

## **UCSD Cal-(IT)<sup>2</sup> Demonstrations**

### **511: San Diego Wireless Traffic Report**

Ganz Chockalingam, Nick Hill, Ramesh Rao

This next generation mobile Traffic Notification System allows first responders as well as the general public to get real-time traffic information through their cell phones. The system we have developed allows for on-demand, anytime anywhere access of traffic information through any phone. It provides you with highly personalized traffic reports including commute time based on the current traffic conditions and fastest route to your destination based on the current traffic conditions. No other system can provide such personalized information on demand, today. This system currently has over 5000 registered users and receives about 30,000 calls a month. The system is capable of dynamically changing voice prompts to accommodate special announcements from the Police Department. The police used the system to get access real time traffic information from the field and also to communicate between the fleet through the special announcements feature. The system is available via the toll free number (866) 500-0977 and its associated web site is <http://traffic.calit2.net>.

The system also has the unique ability to intelligently alert users about traffic congestions via text messages. Current traffic notification systems alert a user whenever there is an incident in their commute route without regards to the severity of the incident and the resulting congestion due to the incident. The notification engine we are developing can do much better. We employ the following algorithm, which is a more robust and reliable way of notifying the user: We calculate the commute time of a user based on historical averages for various times of the day. We also know the approximate time window of the user's commute based on the time the user calls our system. If during that time window, if the commute time exceeds a certain threshold, the notification engine will alert the user of the congestion. Furthermore, the system provides graphical data giving the commuters a time history of their commute times against the time of the day. Simple analysis of this graphical data allows users of the system to empirically determine whether their commute time is shorter at different times throughout the day. The data is compiled based on past historical averages of traffic flow information. We are not aware of any other system in the nation that offers this capability.

### **Mobile Command and Control Center for Crisis Mitigation**

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The mobile command and control center is an end to end architecture that aids first responders in crisis field monitoring. It helps them gather critical information from the crisis scene in the form images, video and audio using mobile devices cell phones on the field, automatically time and location stamp them and relay it back to the control center. The events are automatically populated in a GIS database. The control center agents can view these events coming in from the crisis scene based on priority and location. The architecture allows for bi-directional communication between the control center and the first responders. The agents can message the first responders in the form of text messages or voice calls in groups or on an individual basis.