

WHITE PAPER

i-PRO Active Guard system

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1 Introduction

Application of the image analysis technology using AI has been prevailing in the surveillance industry. The introduction of image analysis app has brought about not only mitigation of operators' workload but also higher effectiveness of surveillance operation by using automatic detection of suspicious person or image search in accordance with the persons' attribute.

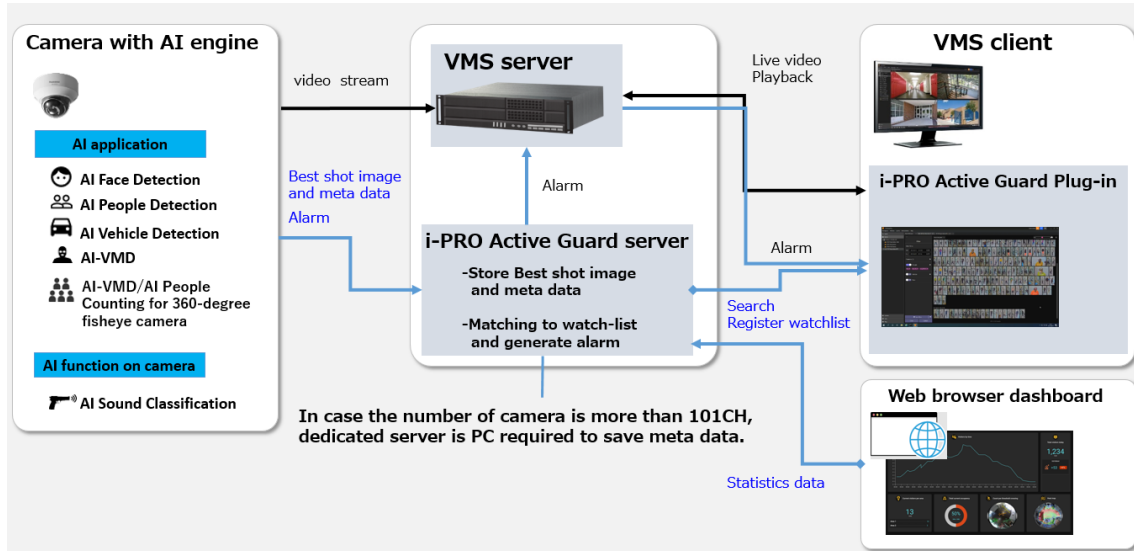
The features utilizing AI ranges broadly from analysis of objects such as faces, people, or vehicles, detection of moving objects like intrusion or loitering, identification of a gunshot sound, counting the number of people or vehicles. With i-PRO cameras with AI engine (called AI camera hereafter), user can install additional necessary AI features.

In order to utilize various AI features on VMS (Video Management System), role of each device and their integration is important.

This whitepaper is a summary of "i-PRO Active Guard", which is a software that collects/manage metadata analyzed by AI camera to further apply them to multiple VMS. This also presents the benefit for users or integrators when using this system.

2 i-PRO Active Guard system

2.1 System overview



AI application or AI function on cameras transmit video stream to VMS server and transmit Best shot images and meta data to i-PRO Active Guard server.

i-PRO Active Guard server stores those data and also generate alarm when face or people is matched to watchlist.

i-PRO Active Guard Plug-in which is the plug-in software for VMS client can search best shot images, register watchlist, show live video, recorded video, and alarm.

By visualizing statistics data from AI application on the web browser, it can also be used for business intelligence.

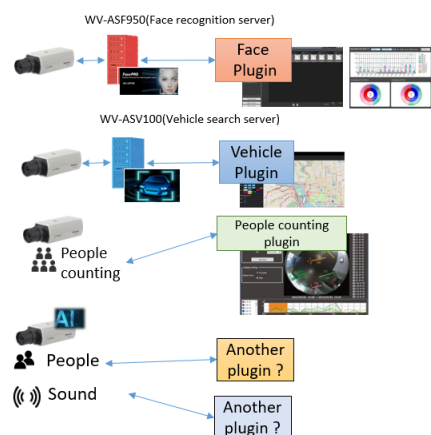
2.2 Benefits for operating user

Our existing system, the software and operations display are independent, which means that specific operation such as facial recognition, vehicle search or people count has each dedicated software and operation display. Thus, user needs to operate separate GUI displays.

- Many AI functions can be used with one system and same operation screen
With i-PRO Active Guard system, functions for surveillance purpose can be operated via i-PRO Active Guard Plug-in on VMS for almost all features carried out by our AI camera. Moreover, the user can confirm all the analyzed statistical data with dashboard display function for business intelligence purpose.

