PUBLIC RISK

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Technology Improves Public Transportation Fleet Management

By Rodell Notbohm

Surveillance cameras are popping up everywhere in America, including deployment on many public transportation systems in small rural communities and large metropolitan cities. Yet most people would probably be surprised to know what is on the other side of the lens and how these tools help risk professionals manage public transportation fleets.

For example, some city buses can have up to 16 cameras onboard capturing video footage from every angle inside and outside the vehicle. Accelerometers and event switches alert transportation headquarters when a driver needs assistance or when a bus is jarred, such as in a traffic accident. At transportation headquarters, the alert triggers the video feed to appear immediately on monitors in the command center. System-included software and mobile-device applications, including those made for Apple's iPhone, make it possible for first responders, transit police and transit managers to view activity on the bus live from wherever they are.

In recent years, transit operations nationwide have converted to digital video and high-performance mobile video surveillance systems, including King County (Seattle, Wash.) Metro Transit, San Diego (Calif.) Metropolitan Transit System, Metro Area Transit (Omaha, Neb.) and Chicago METRA. Cities like these are flocking to the technologies described here thanks to federal grants, public safety pressure, the need for hard evidence in litigation and to reduce discovery costs.

Jacksonville Transportation Authority (JTA) is one transit agency that is successfully leveraging this technology trend to improve passenger safety and satisfaction, increase driver security and vehicle health and reduce liability.

ONBOARD VIDEO SYSTEMS

Onboard video systems are the foundation of a transit video surveillance system. They include the audio and video hardware physically mounted inside and outside transit vehicles. Most transit vehicles have multiple cameras covering every interior and exterior vantage point. Oftentimes, onboard systems are combined with systems in facilities and bus yards to ensure property-wide surveillance.

JTA Skyway trains travel more than two miles through eight stations, all of which are unmanned. Kenneth Williams, manager of Skyway operations, was tasked with finding a solution that would provide surveillance for these broad areas to increase rider safety and security while protecting the agency from frivolous lawsuits, liability issues and fare-skippers. Williams set out to implement a solution to meet the needs of transit managers, while also providing surveillance access and coordination abilities to first responders and law enforcement.

The solution is a state-of-the-art command center for viewing and monitoring live video feeds from all Skyway stations and trains. The control center provides transit officials with the ability to view video in real-time and provide playback of previously recorded video.

In order to make the command center vision a reality, the Skyway's 10 trains are equipped with digital video recorders (DVR) and four cameras strategically placed in the interior of each train. These cameras provide video of passengers onboard as well as passengers entering and exiting the trains. In addition, each Skyway station is equipped with facility-based DVRs and anywhere from four-to-eight cameras strategically positioned to provide full surveillance of each station.

Display monitors located in the command center provide a comprehensive view of the entire Skyway operation and enable transit managers to dispatch police immediately if safety or security concerns arise, including pedestrians crossing illegally into Skyway stations, jumping over gates, skipping fares or participating in acts of vandalism and violence. The command center also provides access for instantly investigating passenger-reported incidents. The system allows law enforcement agencies to view real-time video from remote locations to ensure that security incidents are handled as quickly and safely as possible.

"Real-time video feeds have allowed us to not only prevent potential security and vandalism incidents, but also review any complaints that arise from commuters," Williams said. "Safety and security remain our number one priority. Video surveillance solutions are key to addressing our safety and security concerns."

Williams recalls a time before digital video was available and transit managers had to physically remove video hard drives to review video from the transit vehicles. Now, video feeds from JTA Skyway stations and trains are sent digitally to the command center's large-scale viewing management software, which caches and stores video.

"A key component of our video surveillance system is its flexibility…flexibility that will allow us to add additional cameras and continually adapt the system to best suit our organization's needs," Williams said.

