.

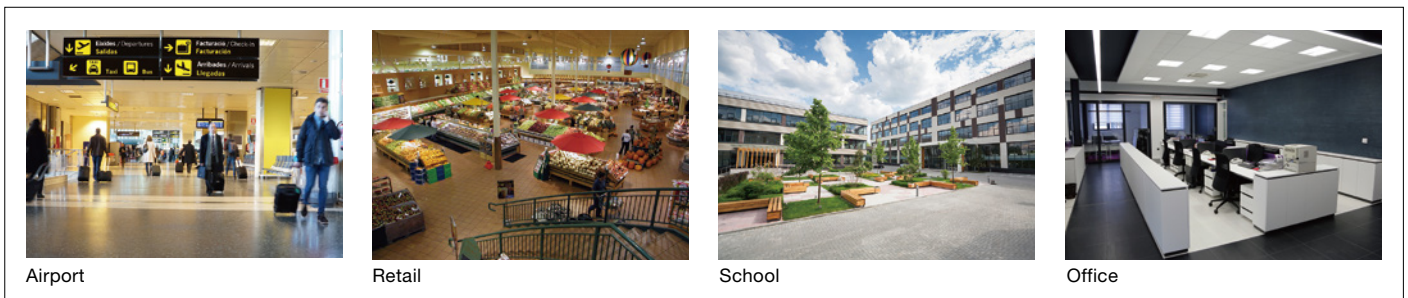
*CSV file: A file that can be edited using a spreadsheet software such as Microsoft® Office Excel®



Basic System Connection Example



Industry examples



Specifications

Basic Specifications

| | | Installation Type | |
|-------------------------------|--|--|--|
| | | Registered Face Detection | Unregistered Face Detection ^{*1} |
| Basic | Face matching speed | At 1 second in 30,000 registered faces ^{*2} | At 3 second in 30,000 registered faces ^{*2} |
| | Max. number of face in matching list | Up to 30,000 face ^{*3} | |
| | Face searching speed in database | 3 seconds per 5 million faces ^{*4} | |
| | Max. number of face history | Up to 10 million items | |
| Face Conditions | Range of angles | Horizontal range : -45° to +45°, Vertical range : -30° to +30° | |
| | Minimum size of the face image | 30 pixel (Eye Distance : 15 pixel) | |
| | Face with sunglass | Yes | |
| | Face with surgical mask | Yes | |
| Functions | Registered face matching | Yes | Yes ^{*1} |
| | Unregistered face matching | No | Yes |
| | Face search and associated video playback | Yes | |
| | People counting / Age and gender statistics | Yes | |
| system | Max. number of connected camera | 10 cameras is suitable, up to 20 cameras per 1 face matching server. ^{*5} | Up to 10 cameras per 1 face matching server. ^{*5} |
| | Max. number of servers | 100 servers (10 primary + 90 secondary) | |
| System Expansion/ Integration | Integration with CCTV system | i-Pro NVR+ASM300 | |
| | SDK - API support | Yes | |
| | Notification | Rotation Warning Light / Mail Notification | |
| | Max. number of client PC that can be linked with the alarm | 16 | |

*1 Depending on settings, Unregistered Face Detection and Registered Face Detection can be used simultaneously. *2 From receiving the face thumbnail to matching in face matching server.

*3 Two Additional Face Registration Kits WV-ASF951 are necessary. *4 The best case when the time range is narrowed down and the number of search result is 100 faces. Depending on the search conditions, the search time may take several minutes. *5 Deploying plural face servers in a system is acceptable.

System requirements

Hardware

| | | | |
|--------|--|--------------|---|
| CPU | Intel® Xeon® or Core™ i7 series 3.40 GHz or faster (4-core 8-thread or better) | Graphic | NVIDIA® QUADRO® P5000, NVIDIA® QUADRO® RTX5000 |
| Memory | 32 GB or more | Power supply | 600 W or more |
| HDD | 1 TB or more | OS | Microsoft® Windows® 10 Pro RS5 (64 bit), Microsoft® Windows Server® 2016 Standard Edition, Microsoft® Windows Server® 2019 Standard Edition |

[Important] If the system down of Windows occurred such by unexpected power outage, etc., database may be damaged and the functions such as face search and face verification may not work appropriately. It is strongly recommended to use UPS in order to avoid corruption of data.

