

Keeping Schools Safe & Secured

From network cameras, smart cards, biometric readers to computer-managed locks, many schools are using a variety of different security technologies to help them operate campuses more efficiently and provide the school members a safe learning environment.

A School with Special Needs

Waimokoia Residential School, situated in Auckland, New Zealand, is a specialist school for children who display significant behavioral, social, emotional and learning problems. With residential and school facilities to accommodate up to 44 pupils, aged 7-13, the school endeavors to provide a safe and secure environment for its students and teachers; security cameras are central to this. With students exhibiting behavioral and social problems, there have been occasional incidents of children wandering from their residences. Security cameras were also relied upon if allegations of misconduct arose and monitored the school's facilities, such as parking lots and playgrounds, from being used by the general public without permission. Waimokoia School needed to bring greater safety to children with special needs.

Six security cameras were located on Waimokoia School's premises, two cameras in each of its three residences and three outdoors. These transmitted audio and video data via a coax cable



The new contactless card system enables higher security in Arizona State University.

■ SUBMITTED BY AXIS, HID, INGERSOLL RAND AND SCHLAGE

to a video recorder through an analog system. A TV screen located in the office of each residence relayed back images to a supervisor. All the images fed back into a main system. Analog was the means of operations for the cameras for over 12 years, and, according to Whiti Harris, Director of Residential Services, the outdated system was quickly deteriorating. "The need for Web integration through digital video recording for security was evident. Images were black and white, and—at times—barely visible. There was no capability for stakeholders to view video data remotely, and the school's networking resources could not cope with converting the analog data into digital," said Harris.

Viewing activity at night through the cameras was compromised by the degrading picture clarity of the analog cameras. Staff members were only able to view images from the two cameras specific to their residences at a given time. There were no security cameras in school rooms and the recreation room—areas identified as where incidences were more likely to occur and the current cameras have no flexibility to view wider areas required or be easily transferred to different locations.

With all images stored onto hard tapes, staff faced the laborious task of manually tracking through video footage for particular footage. It also had repercussions as to how fast the school could respond to an incident and report back on it to its stakeholders. Waimokoia School is required to archive eight years of footage as part of its compliance to its governing body. This resulted in an entire room being dedicated to storage of video tapes. Moreover, the analog video recording system required daily manual changeovers of tapes.

IP Cameras Help to Pay Extra Attention

On the recommendation of IT consultant PassionIT, Waimokoia School installed 18 Axis network cameras distributed by LANI. Eleven fixed network cameras have been placed inside the school, one in each classroom and hallway. All the analog cameras outdoors and in each residence have been replaced with PTZ network cameras. Two wireless network cameras have also been installed, one in the school's reception area and the other in its recreation room. The Axis network cameras stream live video to an Insite PC, which serves as a high quality server. The desktop holds 50 days of data and has a 300-GB hard drive for the video data and an 80-GB hard drive for the operating system.

By using existing networking cables, there was no additional expenditure required on cabling infrastructure. Additional savings for the school are from the supply of power being conducted through Power over Ethernet (PoE). The video network also runs over the school's voice network, minimizing any impact on the school's bandwidth needs. According to PassionIT, Waimokoia School had projected it would take one year to implement the entire solution—it was completed within a few days once a virtual private network was set up for the school. The return on investment by the school was realized within a few months, with an estimated US\$33,710 allocated to the project to date.

With adjustable settings that allow night time surveillance, the school has installed two additional PTZ network cameras for staff security in parking lots. During a shift change, staff can clearly view the parking lots at night from the residence's cameras. Staff can now locate a video sequence within seconds by simply searching by date and time on the PC. The cameras continue to record as footage is being reviewed. The ability to view images in real time

has allowed the Directors to follow up issues and personnel queries immediately. "As an incident is occurring, staff can view live how it is being handled, which aids them in their learning development at the school," said Harris. Digital video clips can be easily emailed or transferred to CDs and sent to teachers to assess and use as a training tool.

