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## A kinder, gentler automobile

Technology creates the user-friendly car

By Chip Walter, Globe Correspondent, 3/4/2003

**T**he slick advertising of car manufacturers notwithstanding, automobiles are not always the positive force in our lives we would like them to be. Every morning and evening we struggle to navigate clogged highways while we're adjusting the radio, talking on the phone, and fiddling with maps.

But what if your next car was a kinder, gentler automobile - one that watched out for your safety, was intelligent enough to keep track of your schedule, helped plan the least congested route to work or home or the grocery store? What if it knew when it was malfunctioning, even before you noticed any symptoms, and it told you and the manufacturer?

That may be precisely where cars are headed.

"I imagine more scenarios 10 years from now," said Ed Schlesinger, codirector of the General Motors Collaborative Laboratory at Carnegie Mellon University, "when you're driving into a new city and you can say to your car, 'Where's the nearest public parking, how do I get there, and can you recommend a good Italian restaurant?' The car will say, 'Three blocks up on your right, there are spaces there. I've got the restaurant, and, by the way, here's an online coupon for you, too.'"

But we've all heard the hype before. Concept cars have been rolling out of Detroit for decades. But few, it seems, ever actually hit the road. Now, however, analysts and researchers say the pieces are truly falling into place that will bring significantly smarter, user-friendlier cars to a showroom or website near you.

Both business and technology are driving the trend. In a cutthroat global market, car manufacturers fervently and unremittingly look for every possible edge to win the hearts of the world's 400 million drivers. With the advancement of cellphone technology and geopositioning satellite systems, and with electronic control modules, or ECMs being built into everything including engines, transmissions and brakes, manufacturers could now envision a car that could communicate what was happening to it. Was the engine light on? Had the air bags deployed?

"What actually created the market," said David Acton, an executive director at General Motors, "was the recognition the vehicle had been gathering information to help itself for years. The new revelation was [you] could take that information out of the vehicle and . . . create value [and pass it on to the owner]."

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The industry dubbed the new concept telematics.

The idea behind telematics is to wrap drivers in a cocoon of information that makes their lives more productive, their cars safer, and the whole driving experience more enjoyable. It is also a way, automakers hope, to win market share, develop new revenue streams, and establish a binding relationship with customers.

Current services like those offered by OnStar and ATX Technologies use cellphone and Internet communication to pass information between a car and its manufacturer's national service center. Though still new, they are trickling down to lower-end vehicles, and they already offer an impressive suite of services. For \$199 a year, you can use a built-in cellphone system to contact a 24-hour service center, ask for advice on the best way to get to a location, have the car's doors unlocked remotely, and even command the car to honk if you've lost it in the mall parking lot. A concierge service can book restaurant reservations and deliver flight information. By tapping into the Internet and translating text into speech, you can access stock quotes, e-mail, and baseball scores. Both services will even call for help if you press an emergency button. According to the Telematics Research Group in Minneapolis, telematics services are now being offered as optional equipment in 90 distinct models worldwide, and trending upward.

Nevertheless, industry analysts agree that telematics hasn't yet caught the mainstream buyer's imagination. GM states that OnStar has more than 2.5 million subscribers, but according to The Hansen Report on Automotive Electronics, only 42 percent of OnStar's 2001 customers resubscribed after their first year. The biggest barrier is price and perceived value. "The question . . . is will [telematics] make someone buy a Cavalier over a Neon, or a top-of-the-line Cadillac rather than a Mercedes," said Dan Holt, technology editor for the Society of Automotive Engineers.

They will, Schlesinger said, if the services really make life and driving easier. "If automakers just add gadgets, then the marketplace will quickly see that they are unsuccessful."

Trying to avoid that pitfall is one reason General Motors funded a prototype system called "Companion" as part of its collaboration with Carnegie Mellon.

Companion incorporates geopositioning; gesture, face and voice recognition; a heads-up windshield display; and a GPS system and savvy software that combines information from your personal digital assistant, or PDA (appointments, to-do lists, and contacts) with everything the car already knows (like time and location). It employs two software agents, or smart computer programs, said Dan Siewiorek, the scientist that heads the project. Each agent combines personal information about you with its own intelligence to help get you through the day with a minimum of stress. One agent is aware of what you want to do, where you're located, and what time it is, while another "watches" and learns how you like to do things.

A Companion-enabled car, for example, would not only let you know that you have an appointment in 45 minutes (any PDA could tell you that), but it would also warn you that, because of an accident on Storrow Drive, it will take you every one of those 45 minutes to get there rather than the 20 it usually takes. The system, Siewiorek said, is designed to help you accomplish what you need to accomplish efficiently and pleasurably, all while keeping your hands on the wheel.

Schlesinger said that the interaction between car and driver is only part of what telematics can offer in the future. Imagine a car, he said, that not only communicates with you, but handles a variety of other jobs - from getting you down the road to providing you with music and the kids with movies. Then imagine something goes wrong with the engine. The car could be smart enough to sacrifice the entertainment and re-route power to a system that ensures you get to the next service station safely. Or it may repair itself on the fly by wirelessly uploading new software from the manufacturer.

Though this could put NPR's "Car Talk" guys out of business, it's not as outrageous as it sounds. Cars today are already heavily computerized. Simply uploading the right software to tomorrow's car may be as likely to fix an engine as a wrench is today. "Imagine you're driving along and you hear your car making a strange sound," Holt said. "You press a button and all of your data gets uploaded so an engineer or a technician can diagnose the problem. . . . Once people discover how valuable [some services] can be, I think telematics will kick off."

Automakers hope so. Their futures may depend on cars that can take better care of their owners, rather than the other way around.

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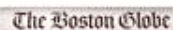
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