Network Camera (face detection)

| | |
|----------------|---|
| Network Camera | WV-S1132 / WV-S1131 / WV-S1112 / WV-S1111 / WV-S2531LTN ^{*7} / WV-S6130 / WV-SPN631 ^{*6} / WV-SPN611 ^{*6} / WV-SPN531A / WV-SPN311A / WV-SPN310A / WV-SP305 / WV-SFV631LT ^{*7} / WV-SC385 ^{*8} |
|----------------|---|

*6 The Optional IR-LED(WV-SPN6FRL1) can not be installed with any of the tested Lenses. *7 Although this is the outdoor model, it can be used as face matching camera for indoor only.

*8 After fixing the angle of view, if you control the camera with PTZ operation, the face matching function will not work properly. In this case, set the view of angle properly again by using the preset position function.

Tested Lenses

| Maker | Model Name | Day/Night | Resolution | Focal Length (mm) | Camera (excluding Lens) | | | | | |
|----------|------------------------------|-----------|------------|-------------------|-------------------------|---------------------|-------------|---------------------|---------------------|-------------------------------|
| | | | | | WV-S1131, WV-SPN531 | WV-S1132, WV-SPN631 | WV-S2531LTN | WV-S1111, WV-SPN311 | WV-S1112, WV-SPN611 | WV-SPN310, WV-SP305, WV-SP306 |
| FUJINON* | YV3.3x15SA-SA2 | Day | 3 MP | 15 - 50 | | ○ | | | | ○ |
| | YV3.3x15SR4A-SA2 | D/N | 3 MP | 15 - 50 | | ○ | | | | ○ |
| | DV10x8SR4A-SA1 ^{*9} | D/N | 3 MP | 8 - 80 | | ○ | | | | ○ |
| | YV10x5HR4A-SA2 | D/N | 1.3 MP | 5 - 50 | | ○ ^{*10} | | | | ○ |
| TAMRON* | M13VG550 | Day | 1.3 MP | 5 - 50 | | ○ ^{*10} | | | | ○ |
| | M13VG850IR | D/N | 3 MP | 8 - 50 | | ○ | | | | ○ |

*9 Since this lens is C-mount type, the C/CS-mount lens adaptor is necessary.

*10 This lens has lack of clearness and vividness, as this lens cover only up to 1.3 MP resolution. However, it has enough potential for facial recognition.

* Panasonic do not guarantee the quality, performance, operation of third-party products.

Network Disk Recorder

| | |
|-----------------------|--|
| Network Disk Recorder | WJ-NX400 Series, WJ-NX300 Series, WJ-NX200 Series, |
| | WJ-NV300 Series, WJ-NV200 Series, WJ-ND400 Series, WJ-ND300 Series |

Supported Management Software

| | |
|---------------|--|
| Panasonic | WV-ASM300 + WV-ASE231 |
| Video Insight | Video Insight 7.4 + WV-ASE231 |
| Genetec | Genetec Security Center V5.6 SR4, V5.7 SR1, V5.8 + WV-ASE231 |
| Milestone | XProtect Corporate 2019 R2(13.2a) + WV-ASE231 |

Products Lineup

Facial recognition server software

| Product Name | Model No. |
|-----------------------|---------------------------|
| PC Software Package | WV-ASF950, WV-ASF950W |
| Additional Camera Kit | 1ch WV-ASF901, WV-ASF901W |
| | 4ch WV-ASF904, WV-ASF904W |

| Product Name | Model No. |
|----------------------------------|-----------------------|
| Additional Face Registration Kit | WV-ASF951, WV-ASF951W |
| Extension Software | WV-ASE231, WV-ASE231W |
| Upgrade Software | WV-ASF950UGW |

*The performance of the face matching function varies depending on such conditions as the camera installation, camera settings, camera adjustment, surroundings and photographic subjects.

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Important

– Safety Precaution: Carefully read the operating instructions and installation manual before using this product.

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