Compatibility is vital when the agency desires upgrades to its existing system through new technology, such as adding live, streaming video back to headquarters or GPS and time-tagging of video. In addition, because fleets are often outfitted over a period of time, backwards compatibility with

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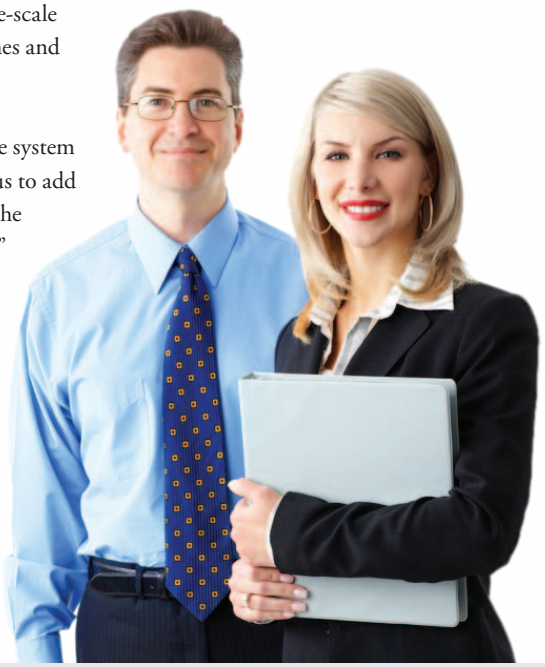

Public risk management requires situational awareness to protect a community and its resources, including the public transportation systems on which thousands of commuters rely every day. In order to reduce the risks these systems present, monitoring lets officials know exactly what is going on with every vehicle.

older systems is important for reduction of costs and easy system management.

FLEET MANAGEMENT SOLUTIONS

Fleet management software allows for the easy management of video and fleet information with comprehensive tools, including automatic downloading, archiving, reporting and viewing. Fleet management tools increase the accessibility of data to risk managers, public safety and transit agency officials. They include accelerometers, motion detectors and remote viewing.

Accelerometers are becoming a more common requirement for transit surveillance. This technology flags video and provides live feeds in the event of an incident. Accelerometers are used to alert transit managers to accidents, poor driving behaviors and aid in driver training.

Motion detection capabilities trigger the digital video recording system to start recording at the first sign of movement. The passive infrared sensor detects any movement inside the vehicle when the bus is turned off to ensure the bus is secure when not in use.

JTA implemented some of these fleet management tools to enhance their transit video surveillance.

To improve incident investigation, JTA installed video surveillance cameras with cellular and Wi-Fi capabilities on buses, community shuttles and Skyway trains. These video cameras enable transit managers to log on remotely, view cameras onboard and quickly investigate passenger and employee concerns. With cellular capabilities, transit managers can investigate incidents and provide hard evidence that can be acted upon quickly and effectively. Within the agency's secure network, transit managers are able to view real-time or historical video feeds from either the command center or other agency computers.

"We can now log on instantaneously and view incidents as they occur, or soon thereafter," Williams said. "In a city the size of Jacksonville, it is crucial that we have real-time viewing capabilities. When an incident occurs, or a bus operator is in need of assistance, we can now respond immediately and provide the necessary assistance to both operators and commuters."

These capabilities also provide transit managers with up-to-date health notifications of the entire fleet. In addition to video surveillance capabilities, JTA's control center is able to view real-time graphical route information and GPS data, identifying exactly where each bus is located. In the event of an emergency, the system provides bus operators with an incident switch that tags the event and provides instant access to live video of the incident.

Earlier this year, JTA's digital video recording system captured a vital incident. In this particular instance, a camera installed on the exterior street side of a JTA bus captured video footage that shows a bus rider attempting to cross the street behind the bus as he is struck by an oncoming vehicle. The video from this incident will undoubtedly be crucial in substantiating information from those involved.

Public risk management requires situational awareness to protect a community and its resources, including the public transportation systems on which thousands of commuters rely every day. In order to reduce the risks these systems present, monitoring lets officials know exactly what is going on with every vehicle. While it may be impossible to be present at every traffic incident or onboard dispute, public risk managers are required to know and deliver information on exactly what happened in each of these incidents and the many others presented by public transportation systems. ■

Rodell Notbohm is the general manager for Apollo Video Technology.