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Distracted Driving: An Answer Perhaps?

By Steve Lohr May 9, 2011 5:28 pm

There are at least two irrefutable facts about the practice of people communicating by cellphones while driving cars. First, it is a big problem, with studies estimating that more than 500,000 traffic accidents and 2,600 deaths a year are caused by cellphone-distracted drivers. No one has documented the problem as thoroughly as my colleague, Matt Richtel.

The second is that cars are not going to become monastic cones of silence. America is a car culture, and the pressures of modern work and life mean that people are going to communicate from their cars, despite the potential danger.

The real issue, then, is how best to reduce the risk. Education is going to help by making people more aware. One thing to be aware of, according to recent research, is that hands-free calling does not help much, if at all. The big trouble is that human communication distracts the brain, slowing recognition and reaction times.

In a paper presented on Monday at a research conference in Vancouver, Eric Horvitz, a scientist at Microsoft Research, and three collaborators provide evidence that a properly designed computer assistant could do a lot to reduce distracted-driving accidents. Bring some artificial intelligence to the car, they suggest, and the safety payoff could be well worth it.

The paper, "Hang on a Sec! Effects of Proactive Mediation of Phone Conversations while Driving," lays out the results of research done with people conversing on a hands-free phone while at the wheel of a driving simulator.

The volunteers drove through a simulated environment while answering questions like, “When did you last get gas for your car?” and “Name the last movie you saw.” Questions that require recall are more cognitively demanding than other conversation, researchers say.

The drivers had to navigate through city streets, pedestrian crosswalks and frequent turns. Their performance was measured on comparably difficult routes both when their conversations were interrupted by the “semi-smart mediation technology,” as Mr. Horvitz puts it, and when they were not.

The alerts tried out ranged from a short message simply stating, “Focus needed,” to more descriptive messages like “residential neighborhood ahead with children playing.” And calls could be put on hold, typically for 10 to 25 seconds, while the driver navigated through a setting that required maximum attention to the road.

In the simulated course, drivers did better with the semi-smart helper offering driving tips and interrupting conversations than when they talked and drove continuously. When assisted, the drivers had on average 27 percent fewer collision errors and 81 percent fewer turning errors.

“I think we could see a significant drop in traffic accidents using this kind of system,” said Mr. Horvitz, whose three co-authors were Shamsi Iqbal and Yun-Cheng Ju of Microsoft Research, and Ella Matthews, a student at the California Institute of Technology.

The research initiative was a “proof of concept” project, not a working system. But the ability of modern computing to tap and mine large Web-based data sets — road conditions, weather, accident reports — and deliver answers in real time is opening the door to such systems in cars.

One large car company, Mr. Horvitz said, has expressed an interest in his team’s research. Within five years, he predict, computer-safety assistants could become commonplace — if automakers pursue safety services and

regulators prod things along. Perhaps this is the equivalent of digital seat belts?

"Cars will begin to tell people about road conditions and potential dangers," Mr. Horvitz said.
