RFID Empowers Teachers and Protects Students

WIU Crossroads School adopted a security system that can summon help quickly when conflict situations arise.

By Todd Wasserman

THE MISSION OF the two-year-old WIU (Westmoreland Intermediate Unit) Crossroads School, in Greensburg, Penn., is to provide a supportive learning environment for students in grades six through 12, who have exhibited emotional and behavioral issues, including a disregard of authority and habitual truancy. Students are usually sent to WIU Crossroads for 45 days for violating the state's Safe Schools Act, such as carrying guns or knives or using drugs.

Crossroads employs eight teachers and 10 additional staff members for approximately 77 students. While classroom disruptions are not a regular occurrence, it is essential to provide timely assistance to prevent a bullying or violent event from escalating.

The school's infrastructure was "in need of improvement" in terms of communicating emergency incidents, says Principal Nicholas Falcon. Teachers were required to call the main office via their the phones in their classrooms whenever an emergency arose. "It was contingent on the teacher being able to access their classroom telephone," Falcon says.

Falcon and Dom Demangone, a supervisor at Westmoreland Intermediate Unit 7, which oversees Crossroads, believed a better security system would ease concerns of teachers, students and parents, as well

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as create an environment more conducive to learning.

In December 2014, Crossroads deployed an RFID-based real-time location system known as Help Alert, provided by RF Technologies. All teachers and staff members are equipped with RFID pendants, which they can either clip to a belt or some other article of clothing or keep in a pocket. The pendant has a button that can be pressed to summon help in the event of an emergency.

"The new system makes communication of an emergency easier in times of crisis," Falcon says. "In some conflict situations within the classroom, teachers needed to de-escalate students before they could call the office. This affords teachers the ability to request help immediately."
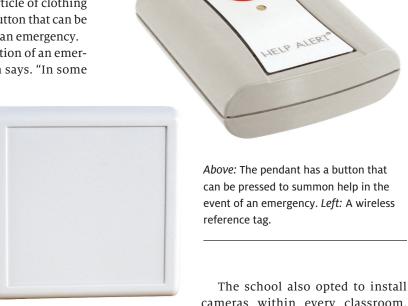
CHOOSING A SOLUTION
WIU Crossroads sought "any means of tracking staff around the building and communicating emergencies to the office wirelessly," Falcon says. One idea was to install a physical panic alarm system. "However," he adds, "after collaboration with the technology department, we decided to use the already existing wireless infrastructure."

Bearing that need in mind, a school employee reached out to Linda Hanlon, a representative she knew at RF Technologies. On Oct. 23, 2013, Hanlon sent an e-mail to Demangone containing information about a Pennsylvania Department of Education Safe Schools Grant that could cover the cost of a new security system from RF Technologies.

The Help Alert system appealed to Falcon and Demangone because it did not require a major upgrade to the school's infrastructure. "She was so knowledgeable about Help Alert that Nick Falcon and I felt no need to look at other systems," Demangone says. Crossroads applied for the grant.

In February 2014, the school received the grant for roughly $24,000, which would cover the cost of installing and setting up the system. In April, Crossroads decided to deploy the RFID solution.

Above: The pendant has a button that can be pressed to summon help in the event of an emergency. *Left:* A wireless reference tag.

The school also opted to install cameras within every classroom, which are on a closed circuit and can only be viewed inside the school's network. "This is an alternative school and, unfortunately, altercations are inevitable," says Scott Shaner, Intermediate Unit 7's educational technology services support specialist. "The cameras are also a great deterrent, as the students are aware that they are on camera."

DEPLOYING THE SOLUTION
The Help Alert system employs battery-powered Wi-Fi RFID tags, so the first step was to ensure that the school's Wi-Fi network was robust enough to support an active RFID system. In July, Shaner performed a site survey, which determined that Crossroads had sufficient Wi-Fi coverage and signal strength.

The next step was an onsite test of the Help Alert system, to determine location accuracy with mock staff duress calls. RF Technologies also employed a testing tool that captures tag data and revises values in algorithms, to make sure the system could precisely locate the staff member in need of help.

In August, RF Technologies installed the Help Alert system. The process took three business days, Shaner reports, including configuring the pendants and installing the Help Alert software. The school's Wi-Fi access points are in its hallways, so as to boost location accuracy. RF Technologies also installed wireless reference tags—essentially, stationary beacons that capture and transmit location information—in classrooms and at the gymnasium, kitchen, main entrance and multipurpose room.

The pendant measures 2.7 inches by 2 inches, with an LED indicator and a one-press button that triggers a silent alert. Each pendant transmits a unique ID number associated with an individual staff member. The LED indicator glows green when the device is at rest. Once an alert has been successfully sent to the server, the light shines red to assure the sender that the alert has been received

To personalize the software, Crossroads sent RF Technologies a JPEG image of its floor plan. The software was installed on a desktop PC monitored by Falcon or a designated employee. (RF Technologies offers applications for iOS and Android smartphones, but the school opted not to use them.)

When a teacher triggers an alert, the Help Alert software takes over, playing an audible alarm and displaying an onscreen map indicating the teacher's name and location. At that point, Falcon or another staff member accepts the alert, and the LED of the teacher's pendant turns from red to green, signaling that help is on the way.

RF Technologies bills its system as "IT lite," meaning it can be installed fairly easily within a short span of time and requires little oversight, says Mark Gallant, the company's director of product management. "Our solutions are very low-intensity on the client," he states, "and can be commissioned with minimal to no client disruption."

Crossroads was unable to schedule teacher training until Nov. 17. It typically takes 15 to 20 minutes to train teachers, Gallant says. RF Technologies believes in "training the trainer," so the company worked closely with Falcon and Shaner to make sure they were fully up to speed on the system so they could train everyone else.

The system was taken live right after the Thanksgiving holiday, in early December.

PROVIDING PEACE OF MIND

Now that the system is up and running, the school pays an annual software maintenance fee that comes to approximately $1,200. The system constantly monitors the strength of the AAA lithium ion batteries in the pendants and the AA lithium batteries in the reference tags. When they are running low, Gallant explains, the software will tell a user to swap them out. The batteries are not rechargeable, he notes, and typically last for 12 to 18 months.

The Help Alert solution has empowered teachers, Falcon says. If students are involved in a verbal conflict that could escalate to a fight, he adds, teachers can ensure student safety without compromising their ability to request assistance. "They love it," Falcon states. "They're happy to know they have a direct line of support if needed. I think it helps with morale."

"It's nice," says Amber Stell, a teacher at the school. "Instead of screaming at the top of my lungs, I can get someone to quickly come to me."

Falcon adds: "When we talk about logistically trying to communicate a need from a classroom, I would say we've cut that down to seconds, where it used to be minutes."

Parents also appreciate the Help Alert solution, says Gabriel Zeffiro, the school's psychologist. "It helps with our intakes," he explains. "When a parent comes in with a new student and asks 'How do I know my student's going to be safe here?' We can say to them that we have a video surveillance system but we also have a Help Alert system where people can be notified if something happens. It's just another answer that we can give them as to how we keep track of what's going on."

To date, Falcon reports, there have not been any major incidents to test the system, though the school has used it several times for non-emergency situations. "Luckily, we have not required its use lately," he says, "but we are always happy to know it is available if needed."

Help Alert makes students, faculty members and parents feel safer, Falcon says, which is why he has no qualms about recommending an RFID security solution to other schools, no matter what type of students they cater to. "It's something I would definitely encourage other schools to look at as an option," he states. ◾