Issue for conventional system

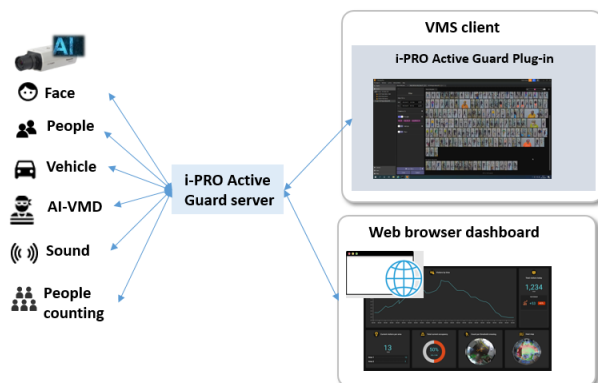
- Each AI analytics requires own plug-in
- GUI is different
- No interoperability for multiple AI analytics



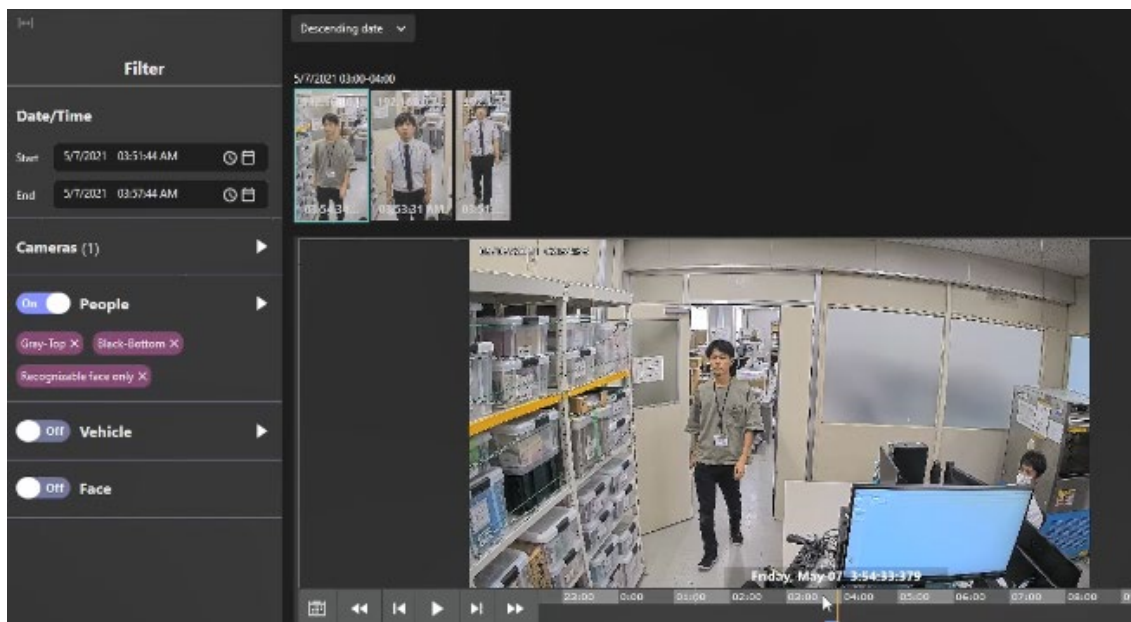
i-PRO Active Guard

i-PRO Active Guard Plug-in on VMS integrates all analytics for cameras with AI engine and provide integrated GUI.

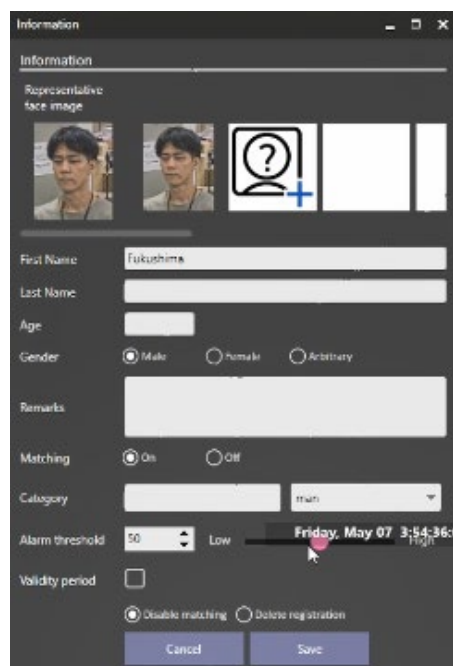
All statistics data can be used via web browser



- Higher effectiveness of surveillance operation linking multiple AI functions
Multiple extension software such as *AI Face detection* or *AI people detection* can be interactive. For example, a similar face can be found by using facial images included in the people search result based on the person's appearance information (ex. Color of clothing). The face detected can be registered to *Face watchlist* so that the registered face detection can be received whenever the camera detects the registered face.