The school has moved its entire IT infrastructure into a dedicated server room. Digital video recordings are transferred automatically on to a CD, and the storage space required becomes minimal. "As the system provider continually updates our camera software, the school's security network is future-proof and allows us to carry out upgrade without any downtime in operations for the staff," said Scott Palmer, Director for PassionIT. In 2006, plans are underway to allow parents, guardians and Directors to connect to the cameras so they can access activity in a classroom or an evening program. With this remote monitoring, Waimokoia can provide convenience and further improve its services to users. Additionally, the outdoor cameras may be integrated with the security monitoring company the school uses. The proposed integration allows the security company to access certain outdoor cameras on their own network in response to an alarm being triggered.

University Demands Campus-wide Security

Arizona State University (ASU) is one of the premier metropolitan public research universities in the U.S. Enrolling more than 57,000 undergraduate, graduate, and professional students on three campuses in metropolitan Phoenix, including the historic main campus in Tempe, ASU maintains a tradition of academic excellence in core disciplines, and has become an important global center for innovative interdisciplinary teaching and research.

Since 1997, ASU's identification/access "Sun Card" system had provided students with meal plan, debit, and door access. Heightened security concerns led ASU to re-examine the university's campus security requirements and identify a product that would provide state-of-the-art access control technology. The previous Sun Card system was based on magnetic stripe cards and readers, which were functional but offered limited flexibility to adapt to future technologies such as biometric identification. The ideal solution would be an advanced contactless smart card that could integrate a multitude of new identification technologies and applications, as well as magnetic stripes for use with existing readers on campus. The cards need to be custom-printed and have a streamlined, sturdy design ensuring the durability of the single-issue card throughout multiple years of constant use during a student's time on campus.

Card System Expands Security

The university evaluated different smart card systems for a centralized campus-wide access control solution for doors, buildings, and departments that could be integrated with other smart card applications. A leading end-to-end security solutions integrator based in Phoenix, Arizona, was selected to implement the access control system. The school incorporated HID's 13.56



Biometric hand readers minimize students' abilities to transfer IDs for admission into the recreational facilities.

MHz read/write contactless technology for its feature that enhances traditional RFID contactless technology including cryptographic data storage, mutual authentication, and secure reading and writing of data. Furthermore, the card is able to grow with the university's access control system and add holograms, magnetic stripes, biometrics and digital certificates.

The new contactless card enables higher security than was previously available using the magnetic stripe card, enabling ASU to use the system software to approve or deny access on any door at any time. Perimeter doors were brought online with million-mounted readers. To meet ADA requirements, a reader is tied into a door operator and allows entry after a hardwired button is pressed and the valid card is presented. The system's mutual authentication technology ensures that readers and cards are programmed to communicate prior to the reader sending any signal to the panel. This same authentication will occur any time when the card is used for IT security or other on-campus applications. In addition, the card offers unique time zone and access level configurations not previously available. For example, labs may schedule access levels so that students can gain entrance to labs only at their appointed times.

The ASU Sun Card, a 16-bit composite contactless smart card with a magnetic stripe, is printed with the student's photo along with the ASU logo. The 35-bit card format was developed specifically for ASU and furnishes over one million plus individual card numbers within the assigned format. The assigned numbers are tracked during the manufacturing process to ensure that card numbers are never duplicated. The new system allows students to have a single, universal card to use throughout the university's premises. The university plans to issue over 40,000 student and staff cards over the next two years.

Biometrics—a Handy Way to Save Money University of Georgia-Athens Campus

Managing food services for the 30,000 students and 8,000 faculty and staff at the University can be a big business. By implementing a biometric recognition system to prevent fraud, the school saves a significant amount of food costs and consequently improves its profits. The biometric hand reader verifies that only people who have paid get the food, thus helping reduce the number of incidents on fraud and abuse of the meal plans. Students have two choices when they dine at the student restaurant. They can take their student ID card, which has their student ID number encoded on a magnetic stripe, swipe it in the reader, then place their hand on the reader which recognizes their hand. They can also punch in their student ID number on the keypad and then place their hand to be scanned, without bothering to carry their ID cards with them.

