

Situational Awareness for K-12 Schools

Integrating Stand-alone Safety, Security and Environmental Alarm Systems for Centralized Monitoring, Alerting and Reporting

White paper provided by Status Solutions

Students are safer in school than out despite tragic headline-making incidents like those at Columbine High School and Virginia Tech. However, safety and security concerns are always top of mind with schools reporting the use of such measures as drug testing, requiring students to wear picture IDs, metal detectors, random checks for drugs and contraband, and security cameras. Mass notification systems for school-wide emergencies also have been put in place but are used predominantly in middle and high schools. So while K-12 schools may have implemented some combination of incident detection systems, they usually operate in siloes, independent of one another. Therefore, an appropriate response may be delayed because alerts don't reach responders in time or details about an incident are lacking.

Clearly there's a need to integrate stand-alone life safety and security systems so alarm management can be centralized. Such a system must have the ability to capture all alarms from all systems – from the mundane cigarette buster in a restroom to the most serious such as an attack on a student or teacher. The system also must be able to deliver detailed alerts to the people best qualified to take action via the communication devices they actually use. Sending an alert to a browser will be of little value to mobile workers such as custodial staff or security personnel. And finally, the system must enable information to continue to flow to responders and others as a situation unfolds.

Managing Risk with Situational Awareness

Situational awareness is the key to enhancing life safety and security in K-12 schools. Principals, other administrators and on-grounds personnel need to receive real-time information about potential threats, including the nature of an alert and from where it's emanating so they can take corrective action immediately.

In much the same way that voicemail and email have automated the messaging function, Status Solutions has automated situational awareness to provide centralized monitoring, alerting and reporting. Random alarms from disparate systems then can be converted into detailed alerts for delivery to key individuals, select groups or entire populations, depending on the situation and the predefined alerting/mass notification protocols established by a school.

Our Web-based Situational Awareness and Response Assistant (SARA) is an automated alerting engine that provides a wireless sensor network, integration tools

for existing alarm and communication systems, and mass notification capabilities on one powerful platform. With SARA, the right information goes to the right people on the right devices in real time so action can be taken to protect students, teachers, staff and property. In addition to managing and delivering alerts, SARA also ensures that information can continue to reach responders and others as a situation unfolds and details change.

Situational awareness also applies to environmental monitoring to ensure that systems vital to a school's operations aren't compromised or can be fixed quickly should a malfunction or failure occur. Following are brief overviews of each situational awareness application area.

Life Safety

With integration to emergency alerting, fixed panic, mobile duress, and a variety of other life safety systems such as fire panels, SARA helps protect students, teachers and staff from injury and speeds emergency response. SARA turns alarms from these stand-alone systems into detailed voice and text alerts for delivery to designated communication devices, including smartphones, landlines, pagers, emails, computer screens, two-way radios, PA systems, etc. SARA also provides enhanced location support for mobile duress devices within the Inovonics EchoStream radio frequency (RF) infrastructure through its patent-pending vector-mapping technology. Points of interest can be defined anywhere within or around a school to provide multiple points of data to more quickly and easily find those who need help.

Security

Schools can enhance security by integrating their security systems with SARA, including access control, door/window contact alarms, and video surveillance. New sensors (e.g., glass-break detectors, motion detectors, etc.) can be deployed for additional security at any time. In addition, sensors can be added to new or existing video surveillance cameras to enable video paging. When a device alarms – such as a glass break detector – text, audio and video alerts can be sent to various communication end points, including a PC screen or mobile device. By enhancing alerts with video paging, responders can address the situation remotely, enabling a more efficient and appropriate response. Transmitters with key switches also can be set up as checkpoints, requiring security officers to insert a key into each checkpoint at certain intervals to generate a history within SARA to show that the appropriate rounds are being made.

Environmental Monitoring

Significant investments have been made to maintain a safe and comfortable learning environment. While existing environmental controls may be in place, they too usually operate in siloes, but integration with SARA enhances environmental monitoring, alerting and reporting. Sensors can be used to monitor HVAC systems, power generators, cigarette busters and water bugs in restrooms, gas detectors in science

labs, and temperatures for food stores in cafeterias. If a system fails, a drastic change occurs, or a hazardous substance is detected, then SARA alerts the appropriate individuals or personnel groups for investigation and remediation. SARA also can expand alerting capabilities. For example, if a building management system only sends emails, SARA can send alerts to other communication devices as desired. When it comes to heating/cooling, lighting and equipment use, enhanced environmental monitoring through SARA can help reduce energy costs. Energy efficiency is a simple yet powerful means of cutting costs without impacting instructional quality.

Mass Notification

SARA's mass notification capabilities enable key individuals, select groups or entire populations to be notified automatically or on demand when a triggering event occurs (e.g., inclement weather, intrusion/lockdown). Based on a school's predefined escalation protocols, detailed voice and text alerts will be delivered to the designated smartphones, pagers, emails, two-way radios, computer screens, PA systems, etc. In addition to using SARA to notify students, teachers and staff about potential emergencies, the solution also can be used to send out friendly reminders regarding school activities and events, especially if schedule changes occur. And SARA's eMessenger extends alerting to the desktop by delivering color-coded text, audio, video footage or maps to hundreds of PC screens throughout a school or district.

SARA Applications in K-12 Schools

SARA can be deployed rapidly and cost effectively to create a wireless bubble around an elementary, middle or high school – or even an entire school district. When a fixed panic button on a playground is activated, a monitored door to an administrator's office is opened, or a cafeteria refrigerator goes out, an alert will be generated automatically so responders can take action to protect students, teachers and staff as well as valuable property and prevent costly disruptions to normal school operations.

Examples of SARA applications in K-12 schools include:

- Fixed duress/emergency pull stations in classrooms, administrative offices, cafeterias and playgrounds
- Mobile panic buttons for teachers
- Door/window contact alarms and integration with access control/intrusion and motion detection
- Integration with indoor and outdoor security cameras
- Fire panel integration
- Cigarette busters in restrooms
- Temperature sensors in cafeteria food stores
- Sensors on boilers, power generators and HVAC systems
- Inclement weather warnings
- Lockdown notifications

SARA K-12 Case Studies

Following are summaries of a three specific K-12 case studies where SARA's ROI has been demonstrated.

The Tomorrow Center

- Mobile panic buttons for teachers

The Tomorrow Center provides education for students with emotional disabilities, so teachers carry panic buttons because student behavior can be unpredictable. By pressing a panic button, an alert is transmitted immediately to telephones in the main office or cell phones carried by key staff. SARA also retains reports of such incidents.

Mount Gilead School District

- Fixed and mobile duress
- Door and window sensors
- Integration with indoor and outdoor security cameras

The video surveillance system is integrated with the district's network so SARA can be used to activate video recording based on an alert. With the video application and voice application working cohesively on the same IP network, the overall system is easy to maintain and allows the Mount Gilead School District to leverage its technology investments while enhancing security.

Ridley High School

- Fire panel integration for local alerting away from the panel
- Cigarette busters in restrooms
- Integration with access control and security cameras so incidents can be found quickly on video surveillance footage

In addition to installing cigarette busters in restrooms to curb student smoking, Ridley also installed security cameras throughout the school because officials suspected unauthorized access. But reviewing hours of surveillance tapes to identify a single incident is difficult. But integrating its access control system with SARA allowed school officials to pinpoint the time of unauthorized access and quickly find the incident on tape.

With SARA, you can have a wide view of what's happening in and around your school to prevent ignorance-based loss. Let us work with your school or district to design a custom situational awareness system to help you mitigate risk.