Background

The Power of P2P

Though government agencies and the private sector have some of the basic data needed for effective disaster prevention and management, the means to disseminate effectively the data in an intelligent manner (for example, delivery of relevant and timely information to the right target population) is lacking. Typically, data is disseminated in a broadcast mode, which could create mass confusion among the public. Also, there is often significant lag in the collection of crisis-related data by government agencies. This lag can be eliminated by empowering the general public to report relevant information in a timely fashion.

Calit2 is using peer-to-peer (P2P) technology to develop a fully automated system that will allow motorists to collect and relay accident- or disaster-related information. It will empower the general public (in particular commuters) in San Diego County to act as human ‘sensors’ and relay information about major accidents to fellow motorists, authorities, first responders and the general public via their mobile phones.

Technology

Personalized Traffic Reports

Calit2 researchers at UCSD developed a system for San Diego drivers to get up-to-the-minute traffic and commute information, and they recently rolled out the service to serve Los Angeles County and Orange County as well. Calit2 has also developed a functional prototype of a peer-to-peer that allows southern California motorists to alert other drivers to a highway accident or other emergency. The system can be accessed simply by making a phone call and is based on speech recognition.

To test the technology under real-world conditions, the P2P service is based on the traffic notification system that has been operational for the past two years and used by more than 15,000 San Diego commuters and a growing cadre of commuters in Los Angeles and Orange County as of fall 2007. Researchers have modified the alert system so that commuters can report traffic incidents 24/7, including the time, location, severity, and urgency of an event. Reports will be analyzed for validity and placed in a database. Other commuters who call into the system to hear the traffic report will hear these events if they happen to fall in their commute segment.

Based on the severity of the incident, all or some users can be notified via voice calls or text messages in a parallel and scaleable manner. Researchers have created a hierarchical voice user interface that can accommodate for the severity of the incidents being reported.

“We have learned from past experience that the general public will not adopt an emergency system if you inject a new phone number during the disaster.”

- Ganz Chockalingam, Calit2 Researcher

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