New Device Locates People in Imminent Danger

By **Mike Cronin**
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The best answer firefighters typically get when they ask if everyone has evacuated a burning building is: We think so.

Dan Grant, a partner in the development of what he called "the Holy Grail of tracking systems," hopes to provide a definitive answer and save lives.

"We lose about 200 first responders a year in these situations," said Grant, CEO of The Parallel Group and marketing chief at Intelligence Safety Solutions LLC in the South Side. "They'll mount a search-and-rescue operation without knowing who's in there."

Intelligence Safety Solutions official Dan Grant (left), Pitt engineer Marlin Mickle and Pitt research associate Peter Hawrylak show off the alpha prototype of SafetySet.

Research by University of Pittsburgh engineer Marlin Mickle could enable first responders to pinpoint within a few feet the locations of people inside burning buildings or other structures where there is an emergency.

The system would use a combination of wireless sensors and radio frequency identification tags, or RFIDs. Some stores use RFIDs to collect sales data.

Civilians inside a building might be tracked using their employee or school identification cards, for example, Grant said. or, those people might have RFIDs that lie dormant until activated by first responders in an emergency, Mickle said.

Mickle is developing computer programs that would be able to "read" how many workers had used their keys to enter a building before a fire started, for example.

John Twigg, CEO of OnSite Information Systems in Murrysville and another partner, said emergency workers could scatter sensors like "bread crumbs" in a building or the sensors could be installed in walls beforehand. The sensors would pick up the RFID signals and transmit information to a police or fire department computer in an emergency.

The number of breadcrumbs or wall devices used would depend on the level of precision desired, Mickle said. Each device would cost "well under $100," he said, and measure about 1 inch thick, 2 inches wide and 4 or 5 inches long.

The sensors also would help emergency responders if they become disoriented, said Peter Hawrylak, a research associate at Pitt's RFID Center of Excellence. For example, a firefighter's RFID tag would send electronic signals to a commander's laptop computer outside a burning building. The commander could monitor the firefighter's location and provide directions if needed.

Police officers could use the system as well. "A commander can direct officers in a building so they don't mistake each other for the gunman," Hawrylak said. The Pittsburgh team's approach would be much more precise than current tracking technologies, Mickle said.

Tests so far have been successful, Grant said. A major system test is scheduled for August at Worcester Polytechnic Institute in Massachusetts. That could lead to federal grants and other partnerships, Grant said.

"If we can run it up the flagpole, we should be able to start selling it by the end of the year," he said. "If we get this right and make it cost effective and easy to use, we hope that every first responder worldwide views this as the industry standard."