

Mobile video surveillance goes digital

Immediate benefits when bringing network video onboard



Public transportation authorities are experiencing increasing pressure to provide a safe and secure environment for passengers and staff in their transit systems. As a result, more and more surveillance cameras are being installed in buses and rail cars around the world. Such installations have traditionally included analog CCTV cameras, with the drawbacks of high installation costs and limited image quality. Until a few years ago there were no alternatives, but today the market is rapidly moving to digital network video solutions.



Jonas Andersson receives a lot of requests for mobile surveillance applications.

“The whole surveillance market is going through a technology shift from analog to digital video systems,” says Jonas Andersson, head of the transport segment at Axis Communications. Lately this technology shift has also become evident within the transportation industry. Several mobile installations are already in place and we’re receiving a growing number of requests for implementations on buses and rail-bound vehicles.”

The interest is especially high for larger systems, where the flexibility and openness of an IP-based solution facilitates installation and continuous operation. Axis has provided, for example, network cameras for buses in Stockholm and subway trains in Moscow.

The advantages of choosing a network video solution for mobile transportation applications include:

- > flexible and cost-efficient installation
- > high image quality
- > built-in intelligence to trigger recordings and alarms

Flexible and cost-efficient installation

Network video cameras are installed over a standard Ethernet network, which makes it easy to add new cameras if needed. The recorded video and events are stored locally and can be transferred wirelessly to a centralized storage bank.

“Another advantage is the possibility to communicate video and to receive power over the same cable,” continues Jonas Andersson, referring to a solution called PoE – Power over Ethernet. “Thanks to PoE, network cameras can be installed with only one cable to each camera, saving both cable and installation costs.”

Many modern trains are delivered with a pre-installed Ethernet network, which is used to exchange information between the cars, display passenger information and provide internet services. In such trains, the same network can be used for a network-based video surveillance system, making the installation even more cost-efficient.

Better image quality facilitates identification

One of the main reasons for installing onboard cameras is to detect and prevent crime. To accomplish this, the surveillance system has to provide images that allow identification of suspects. All too often there are criminal acts caught on camera that cannot be solved due to the low image quality of the recorded video. "With our network cameras, the stored video has a resolution of at least 640x480 pixels. There are also models that provide megapixel resolution," says Jonas Andersson.



One cable is all it takes when installing a network camera, which eliminates the need for a separate power cable.

To further enhance the quality of the live and recorded images, network cameras use a technology called progressive scanning, which scans the entire image at the same time. In analog cameras, where the image is made up of 576 (PAL) or 480 (NTSC) interlaced vertical lines, the

scanning is alternated between odd and even lines. The use of progressive scanning in network cameras reduces motion blur and provides sharper images of moving persons. This is very important for the end customers, since the recorded video is often used in various investigations.

Built-in tampering alarm detects camera manipulation

Network cameras can also include built-in intelligence to provide value to the end user. Within transportation, the active tampering alarm is the most appreciated intelligent feature. "If someone tries to manipulate the camera, for instance by spray-painting or covering the lens, there is an immediate alert," Jonas Andersson explains. "Actions can then be taken to put the camera back into operation."



MORE THAN 10,000 NETWORK CAMERAS ON STOCKHOLM BUSES

In 2005, Stockholm Transport in Sweden initiated a project to increase the safety and security of their passengers and personnel. Surveillance cameras are an important part of the project and it was decided to equip more than 2000 buses with network cameras. On each bus, there are 4-6 cameras, all AXIS 209FD-R's, one of which is dedicated to driver safety. The project also included subway and rail stations, where a total of 2,700 network cameras from Axis help to provide a safe transportation environment.

Learn more about the Stockholm Transport project - watch the video at www.axis.com/transport



DEVELOPED ESPECIALLY FOR BUSES AND TRAINS

AXIS 209FD-R is the world's first network camera specifically designed for buses and rail vehicles. It is developed to withstand the harsh environments onboard, resisting vibrations, dust and moisture. Other appreciated features include:

- > Compact, discreet casing, only 4 cm high
- > Progressive scan for clear and sharp images
- > Power over Ethernet (PoE) for easy and cost-efficient installation
- > Built-in heater to ensure full functionality at low temperatures
- > Active tampering alarm that automatically alerts if the camera is manipulated or tampered with
- > No sharp edges to reduce injuries in case of an accident
- > Up to 30 frames per second in VGA resolution (640x480 pixels)

This feature is a great help to ensure that all cameras are fully operational, which is key to providing a safe transit system."

There are several other examples of camera intelligence. One of them is "motion detection", where the camera either sends an alert or initiates recording when an object moves in a selected part of the image. "Motion detection is frequently used at subway and rail stations to give an alarm when a person is walking on the tracks," says Jonas Andersson. "And all trends point to more intelligent features, where the camera actively makes decision of what to record and report. So far we have only seen the beginning."

For more information, visit www.axis.com/transport