Example of people search using people attributes



Face registration as watchlist from people search result

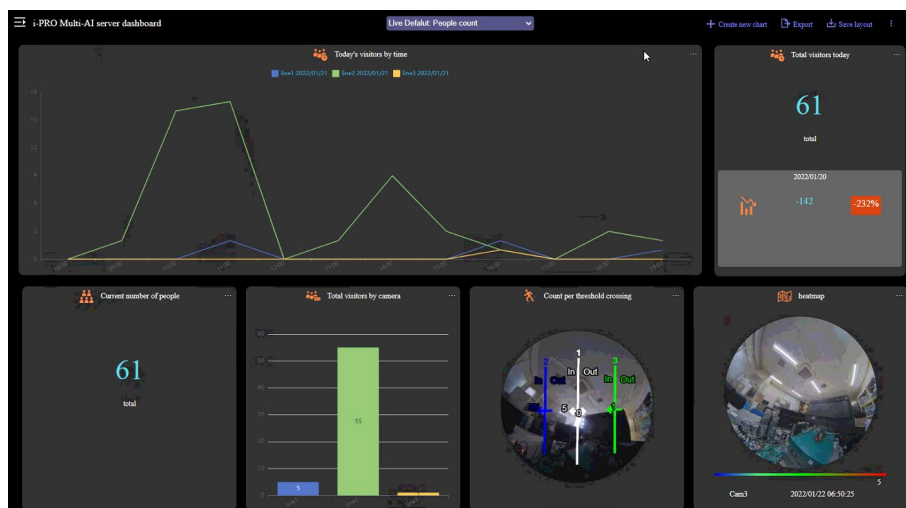
Date / Time	Camera	Event	Detected	Registered	Details
5/7/2021 03:57:44 AM	192.168.0.223 - Model: Panasonic WV-K2271L	Registered face detection			Similarity: 0.76 Name: Fukushima Gender: male Category: man Remarks:
5/7/2021 03:57:44 AM	192.168.0.223 - Model: Panasonic WV-K2271L	Registered face detection			Similarity: 0.56 Name: Fukushima Gender: male Category: man Remarks:
5/7/2021 03:57:44 AM	Face	Registered face detection			Similarity: 0.51 Name: Fukushima Gender: male Category: man Remarks:

Example of when receiving Registered face detection.

- Dashboard display for business intelligence

This system is also useful for the users with a marketing purpose who are in search for statistical data of the people counts, age or gender. i-PRO Active Guard server can be accessed remotely to check its dashboard over the WEB browser since its statistical data management of analyzed information from the camera's AI application is centralized.

Users can select AI application depending on the contents they want to display. For instance, statistical data of age and gender will be displayed when *AI Face detection* is used, the ratio of people's attribution such as the wearing mask will be displayed when *AI People detection* is used, the model or the color of vehicles will be displayed when *AI Vehicle detection* is used, or the people counts will be displayed when *AI People counting* is used. On top, the privacy is well protected as images of individuals do not appear on the dashboard.



Example of dashboard for People counting



Example of dashboard for Age and Gender statistics

2.3 Benefits for system integrators and IT administrators

- **Support multiple VMS**
i-PRO Active Guard supports Video Insight or Genetec as well as WV-ASM300/Network Disc Recorder system enabling to build a system that is suitable to the venue where cameras are installed. In addition, i-PRO Active Guard server's API is designed as RESTful API so that client software by a third party can be developed by utilizing this API.
- **Scalable depending on the number of installed cameras**
i-PRO Active Guard server can be installed into the same PC that VMS is already installed when the number of cameras is 100 or less. If the number of cameras were 101 to 300, another dedicated PC can be used to develop a system using an AI camera while maintaining the existing VMS system configuration. Thus, you can build your own system that matches the environment and existing system.
- **Hardware and software costs**
The hardware cost is lower than the image analysis using server analysis device or cloud. i-Pro Active Guard server only require a generic PC instead of an expensive GPU as the process loading of whole system is distributed. Furthermore, i-PRO Active Guard server and i-PRO Active Guard Plug-in are free of charge and unlicensed software.

3 Conclusion

The benefit of collecting and managing metadata from i-PRO AI cameras utilizing i-PRO Active Guard has been stated through the sections above. Not only the image surveillance purpose but also for business intelligence purpose, i-PRO Active Guard is a worthy option that allows you to operate various AI functions within one operation display by paying less. Supporting VMS system can be selected by integrators and the system is scalable depending on the required number of cameras or system extension. Costs advantage of hardware and software has been also stated.



About i-PRO Co., Ltd

i-PRO Co., Ltd offers everything from development and manufacturing to sales, implementation and maintenance. By leveraging the full capabilities of this comprehensive enterprise to resolve customer problems and provide countermeasures, the new company is able to reinforce customer competitiveness while developing and expanding customer potential.

Our system proposals are based on our vast accumulation of image processing and communication technologies, backed by manufacturing knowhow, a versatile product range and IP expertise.



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