

- AI Video Motion Detection
- AI Privacy Guard
- AI Sound Classification
- AI Face Detection
- AI People Detection
- AI Vehicle Detection
- Multi-AI Server



## Install Various types of applications to keep your i-PRO network camera on the cutting edge.

There are many types of AI applications that can be installed on network cameras at no additional cost. Although i-PRO network cameras are edge devices, they are in charge of various detection processes. As a result, the camera is responsible for the advanced processing and the server does not require expensive hardware.

### i-PRO AI applications

#### AI Video Motion Detection

- AI differentiates between vehicles, motorcycles, bicycles, and people. It further detects and sends warning notifications when they enter a specified area.



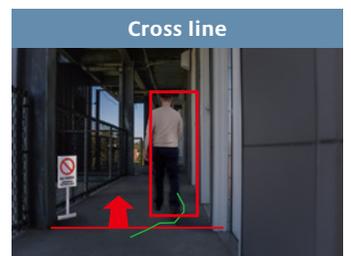
- It is possible to issue an alarm when a moving object enters a specified area.



- It is possible to issue an alarm when a moving object enters a specified area and stays there for a specified amount of time.



- It is possible to issue an alarm when a moving object enters a specified area and moves in the specified direction.



- It is possible to issue an alarm when an object moving in the specified direction crosses a specified threshold.

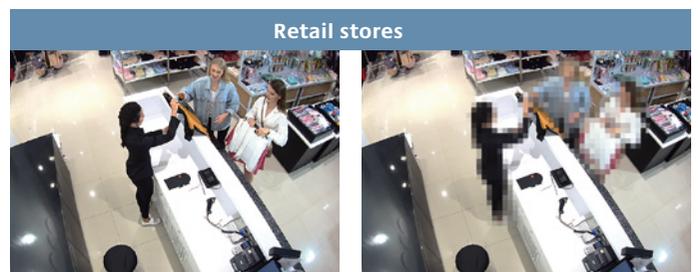
#### AI Privacy Guard

- To protect privacy and portrait rights, it is possible to automatically apply a mosaic the entire face and figure of a person photographed by the camera.



Original image

Processed image



Original image

Processed image

## AI Sound Classification

- AI detects and identifies (gunshot / yell / vehicle horn / glass break) sound. It then sends a warning notification according to the sound identified.



<b>Classification target</b>	1.Gunshot 2.Yell 3.Vehicle horn 4.Glass break
<b>Classification condition</b>	Target sound is 6 dB louder than crowd. Target sound continues more than a second. (except for gunshot)

External microphone is required.\*

\*Frequency characteristics: support 200Hz to 8kHz, Omnidirectional microphone.

## AI Face Detection

- The i-PRO network camera utilizing an AI engine and Multi-AI Server realize real-time face recognition without an expensive face recognition server. AI detection enables highly accurate face detection, and is also effective for detection in low lighting, backlit environments, or for detecting faces obscured by masks.

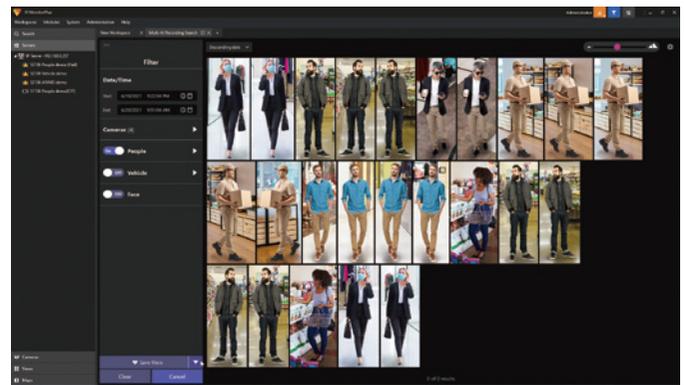


<b>Range of angle</b>	Horizontal : 0° - 45°, Vertical : 0° - 30°
<b>Detection number at the same time</b>	Max. 8 faces
<b>Size of face image</b>	Min. size : width 30 pix Recommend : 60 pix
<b>Min. illumination level</b>	100 lux
<b>Max. number of cameras</b>	20 when installed with VMS server PC 60 when installed in dedicated server PC
<b>Max. number of watchlist</b>	1,000 faces
<b>Recommended model</b>	WV-S1136

## AI People Detection

- Characteristics of the human face and clothing are extracted and classified into useful categories such as gender, age, and clothing color. This abundant attribute information can then be searched to easily find the target person.

