Engineers Develop a Wireless Emergency Reporting System

Researchers in the College of Engineering were recently issued a patent that creates a Reverse 911 call to mobile phones.

TAMPA, Fla. (December 12, 2011) – Five researchers from the Center for Urban Transportation Research (CUTR) and the College of Engineering received a patent last month for a wireless emergency reporting system that sends and receives notifications to cell phones in a defined geographic location.

The patented method provides emergency related information to and from a centralized location over a wireless network. The method utilizes cellular phones in emergency communications and entails two embodiments that employ location-aware technologies in portable form and in security applications. One embodiment serves as a modern, high-tech "neighborhood watch," enabling law enforcement access to the many "eyes and ears" of the public simultaneously via available cell phones. Cell phones with embedded digital cameras allow the instant capture and remote submission of suspicious circumstances to law enforcement through pictures or video.

U.S. Patent No. 8,045,954 titled "Wireless Emergency-Reporting System" was issued in October to the inventors group that includes **Sean Barbeau**, CUTR research associate and Computer Science and Engineering doctoral candidate; **Philip Winters**, Director of Transportation Demand Management Program at CUTR; **Rafael Perez**, computer science and engineering professor; **Miguel Labrador**, associate professor of computer science and engineering; and CUTR Senior Research Associate **Nevine Georggi**. This is the second patent this research group received in October the other being U.S. Patent No. 8,036,679 titled "Optimizing Performance of Location-Aware Applications Using State Machines."

The ability to reach households in an emergency situation can be achieved via systems such as Reverse 911®. That public safety communications system is used to notify residents about emergency situations within their geographic area. However, more households are dropping their land lines and moving to wireless-only service. According to the Centers for Disease Control, 27 percent of Florida adults aged 18 and over lived in wireless-only households in 2010, an increase from 15 percent in 2007. Even if the wireless services were geocoded to a street address, an emergency may necessitate reaching tourists and other travelers in that area.

"Think of an Amber Alert situation. In this case, you get a photo and message on your cell phone that the authorities are looking for a seven-year-old girl with brown hair, last seen wearing red shorts and white top last seen close to where you are now. You see a girl fitting that general description with an adult. You may not want to challenge the adult but you want to let the authorities know ASAP," said Phil Winters.

"You snap a photo with your phone and send it to police dispatchers who can see the photo and know where it came from because the transmitted image includes a GPS "stamp" and they can see the photo on a Google Map. Authorities can call you or text you to get more info."

Nevine Georggi continued, "Now let's say, another person is in the same vicinity (a half mile away) but hasn't seen the pair. Police could draw a circle on the map location where you snapped the photo to send text messages with the photo you took to everyone (including police officers) within that circle to be on the lookout for that adult and little girl. They can even call people as a group. This is like a Reverse 911 call but to mobile phones."

"We believe this system could be deployed at a very low cost that any community could use," added Sean Barbeau.

This patent was developed under the "Enhancing Transportation Safety and Security via Scalable Location-Based Wireless Applications" project that was funded under the Federal Transit Administration to the University of South Florida and other Florida universities under the University Consortium Intermodal Transportation Safety and Security.

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