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Technology Race Heats Up at the LA Auto Show

Sales of in-vehicle technology projected to reach \$9.3 billion in 2011

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New technologies are dramatically changing what consumers expect from cars and are becoming a primary influencer in purchase decisions. The competition to deliver the most advanced, user-friendly vehicles is certain to heat up on the L.A. Auto Show floor next month as automakers acknowledge that high-tech systems are one of the most important features of the car itself. All the latest advancements, plus a glimpse into the future, will be featured at the Show November 18-27.

This new wave of futuristic automotive technologies may sound like science fiction, but many are being tested or implemented today. Volkswagen has a system that allows a car to navigate itself through a parking structure, park, and then return to meet the owner at the entrance. Lexus is designing Driver Monitoring Systems to reduce accidents caused by distracted or drowsy drivers using tools such as infrared sensors to track eye movement. Ford is currently testing how its SYNC platform might integrate with services such as WellDoc, a cloud-based patient monitoring service, to do things like monitor a driver's current health condition. And just this year, Nevada passed a law authorizing the use of driverless vehicles.

The numbers associated with these advancements are just as eye-opening as their functions. According to the Consumer Electronics Association, overall sales of in-vehicle technology will reach a projected \$9.3 billion in 2011, which is 12 percent higher than 2009. Three million Ford vehicles now include the SYNC connectivity platform and by 2014, Ford hopes to have it in every North American model. Volkswagen is investing \$20 million annually into its California-based Electronics Research Laboratory devoted to technologies such as automated driver assistance. And new legislation, such as the hands-free Safe Drivers Act of 2011, continues to speed further advancements.

One-Stop Technology Showcase

Located in the design and technology hotbed of Southern California, and with nearly every manufacturer displaying their latest in-car tech features, the L.A. Show will be the ultimate showcase for these breakthrough innovations. Technology to look for includes advanced applications of Bluetooth, radar sensors, embedded telephony and cloud computing. In use, they give drivers hands-free access to personal data, communications, audio entertainment, social networking and advanced safety measures previously unimaginable.

Advanced Safety Systems

Once consisting of passive systems like seatbelts and airbags, today automotive safety is being defined by "intelligent" systems designed to avoid and prevent accidents. Radar sensors, GPS, Artificial Intelligence, cameras and other technologies mean features such as sophisticated lane departure warning systems are now available. Like many of these new technologies, the lane departure warning systems—which use cameras and sensors to alert a driver drifting from their lane—were first introduced by luxury brands. That has changed as more mainstream vehicles, such as the 2011 Ford Focus, feature

the same advanced capabilities. Related systems, including active blind-spot detection, cross-traffic alerts and backup cameras are also now appearing in vehicles across multiple price categories. These technologies alert drivers to unsafe situations through a variety of methods, including automated notifications such as subtle vibration in the steering wheel and the use of LED warning lights.

Part of the Driver Assist Package, Audi will be showcasing its "pre sense plus" technology in several vehicles making their North American debut—the 2012 S6, S7, S8 and A8 models. The integrated system anticipates and reacts to incidents using a radar-based Adaptive Cruise Control sensor, lane assist, side assist and controlled, automated braking.

BMW offers the Assist Safety Plan, a comprehensive protection platform including the SOS Emergency Request, remote Door Unlock assistance, Stolen Vehicle Recovery (a remote vehicle locator), and a Critical Calling feature for making emergency calls through the vehicle's embedded cellular technology.

Hyundai's safety solution is the new Blue Link platform, which offers Automatic Collision Notification (ACN) and Assistance on new vehicles including the 2012 Veloster, which will also be on the show floor this year. ACN is triggered when an airbag deploys, while the SOS system alerts safety specialists and enhanced roadside assistance via a dedicated button that automatically transmits vehicle information and location for rapid dispatch.

Mercedes-Benz ATTENTION ASSIST uses an algorithm to produce an individual driver profile that recognizes typical patterns of behavior and then compares that profile with current data from sensors to detect if the driver is tired. For example, if unintentional lane departures are detected, or delayed reaction times coupled with over-corrective steering, ATTENTION ASSIST will sound an alarm and offer a visual warning in the vehicle's instrument cluster.

