The New Eye of Video Surveillance: Analytics and Artificial Intelligence

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IN THIS FLASH

This IDC Flash provides an overview of the MIMOS Intelligent Surveillance Platform (Mi-SP), showcased at the Maxis IoT event, "New Ways of Working," on July 28, 2016 in Kuala Lumpur, Malaysia. MIMOS, Malaysia's national research and development center for ICT, has been working on a variety of solutions leveraging trending technologies such as Internet of Things (IoT) and Big Data and analytics (BDA). The launch of this Intelligent Surveillance platform comes close on the heels of its SMART lock-up solution, currently implemented by Royal Police Malaysia in some of its centers.

SITUATION OVERVIEW

Over the past few years, digital video equipment has rapidly become the focal point of the surveillance industry, which was earlier dominated by tape recorders and analog cameras. The number of CCTVs and with it, video coverage, have also grown tremendously over the last five years, in order to provide for a safer environment, be it at a bank, airport, or shopping mall. However, most of these CCTV networks are still monitored and operated in a traditional fashion — via a control room containing as many as hundreds of screens, depending on the location, broadcasting live footage from each CCTV, and being manually monitored for any anomalies. But this approach of human surveillance has its limitations. At any given time, only a limited number of security personnel are available to look at the screens, who are further affected by fundamental human shortcomings such as fatigue and distraction. Also, most of these CCTVs are used reactively — after an event has occurred — to identify the suspects or details of how the event unfolded. With CCTVs, we are still very much reliant on the manual aspect of security to prevent any unfortunate incident.

Video Surveillance and Analytics — From Reactive to Proactive

The new breed of video recorders and digital cameras, along with BDA and cloud, has given rise to a new level of "proactive" security. Not only have video equipment and supporting systems improved in quality and usability, they have also become much more affordable. Often referred to as vision processing, it has added BDA to surveillance networks, enabling proactive systems that help protect property, improve operational efficiency at airports, manage the traffic flow, and so forth. In the past, analytics was primarily available to, and deployed by, large multinational corporations or government agencies, since it required powerful servers along with other high-end infrastructure to run complex algorithms. But due to maturing analytic engines and an exponential increase in camera and server processing power, analytics is now available to all kinds of users across industries. Video surveillance is redefining how the security and surveillance industry operates, allowing organizations to deploy and manage resources, including people, more intelligently while expanding and enhancing security.

MIMOS Intelligent Surveillance Platform

Unlike traditional video surveillance systems, which rely on manual monitoring and often become important only after a crime has taken place, the MIMOS Surveillance Platform, or Mi-SP, is a cloud-based system that employs patented algorithms that constantly monitor the live feed from security cameras, to detect and notify security personnel of any suspicious person, object, event, or activity.

The Mi-SP platform can help organizations make sense of large amounts of data and video footage, in near real time, and generate actionable insights for better and faster decision making. It can be customized for a variety of situations and environments, to automatically identify potential breaches and events, and send texts as well as video alerts to the designated people, departments, or security agencies. Some of its key highlights are as follows.

Video Analytics for Event Detection

The MIMOS solution constantly monitors the live feed from each camera and analyzes it to provide alerts for events such as Unattended Object Detection, Intrusion Detection, Object Counting, Car License Plate Detection, and Slip and Fall Detection. This can be very useful in various industries and locations ranging from shopping malls to airports, from a traffic crossing to a large university campus spreading over several acres, or from standalone residential buildings to big townships.

Smart Client for Easy Access to Data

MIMOS has smartly paired the Mi-SP solution with a Smart Client, which combines the results from its video analytics application and inputs from individual cameras, to provide dashboard-like access to all the information. This easy-to-consume format can help the enterprises make better and faster decisions. It can also be configured to provide contextual information such as 3D mapping an entire campus or a certain location to highlight the location of all the cameras, event timelines, and the human or vehicle traffic flow in the mapped areas.

Flexible and Customizable

Mi-SP is based on a flexible architecture, which allows the user to select from a large number of parameters for event detection and corresponding action(s). The system allows the user to configure different sets of rules, highlighting what events to identify, what to ignore, and the action to be taken for each of those instances. These actions may vary from sending a text message to a number, to sending a video file with the security incident to the designated contact. Moreover, its flexible architecture allows it to be used as a standalone video analytics solution, or as a part of a larger integrated surveillance system, as required. Hence, Mi-SP can easily be integrated with existing major vendor systems, reducing the investment cost for introducing video analytics into the surveillance systems.

Industry-Specific Use Cases for Video Surveillance Solutions

Mi-SP can be used to offer video surveillance analytics to a wide variety of industries including transportation, public safety, campus environments, energy and utilities, and banking, among others.

In the transport segment, the solution may be used at entry points or hubs such as airports or seaports, which are accessed by thousands to millions daily. Such solutions can be used by various units such as police, customs, and baggage and operations, to monitor vast amounts of cross-border movements and detect potential threats and prevent any unfortunate events, by tracking perimeter intrusion, unattended objects, breaches to secure zones, and loitering suspects.

Video surveillance solutions are also very helpful for **law enforcement** agencies in any city by providing them continuous reports on security and safety situations. These agencies need to stay on top of events throughout the city and video surveillance systems can monitor the situation on their behalf and notify in case of any anomalies. For example, it could help them detect any suspicious vehicle causing traffic obstacles or people entering restricted areas, and monitor crowding of people. Moreover, being a cloud-based system, Mi-SP allows interagency collaboration, thus delivering faster and more efficient service to the community.

Train and bus stations should maintain a high level of security at all times and adoption of such video analytics solutions will be a big help in achieving that. More sophisticated analytics platforms provide information such as monitoring people accessing restricted areas and unattended objects or bags, and identifying cases of vandalism. This will help the local administration to enhance and maintain a tighter control in terms of safety and efficacy over these busy areas, without interrupting the flow of things on the ground and without compromising on security.

FUTURE OUTLOOK

Designed to address a wide variety of security requirements across various industries, video surveillance platforms, including MIMOS' Mi-SP, help organizations in adopting a proactive approach to threat management and prevention. At the heart of these solutions are various modules of video algorithms and applications, broadly referred to as video analytics. Video analytics has evolved significantly over the last few years and promises to get even better with an increased adoption of artificial intelligence (AI).

Maturing technology along with vast improvements in overall effectiveness, reliability, and affordability have pushed video analytics from the periphery to the mainstream. Moreover, the increasing capabilities of edge devices in terms of processing and compute power and steadily dropping prices indicate that this trend is destined to continue. We are already witnessing analytics solutions that can run on the edge (e.g., camera) or on a server running multiple video streams locally. This will revolutionize the video surveillance industry further by reducing the processing and response times, aiding authorities in preventing the escalation of critical situations. Moreover, most of the video analytics providers are already working on custom, industry-specific solutions that appeal better to the enterprises, hence driving further adoption.

Overall, the industry is headed in the right direction, and promises a better and safer future for all of us.

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