Attributes	Values
<b>Gender</b>	Male / Female
<b>Age</b>	Child (0-10) / Young Adult (11-20) / Adult (21-60) / Senior (61+)
<b>Mask</b>	Mask / No Mask
<b>Hair type</b>	Long hair / Short hair / Hat
<b>Hair color</b>	Black / Brown / White / Gray / Gold
<b>Sunglasses</b>	Sunglass / No Sunglasses
<b>Beard</b>	Beard / No Beard
<b>Top type</b>	Long sleeves / Short sleeves
<b>Top color</b>	Black / Brown / White / Gray / Green / Red / Blue / Yellow / Orange / Purple / Pink
<b>Bottom type</b>	Long / Short
<b>Bottom Color</b>	Black / Brown / White / Gray / Green / Red / Blue / Yellow / Orange / Purple / Pink



<b>Conditions</b>	<b>Range of angle</b>	Vertical: 0° to 45°
	<b>Detection number at the same time</b>	Max. 20 people
	<b>Size of people image</b>	Min. size: width 60 pix Recommended size : width 100 pix
	<b>Min. illumination level</b>	Min. illumination level : 10 lux Recommended illumination level : 50 lux
<b>Mask Area (non-detection area)</b>		Max. 8 areas (polygonal) can be set

## AI Vehicle Detection

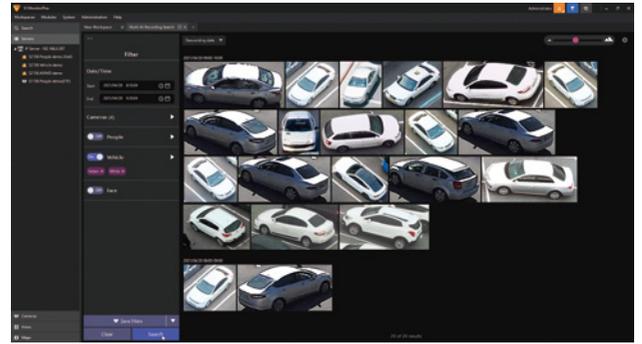
- Vehicle characteristics are extracted and classified into useful categories such as type and color. This abundant attribute information can then be searched to easily find the target vehicle.

**Vehicle Type**

Truck
 Bus
 SUV
 Van
 Sedan
 Pickup Truck
 Two-Wheel

**Vehicle Color**

Black
  Brown
  White
  Gray
  Red
  Blue
  Yellow
  Green
  Purple
  Pink

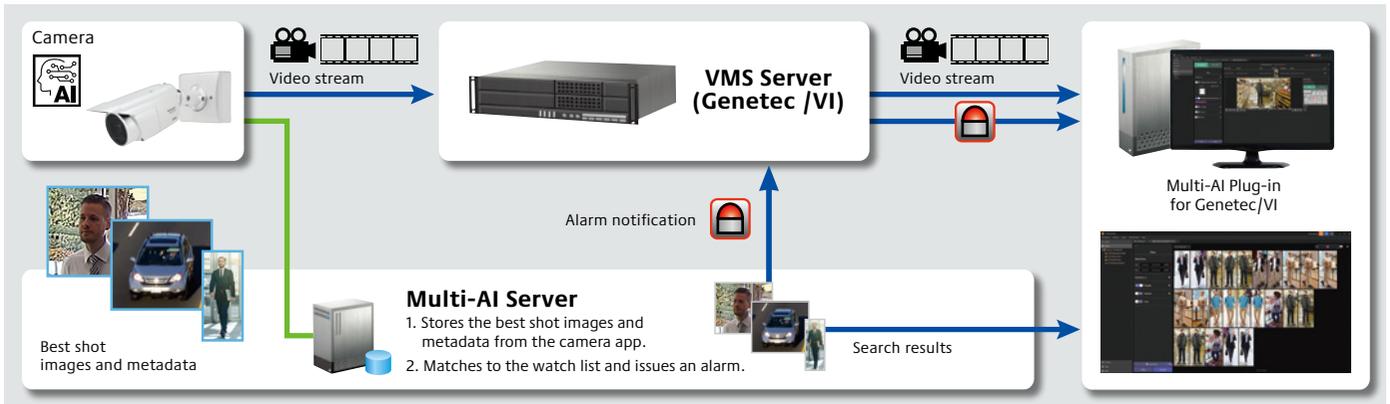


Conditions	Range of angle	Vertical: 0 to 90°
	Detection number at the same time	Max. 20 vehicle
	Size of vehicle image	Min. size: 70 pix for the shorter axis (about 15-20 m ahead) Recommended size: 112 pix for the shorter axis
	Min. illumination level	5 lux
Mask Area (non-detection area)		Max. 8 areas (polygonal) can be set

