UC Berkeley software turns cell phones into traffic trackers

By Denis Cuff
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Bay Area motorists with GPS-equipped cell phones can tap into new technology designed to help them avoid traffic jams.

UC Berkeley and Nokia phone company researchers this week rolled out new software that can be downloaded for free onto cell phones and used to get quicker and more accurate traffic information to plan driving routes.

The software turns cell phones into mobile traffic investigations.

As a motorist drives along, his mobile phone will automatically transmit information about his driving speed, direction and location. Centralized computers will collect and organize the data from him and other drivers, then send back traffic updates to cell phones to show motorists where to avoid gridlock and where to find flowing lanes.

Early participants initially will receive information from the existing 511.org traffic-information system, but the information will expand as more people sign up.

Researchers said the system — the first of its kind — has promise to make traffic monitoring more effective worldwide, saving time, fuel and exasperation.

"This can give better information to drivers to improve their travel planning," Alexandre Bayen, a UC Berkeley assistant professor of civil and environmental engineering and co-leader of the project, said at a Monday morning media briefing on campus. "As we have entered the era of the mobile Internet, cellular devices are providing us with ubiquitous sensing capabilities that will rapidly revolutionize location-based services."

Eventually, the software could be linked with people's computerized calendars so motorists could turn on their cell phones in the morning to get advice on the fastest route to work or a first appointment.

UC Berkeley and Nokia are starting slowly to roll out the pilot software developed in the private-public Mobile Millennium Project with financial help from Caltrans and the U.S. Department of Transportation.

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To prevent a system overload, software project organizers will limit sign-ups to 100 people a day for the first month of the project. Sign up information is posted at traffic.berkeley.edu. To be able to sign up, phone customers must have mobile phones equipped with GPS, and an unlimited data service plan.

The accuracy of the traffic information will improve as more people sign up over time, project managers said. They have a goal of getting 10,000 cell phones enrolled by April, but expect to hit that milestone earlier in the tech-savvy Bay Area.

Mobile phone users already can get traffic information from the Bay Area's 511.org., but there are limits on its accuracy and coverage.

The 511.org. site collects traffic data from expensive sensors buried in pavement or video cameras placed overhead at intervals along freeways, but doesn't monitor traffic on most surface streets or rural routes.

The new cell phone system can monitor smaller roads and deliver quicker and more accurate information by tapping into information from many drivers on many roads, said Randall Iwasaki, Caltrans chief deputy director.

In response to privacy concerns, the new system was designed to keep the identity of cell phone users anonymous, said Henry Tirri, senior vice president of the Nokia Research Center in Palo Alto.

The information from phones is stripped of information about users before it is sent to a computer service for processing, he said.

“We can build these aggregate services without violating anyone's privacy,” Tirri said.

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Details
For information about downloading cell phone software for a new traffic information system, visit traffic.berkeley.edu. Project managers initially are limiting downloads to 100 people a day.
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