

New Lens Technology Enables Better School Security



ADT's National Back to School Security Survey of nearly 2000 parents published in August indicates nearly 50% of parents are concerned their child could be targeted by a sexual predator at school, close to 40% are concerned about potential abduction from school, and over a third feared a violent episode at school. With those statistics it is not surprising that most parents say they would support spending more money on increased security measures for their school.

Despite the limited budgets of so many state and local governments across the country, communities are finding ways to upgrade their security systems and use the latest technology to support their security plans. Upgrading to security systems using megapixel IP cameras with ultra wide angle lenses can be cost effective by reducing the number of cameras to be installed and maintained and eliminating cabling and DVRs without sacrificing video surveillance area.

One example is the Murrieta Valley Unified School District. At one of the district's high schools a security system upgrade will remove all 170 existing analog cameras and replace them with just 43 IQeye megapixel cameras with ultra wide angle lenses from Theia Technologies. One of the main concerns in ensuring the safety of students and staff is the system reliability. "We found that the analog system was always breaking down. There were too many cameras to manage," said Bill Olien, Assistant Superintendent of the Murrieta school district. "The new system will be much simpler and less costly to maintain and monitor."

In the fall of 2007, the district hired Johnson Consulting Engineers (JCE) located in Poway, CA to survey and assess the district's needs. The engineering firm specializes in the design of electrical and technology systems for schools and has designed systems for over 1000 schools in California and Arizona. After assessment of the installed system, the firm was retained to design a new video security system. The school district funded a district-wide video security system upgrade through a local bond. Implementation of the project, worth over \$1 million, began in early September and will be completed in March 2009.

According to Bill Olien, the district's first priority was student and staff safety. In terms of system goals, that meant designing a system that will provide greater coverage with improved image clarity over their current analog system. A typical analog camera and lens has a narrow coverage area, or if it does cover a wider area, the resolution is so poor that the image would not be able to provide a legally acceptable description of individuals should the need arise.

John Frisbie, Vice President of Johnson Consulting Engineers, stated a major factor in their design was ensuring adequate camera coverage for all areas without having so many cameras the district wouldn't be able to effectively use and maintain the system. They designed the system around IQinVision's megapixel cameras and Theia Technologies' ultra wide angle lens. Before specifying this combination, they tested the lens-camera combination and compared it directly against a typical analog pairing. Some images taken in the test are shown below.

Image taken with Analog technology and standard resolution lens



Image taken with Digital Megapixel technology and Theia lens



“What’s remarkable about the system we’ve designed is that with Theia’s wide angle high resolution lens, we can cover the same area more cost effectively,” said John Frisbie. The lens, which provides a 135 degree horizontal field of view, uses Theia’s patented Linear Optical Technology to optically correct the barrel (fisheye) distortion found in other wide angles lenses, without any software. Says John Frisbie, “Theia’s lens allows you to consistently cover a very large area, and digitally zoom in 60 to 70 feet to get an image that allows a legal description. No other lens can do this.” The combination of high megapixel resolution, up to 5 Mpix with Theia’s wide angle lens, provides more pixels per degree of image allowing you to zoom in and still get a definable image. Pan tilt zoom (PTZ) cameras used in other systems allow you to zoom but fail to capture a large area continuously. Post-event zooming is not possible. PTZ cameras miss areas of coverage while panning, while a wide angle fixed view captures the entire area.

IP based video systems are more effective than analog systems because of their ease of use. With old analog technology, systems have more pieces of equipment and are more complicated. Besides long lengths of cabling, low resolution video monitors, and many cameras and lenses, they require Digital Video Recorders (DVRs) to record images from each camera. School district staff would have to log onto each individual DVR locally, then access a specific camera to monitor activity. With digital IP video systems, separate DVRs are not required. Authorized school staff can use any district computer that is programmed with system software to easily view and manage any camera on the system. This improves system uptime and access, enabling greater security for students and staff in both prevention and incident response situations. Datatel Wiring Products will provide equipment installation, training, and ongoing technical support for three years, though they expect very little downtime. Datatel, of Riverside, CA, is an industry certified installer who was awarded the contract following a competitive bid in July 2008.

One thing to keep in mind says EB DelaCobas of Datatel, is that “high megapixel resolution cameras used in IP systems require servers capable of handling multiple terabytes of data.” The system will use a total of 19 servers, with two having up to 6 terabytes of data storage capacity each, while the rest will have 2 terabytes each with additional backup storage of up to 10 terabytes.

In the long run, the robust and capable system specified will allow the Murrieta district to achieve their system performance goals, assuring greater security and cost effectiveness. For more information, contact:

www.TheiaTech.com, (503) 570-3296

www.JCE-Inc.com, (858) 679-4030

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