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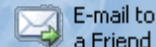
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High-Tech Gadgets



Consumer Reports offers in-depth vehicle reports for every model tested - to help you make the right purchasing decision on your next car or truck.

From night vision systems to push-button parking, the 10 latest auto features on the road today or coming soon.

Just a few years ago, a car that could show you its location on a digital map, take control if you begin to skid, or automatically maintain a set distance from a vehicle in front might have seemed like a glimpse from some far-flung future highway. But these functions are becoming increasingly commonplace in today's vehicles.

What's next? How about cars that can automatically brake to a stop in traffic without the driver ever touching the brake pedal? Or ones that can parallel park themselves at the touch of a button? Or vehicles that brake for a pedestrian, even if you're looking the other way?

Here, we look at 10 of the latest auto technologies that are either already on the road or coming soon. As with most leading-edge features, the majority of these are now available only in higher-priced luxury models, and even then are often expensive options. But, as we've seen with antilock brakes, electronic stability control, and navigation systems, we can expect many to eventually trickle down to mainstream cars. Meanwhile, stay tuned; more are coming all the time.

A car that parks itself

Drivers who find it challenging to parallel park will appreciate Lexus's new Intelligent Park Assist system, an option on the redesigned LS models due in fall 2006. Already available on the Toyota Prius sold in other markets, this system will enable a driver to pull up to an available parking space, press a button, and essentially sit back. The car will then maneuver itself into the space. All the driver needs to do, according to Lexus, is apply a little braking pressure. Unfortunately, the system can't find a parking space for you.

Keeping an eye on blind spots

Many accidents occur when a driver tries to change lanes on a highway without being aware that a vehicle is in his "blind spot." For 2007, Audi and Volvo are addressing this dilemma with two systems that can detect vehicles that a driver might not see on either side of his car. Both systems use LED displays near each outside rearview mirror to warn a driver that he shouldn't attempt a lane change because a vehicle is in or is rapidly approaching a car's blind spot. Audi's Side Assist system, which made its debut in the new 2007 Q7 SUV,

advertisement



The Lexus system can detect and prepare for imminent impact with vehicles and even pedestrians.



Camera and radar technologies can help drivers "see" otherwise hidden vehicles.



New glass darkens with the turn of a knob.

uses radar to detect other vehicles. Volvo's Blind Spot Information System, available on the new S80 sedan this fall, uses cameras.

The next step in precollision systems

A precollision system is one that can sense a collision before it happens and automatically take actions to maximize the safety of a car's occupants. These systems work in different ways, depending on the automaker. Several manufacturers, for example, offer systems that use radar to detect vehicles in front and an alarm and warning lights to alert drivers of a potential crash. If the driver does not respond quickly enough, the system can take preventive steps such as applying brakes, closing windows, adjusting seat positions for optimal air-bag effectiveness, and activating safety-belt pretensioners.

Lexus is about to take the technology a step further in spring 2007, when it introduces its Advanced Pre-Collision System (APCS) in the top-of-the-line LS series. This system is the first that can detect pedestrians and animals as well as vehicles, potentially helping a driver avoid hitting a person in the road. Two small cameras mounted to the front of the vehicle provide a detection capability that the carmaker says radar alone cannot deliver. APCS also uses a third camera, mounted on the steering column and focused on the driver's face. If the system sees the driver is not looking ahead and senses a high probability of impact, it will first warn the driver with a chime and a flashing light. It can then apply gentle braking pressure, cinch down the safety belts, reprogram the steering for faster response, and prepare the braking system to apply full pressure as soon as the driver presses the pedal.

Cruise control that goes—or stops—with the flow

Adaptive Cruise Control (ACC), which is offered by several automakers, takes conventional cruise control an extra step. In addition to maintaining a set speed on the highway, it can also automatically maintain a safe distance between the vehicle it's in and one in front. It does this by using radar to monitor the presence of vehicles in front and automatically operate the brakes or throttle to slow or accelerate the car as needed.

A more advanced version of ACC in the 2007 Audi Q7 SUV works in stop-and-go situations, as well as on the highway. According to Audi, it can automatically bring the car to a complete halt when needed and accelerate to highway speeds as conditions permit. This has the potential to significantly expand the usability of the system. If the vehicle is stopped for more than three seconds, however, cruise control is disengaged until the driver presses the reset control. The new Mercedes S-Class offers a similar system.

Next-generation night vision

BMW, Lexus, and Mercedes-Benz are introducing updated versions of the Night Vision system initially offered by Cadillac. The systems allow a driver to see objects and people beyond the reach of a vehicle's headlights, and they use infrared technology to sense heat from people, animals, stopped vehicles, and so on up to several hundred feet ahead of the car.

The BMW and Mercedes systems display images on a dashboard screen in the vehicle, and the Lexus system projects images on the lower part of the windshield. When we tested Cadillac's now-discontinued Night Vision feature in the 2000 DeVille, we found that it can be handy in some driving situations—particularly on flat, straight roads—but the images were grainy, and some drivers found it distracting. These updated systems claim to have better resolution and greater range.

