

Congress Considers Evacuation Tracking

The U.S. House is evaluating tracking technology for possible deployment at Congressional facilities in order to locate House members, staff and visitors during emergencies.

By Claire Swedberg

Feb. 7, 2005—The United States House of Representatives is seeking technology to track people in the event of an emergency. Vendors have until Feb. 15 to submit information about a system that could report on the location of House members, staff and visitors during an evacuation from House-operated facilities. Vendors of radio frequency identification products are among the companies responding to the House's request.

"There are numerous ways to address tracking," says Erik Michielsen, the director of RFID and ubiquitous networks at [ABI Research](#), a consulting firm based in Oyster Bay, N.Y. Few of these methods, however, fulfill the House's high-tech requirements, such as 3-D graphical displays.

"An RFID-hybrid solution would be optimal," Michielsen says. Such a hybrid could combine biometric identifiers with RFID. "We're going to be seeing more of the RFID-biometrics hybrids in the next year," Michielsen predicts, because the U.S. government has shown an interest in that kind of solution.

In its official request for information, posted online on Dec. 2 at [FedBizOpps.gov](#), a government procurement Web site, the House's Office of the Chief Administrator reports that it is seeking "reliable, robust, and rapid accumulation of real-time operationally accessible data" concerning the location and evacuation status of House members, staff and visitors immediately after an emergency event and for a 24-hour period afterward. That includes people who have gathered in assembly areas, those who are in the building and need to report their status, and those who have traveled to a different location. This system would be used only during emergencies and activated during an evacuation of the U.S. Capitol, the House's four main offices (the Cannon, Longworth, Rayburn and Ford buildings), and other smaller House-operated buildings clustered in an area of 0.8 square miles.

Approximately 13,500 legislators and staff work within these facilities. At present, the House lacks a system for keeping track of which people are in the buildings. Although staff members currently have ID badges that incorporate an HID-type proximity RFID transponder, the House has deployed proximity card readers for access only at select places within the House complex, but not at building entrances and exits.

The House is seeking a real-time geographic information system (GIS) that would not only provide a 3-D graphical display of the buildings but also show the current position of all individuals within and around the buildings during an emergency. The system should also be able to indicate which individuals have left the buildings and are now in safe locations.

The tracking system would work in two phases. 1 would determine the location of each House member, employee and visitor and report on building occupancy status during the first hour of an emergency evacuation. Phase 2 would provide similar information for a 24-hour period after an evacuation. The system's overall purpose is to provide timely information to law enforcement and House officials regarding the

evacuation process and the safety of its employees, so that these officials can make tactical and strategic decisions. Phase 1 data might also be used by first-responder personnel to help them determine the percentage of people accounted for, building by building, and assist these responders in the use of on-scene emergency resources.

RFID technology would be an obvious solution to meet the House's requirements because RFID has been used in similar applications, according to Michael Liard, director of automatic identification and data collection (AIDC) and RFID at Venture Development Corp., a technology market research firm based in Natick, Mass. For example, Axcess, a Carrollton, Texas, provider of RFID-enabled access-control, asset-management and surveillance systems, has developed a personnel-tracking system much like the one the House is seeking, and is responding to the House's RFI. Sense Holdings, a Sunrise, Fla., supplier of access, security and asset-tracking systems, also offers a real-time RFID solution for tracking people.

GPS is another technology that can be used to track people, assuming they are wearing GPS-enabled ID badges or similar devices, Liard notes. Because the GPS unit inside a badge needs to have a clear line of sight with GPS satellites, however, the technology would work effectively only when people are outdoors. Although a GPS-based system might be less expensive, Liard says, "there would be some limitations. Certainly range and accuracy could become an issue," since GPS tracking does not pinpoint locations as precisely as an RFID system could.

The Department of Defense has tested the evacuation-monitoring potential of Axcess's people-tracking system, which uses ID badges containing an active RFID tag that can be read by RFID readers deployed in rooms and corridors (see Using RFID to Manage Evacuations). That system can provide emergency personnel with a 2-D graphic display that shows the location of any DOD worker wearing or carrying an ID badge. The badge's tag can transmit its RF signal (either 315 MHz or 433 MHz) through pocketbooks, briefcases or clothing to readers 30 to 100 feet away, according to Axcess CEO Allan Griebenow, and the system can read approximately six ID badges per second.

"We can solve the majority [of what the House is seeking] today," he says, pointing to similar Axcess systems currently being used by the Department of Defense to track movement of vehicles and personnel at military bases.

The cost of providing the House with the system it seeks could be relatively inexpensive, Griebenow says, depending on how many RFID readers are needed in doorways, halls and underground corridors that connect House buildings. Costs would average \$20 per badge for all employees, about \$2,000 for each reader, and about \$10,000 for the operating software, including the graphical display.

If the House chooses an RFID solution, "this will bring privacy concerns to a whole new level," says Liard, observing that lawmakers will find themselves to be users of a technology that is still under fire from privacy groups. "The debate [about RFID and privacy] will only increase." Privacy concerns, he says, may be one reason the House could be open to a GPS solution. Emergency roadside service provider OnStar, for example, uses GPS tracking to provide assistance to owners of many General Motors vehicles. "People are comfortable with GPS," he says, "while RFID is still shrouded in some controversy."

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