San Diego State University

The problem of ID switching is widespread among the uses of recreational facilities on campus. With the implementation of a biometric hand reader, the staff at the university is now able to

ensure that only those eligible gain accesses. To enter the school's recreational facilities, a student simply punches one's unique ID number on the reader's keypad and presents one's hand. The hand reader minimizes students' abilities to transfer IDs for admittance into the facilities. It also allows the facility to provide better services because student members no longer need to bring ID cards. In addition, the need of staffing extra personnel to check cards at the entry is eliminated.

Johnson & Wales University

Students at Johnson & Wales University in Denver use biometric hand readers to control access to their dorms. Students entering the dorm slide their hands onto the hand reader and, in less than a second, the door opens and they enter the dorm. To maximize security, students again are required to slide their hands onto the hand reader as they arrive on their personal door. In the future, the students will also use the biometric readers to enter a 24-hour computer lab, obtain meals, check out library books, access the athletic fields and obtain bookstore charge backs.

The biometric technology validates people, not plastic, for authorization to a particular facility, commented Lindsay Morgan, Spokesperson for the University. "The problem with our former traditional card swipe system is that students lose ID cards which can be picked up by strangers, posing a serious security risk to our students," continued Morgan. "Using hand readers eliminates the administrative overhead of managing keys and cards. In addition, students no longer need to worry about the fine they would have to pay if they lost their keys."



Stand-alone computer-managed locks provide an audit trail of 1,000 events.

According to Morgan, several extra benefits can also be reaped from the adoption of biometric hand readers. First of all, granting and removing access to a facility from a PC is efficient as opposed to having to put in a key request with a locksmith. Secondly, management of building access is simplified via the software that controls who has access to a specific facility at a specific time and can be removed immediately. Lastly, the school can generate reports on building access to better manage the security procedure. The adoption of the biometric system has sparked great interests from the students as they feel safer and find it more convenient. The adoption will also translate into increased public confidence, thus improving the school's profitability in terms of student retention and recruitment.

Lock up the Valuables

To secure buildings and prevent theft of supplies and expensive multimedia equipment on campus, Salt Lake Community College in Utah has installed computer-managed locks in buildings around campus. The stand-alone locking products provide an audit trail of the last 1,000 events, and features found traditionally with online, networked systems. User-friendly software on a laptop or PDA programs the locks, access trims, and offline hard-wired controllers, which manage strikes and magnets. New users, access points and access privileges can be programmed into a lock in seconds. Users can select proximity, magnetic stripe, PIN or i-Button credentials individually or in combination. The computer-managed lock also provides an audit trail for download onto a laptop or PDA.

"The locks were installed to secure a building and, at the same time, give access to those authorized to enter," said Campus Locksmith Steve Hamann. "We wanted to be able to let people in and out after normal hours, but still have an audit trail of who has accessed a particular lock." Approximately 120 locks have been installed at Salt Lake Community College to secure classrooms, the police station, custodial areas and anthropology labs. Since, people have become aware that their movements provide an audit trail which deters thefts.

The college also chose the locks because they work with its existing magnetic swipe cards. Students and faculty all carry multi-purpose identification cards that allow them to access library services, meal plans and more. "In some of the more sensitive areas, one must use both a code and a card swipe, but otherwise, everything is swipe," said Hamann. "We can also program the locks for one-time use by a contractor, for seasonal use, or to limit access to bathrooms that are prone to being vandalized by local junior high school students."

When faculty members are terminated or a card is lost, the school administrator can reprogram the locks immediately to deny access using a lock software and a handheld PDA. Lastly, the computer-managed locks cost less than a third of hardwired locks, serving as a competitive advantage for the cost-conscious community college.