

Moving Station Surveillance Systems Forward with AAEON AI Technology

Industry: Security

Product: VPC-5600S

In cities around the world, transport hubs are getting busier, and many terminals are now dealing with far more people than they were ever designed for. Passenger numbers in both large and small stations often far exceed the level that could be adequately managed by security staff, and that's creating a number of problems.

Authorities need to be able to stop people boarding trains without tickets, and even more importantly, they have to spot individuals behaving suspiciously. Because they're such busy and important places, train stations face security threats on a regular basis, and staff need to be aware of unusual behavior as soon as it happens.

Conventional security camera systems rely on human operators watching multiple camera feeds and spotting dangerous or fraudulent behavior. It's an imperfect solution that becomes less and less effective as passenger numbers increase. To create a more complete answer, security teams have to take advantage of AI technology.

Customer challenges

Effective AI security systems require:

- A powerful computing system
- Multiple, independently configurable IP cameras
- Advanced AI software with behavioral analysis, and virtual fence functions
- A user-friendly video management system



AAEON's solution

AAEON has a range of powerful NVRs, and for this project, AAEON provided the VPC-5600S due to its eight smart PoE ports with individual LAN chips and 7th Generation Intel® Core™ processor. AAEON has also worked with an AI surveillance software firm and a video management software company to integrate hardware and software into a complete surveillance solution.

Wide-reaching Vision

AAEON recommends using up to six network or cloud-connected IP cameras for this AI application. Due to the VPC-5600S's smart PoE capabilities, each of these cameras can be independently controlled and rebooted.

Operate at the Edge

The VPC-5600S can be fitted with AAEON's AI Core X, a mini-PCIe module that uses Intel® Movidius™ Myriad™ technology to enable edge computing. The ultra-compact AI processing card can manage an additional IP camera – for a total of seven cameras in the system. Because the feed from this camera would be analyzed at the edge, users will receive security insights and warnings even if the NVR's connection to the network or cloud is temporarily lost. As such, it would be an excellent option for the monitoring of sensitive areas.

AAEON worked with an AI surveillance firm and video management company to integrate hardware and software into a complete surveillance solution.

AI Analysis

- Virtual fence – With AI software, users can establish virtual fences that monitor everyone either passing through a designated area or crossing a virtual barrier. At entry-/exit-only walkways, the software will only send an alert if someone crosses the barrier in the wrong direction.

To ensure that security warnings are not sent unnecessarily, the software can detect limited-direction to monitor individual passengers walking near the virtual fence. If someone accidentally enters an exit-only walkway but then quickly reverses direction, no warning will be sent.

- Behavioral analysis – The AI firm has also trained its programs to detect signs of dangerous behavior, and the software will send an alert if it spots anything suspicious. Human operators can then decide on the best course of action.

Video Management

The video feeds and the results of the AI analysis – including security alerts – are sent to the video management software, which passes them on to human operators via a user-friendly GUI.



Impact

AAEON's integrated solution gives security officers the tools they need to manage increasingly busy public spaces. Potentially fraudulent or dangerous behavior can be spotted and dealt with more quickly, officers can be deployed where they're really needed, and train stations can become safer places for passengers.

About the VPC-5600S

The VPC-5600S is a market-leading network video recorder that can be fitted with up to eight PoE ports with individual LAN ports. It also has four USB3.0 ports and two LAN ports, meaning it can support up to 14 high-grade surveillance cameras.

The smart PoE functionality also helps users with maintenance. Faulty cameras or sensors can be remotely checked and rebooted. Even if peripheral devices stop working altogether, the rest of the network will continue running smoothly.

This rugged, fanless device has a guaranteed operational temperature range of -40°C to 85°C and a DC input range of 10V to 36V. It features two 2.5" HDD/SSD Bays, an mSATA slot, and easy-to-fit extension modules that allow users to quickly and cheaply add additional display or COM ports.



ABOUT AAEON

Established in 1992, AAEON is one of the leading designers and manufacturers of advanced industrial and embedded computing platforms today. Committed to innovative engineering, AAEON produces integrated Industry 4.0 solutions, cutting-edge AI hardware, and IoT solution platforms that seamlessly consolidate virtual and physical networks. We also develop hardware and intelligent automated services for premier OEM/ODMs and system integrators worldwide. Our reliable, high-quality computing platforms include industrial motherboards and systems, industrial displays, rugged tablets, PC/104, PICMG and COM modules, embedded SBCs, embedded controllers, network appliances and related accessories. AAEON also offers customized end-to-end services from initial product conceptualization and product development through to volume manufacturing and after-sales service programs, and we are committed to the continuous advancement of the industry's management and development processes.

With its constant pursuit of innovation and excellence, AAEON became a member of the ASUS group in 2011, enabling the company to further strengthen its leadership, access advanced technology from ASUS, and leverage resources from within the group. AAEON is poised to offer more diversified embedded products and solutions at higher quality standards to meet world-class design and manufacturing demands in the years to come. AAEON is also an Associate member of the Intel[®] Internet of Things Solutions Alliance.

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