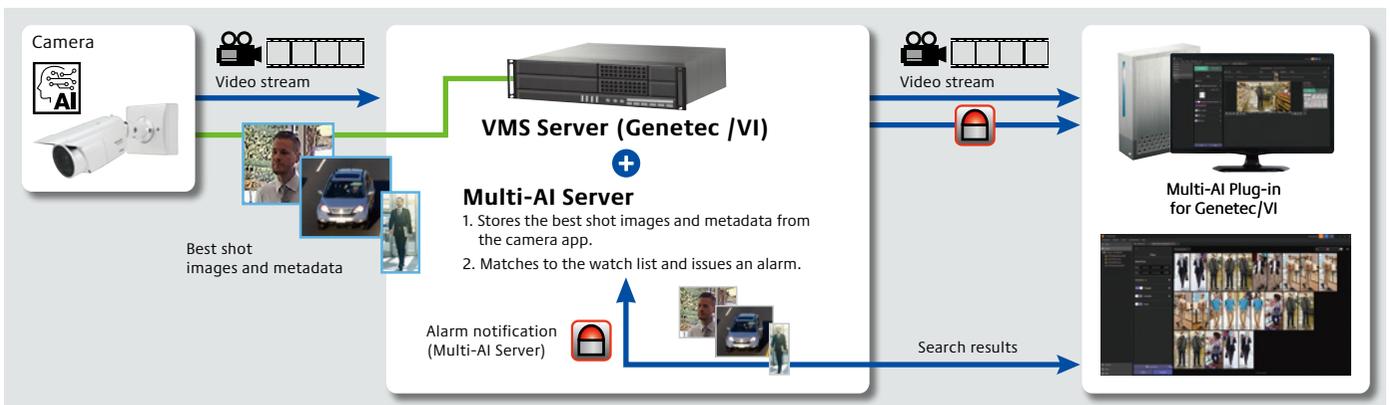
## Multi-AI Server

- Multi-AI Server stores the best shot images and metadata captured by i-PRO network cameras. Then, it collates this data with the watch list registered in the client software and issues an alarm when a match is found. The server does not require expensive hardware because i-PRO network cameras handle the advanced processing. The server can also be installed on the same hardware as the VMS.
- The system comprises the Multi-AI Server, the AI application installed on i-PRO network cameras utilizing AI engines, and the Multi-AI plug-in software for the VMS client.

### Example of a Basic Connection System (Multi-AI server Installed in dedicated server)



### Example of a Basic Connection system (Multi-AI server Installed in VMS server)



<b>System</b> (Multi AI server software)	Scale	Supported camera	AI camera *X series (4K or 5MP) and New S-Series (2MP)
		Number of camera	1 to 100CH when installed with VMS server (AI Face Detection is up to 20) 1 to 300CH when installed in dedicated server (AI Face Detection is up to 60)
		Number of client	No limitation (depending on limitation of VMS)
		Number of VMS server	12 units (VI)
	Store	Retention period	Max. 31 days limitation
	Post Search	Filter	People, Vehicle (attribute, date & time, camera, moving direction) Face (only for specific date & time and camera)
		Similar search	Yes (by same attribute information) *People and Vehicle only
		Sort	Descending, Ascending, Relevance
	Alarm	Watch list alarm	Up to 1,000 face Up to 12 people attributes
		Detection alarm	AI Sound Classification (Gunshot / Yell / Vehicle horn / Glass break) AI-VMD (Intruder / Loitering / Direction / Line cross)
		Related function	Show alarm on real-time, alarm search, VMS's Rules configuration, Map overlay (VI only), Notification to mobile app (VI only)
	Playback/Export	Playback	Playback video around the time of the best shot on full screen or multi-view
		Export	Save best shot image, Export video from VMS
	Supported AI applications	VI	AI-VMD / AI Sound Classification / AI Face Detection / AI People Detection / AI Vehicle Detection
		Genetec	AI Face Detection / AI People Detection / AI Vehicle Detection ( AI-VMD, AI Sound Classification are supported in Genetec alarm management function )

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- All other trademarks identified herein are the property of their respective owners.

**Important**

- Safety Precautions : Carefully read the Basic Information, Installation Guide and Operating Instructions before using this product.
- Panasonic i-PRO Sensing Solutions Co., Ltd. cannot be held responsible for the performance of the network and/or other manufacturers' products used on the network.
- When monitoring remotely, please pay attention to the network design. For details, please contact your local Panasonic i-PRO sales representatives.

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