Cleaner diesels

Diesel cars typically get about 30 percent better fuel economy than a similar gasoline-powered car. But because they emit more nitrogen-oxide and particulate emissions, they aren't sold in some states with tight clean-air regulations. Mercedes-Benz, however, recently announced a new line of diesel engines, called BlueTec, that promise to deliver cleaner emissions than existing diesels. By using an oxidizing catalytic converter and other technologies to significantly reduce diesel emissions, the automaker claims that BlueTec engines will be clean enough to be sold in all 50 states and virtually all markets worldwide. To achieve this, BlueTec requires the use of new low-sulfur diesel fuel, due to be phased in to the U.S. market this year. The first model using BlueTec engines will be the freshened E320, which goes on sale this fall in some states, and will be available nationwide by the end



Audi Q7 uses radar to maintain distance from other vehicles.



Next-generation diesel engines promise cleaner emissions.



Available in Europe, Intelligent Park Assist helps Toyota Prius owners on congested streets.



Camera-enabled system helps keep drivers in their lane.

of the decade.

Variable-tint glass

Electrochromatic rear-view mirrors, which automatically darken in response to light, have been around for years. Now, the concept is being applied to a vehicle's window glass. Ferrari introduced an electrochromatic roof panel on its limited-production \$287,000 575 Superamerica in 2005. The panel can be adjusted to any of five levels of tint by turning a knob in the car's interior. The system's manufacturer claims solar-energy transmission can be reduced from two to 20 percent, and the amount of light entering the cabin can be reduced by as much as 40 percent. While the Superamerica is no longer in production, a domestic auto-glass supplier plans to bring the technology to mainstream vehicles within the next few years.

Photo-realistic navigation systems

The displays in current GPS navigation systems show the location of a vehicle on a graphical map in a way that's similar to looking straight down at a paper map. Several systems also provide a 3D "bird's eye" view that give more of a driver's perspective with roads stretching out to the horizon. Soon, however, we may view all of these displays in the same way we view old Mickey Mouse cartoons in a Pixar era.

The next wave of nav-system mapping will use actual images of roads and terrain to provide a dramatically realistic perspective. First up will be nav displays that show roads and the surrounding area as they look in satellite photography, complete with a bird's-eye-perspective capability. A company called 3DVU, for example, has developed such a system that is now in use on some portable nav systems in Japan and will be available in the built-in nav systems of some new South Korean cars by the end of the year.

Carmakers are exploring 3DVU and other lifelike navigation options, and the company expects to have this technology available for the U.S. market by 2010. By that time the terrain will also include realistic elevation data, meaning that mountains will really look like mountains instead of a laid-out flat photo. Future plans include adding street-level views of major cities that include realistic images of major buildings and landmarks.

An aid for inattentive drivers

Some of the latest Infiniti models include a lane-departure system, which alerts a sleepy or inattentive driver if his vehicle begins to wander out of its lane without a turn signal being activated. It uses a camera mounted behind the rearview mirror to detect the painted stripes between lanes and warns the driver with both a buzzer and warning light.

When we tested the system on the 2006 Infiniti M35, we found that it works well on the highway but can be distracting on curvy roads. Fortunately, the system can be turned off with a switch.

On-the-road entertainment (and more)

New developments in automotive electronics seem to arrive daily, providing more versatility in how we use and enjoy our vehicles.

- Manufacturers are finding increasing ways of marrying their cars' audio systems with portable audio systems, such as iPods and MP3 players. Mercedes-Benz, for example, offers a glove-box-mounted iPod-docking station that provides power for the device and enables the driver to use the car's steering-wheel-mounted audio controls to operate it.
- High Definition (HD) Radio systems, available for some BMW models, are capable of receiving digital signals broadcast from stations using HD Radio Technology, developed by iBiquity Digital. The systems are said to provide FM quality sound on the AM band and CD quality on FM. Like Sirius and XM digital satellite radio, HD Radio is said to offer clear reception that is free of static, hisses, or other sounds associated with conventional broadcast. HD-compatible radios are likely to become more common as more radio stations adopt the technology.
- Bluetooth technology, available on many new models, enables your cellular telephone to become a hands-free device by using the car's speakers to hear the caller. It also automatically mutes the radio/CD when a call comes in and facilitates dialing through voice recognition, thereby minimizing distraction.
- Portable navigation systems, which can be bought at many electronics stores, not only have most of the major features of built-in automaker systems, but are now incorporating features such as an MP3 player, Bluetooth compatibility, and satellite-radio reception. As of now, they still lack the voice-recognition-programming capability of some original-equipment systems, but that will likely be available soon on dashboard-installed aftermarket systems.
- Satellite television has been available as an aftermarket purchase for a few years, but one company, KVH

Industries, has announced plans to offer satellite in-car Internet access, as well.

Hopefully, these new electronic features will include safeguards to minimize driver distraction.

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