Infotainment

Vehicles are no longer simply about getting from here to there. They have become an extension of the office and the living room thanks to advanced technologies that allow drivers to share, socialize, be informed and entertained, all while keeping their eyes on the road and hands on the wheel. For example, voice text messaging, found in vehicles equipped with connected systems such as Ford SYNC, enable drivers to safely send hands-free text messages, while Mercedes-Benz COMAND platform offers popular apps ranging from music services like Pandora, to social networks such as Facebook and Twitter.

At this year's Show, Cadillac will debut its new CUE (Cadillac User Experience) system. CUE has all of the bells and whistles we have come to expect from top infotainment systems: iPod integration, app capability (e.g. Pandora and Stitchert), Bluetooth hands-free technology for phoning and audio for wireless music streaming and AM/FM/HD/XM radio. It also boasts a BluRay rear-seat entertainment system and delivers new user interface advancements that emulate many of the swipe, tap, scroll and even pinch-to-zoom features that consumers have come to expect from the touch-screen interfaces of smartphones and tablets. CUE is scheduled to be available on the [Cadillac XTS](#) and [ATS](#) sedans and SRX crossover sometime in late spring of 2012.

Kia's Microsoft-powered UVO hands-free system is available on vehicles highlighted at the L.A. Show, including the Sportage LX, EX and Sorento, and gives drivers multiple voice commands and touch screen options that allow pairing with an MP3 player, ripping music from CDs and the ability to answer and place hands-free calls and text messages.

Custom Services

Hotels are no longer the sole domain of the concierge, as an increasing number of automotive marques now offer "always-on" services for users who can access plans such as BMW Assist, GM's OnStar, Hyundai's Blue Link and Infiniti's Personal Assistant. These services are enabled by technologies including cloud computing, Bluetooth hands-free communication and GPS, to provide a whole new level of function and service, such as voice text messaging, automated dispatching of emergency roadside assistance and even connecting with a live concierge for restaurant recommendations. Now, these services can be added to a broad range of vehicles with OnStar's FMV (For My Vehicle), an after-market solution integrated into a vehicle's rearview mirror that delivers a similar level of safety, navigation and communication technology.

One example of these custom services includes Infiniti's Personal Assistant, featured in all-new Infiniti models such as the JX luxury crossover, which makes its World Debut at the L.A. Auto Show. This is a 24-hour anytime/anywhere concierge service for anything from restaurant reservations to gift ideas. Part of Blue Link, Hyundai's Service Link manages maintenance schedules, offers an Eco-Coach to improve efficient driving and even delivers restaurant ratings.

The Entune-equipped 2012 Toyota Prius v offers a feature-set including integrated apps like Bing search, Pandora, OpenTable restaurant reservations, a search for movie times and even parental-oriented functions like a GeoFencing capability that sends text alerts if a vehicle strays from a predefined area.

Navigation

One of the first auto technology platforms appearing in vehicles over a decade ago, navigation has now become the most ubiquitous. Advanced GPS systems that navigate to destinations and locate Points of Interest (POIs) now also create custom itineraries, receive live traffic updates and respond to voice commands. Navigation has also become more integrated with other technologies, including telematics and Google data services, allowing for automated location-based alerts and customized map searches. For example, BMW's ConnectedDrive platform automatically recognizes a vehicle's position and can send a driver results for a pre-defined POI category, say a hotel, allowing them to select one and have it loaded into the nav system with the touch of a button.

Hyundai's Blue Link connectivity platform provides agent-assisted POI searches and downloads, such as locating the best gas prices, while allowing drivers to keep their eyes on the road and hands on the wheel. Blue Link packages are available on 2012 models on view at the Show including the Azera, Sonata and Veloster, and will be in the majority of Hyundai vehicles by 2013.

Mercedes-Benz's mbrace system, available in several vehicles on display at this year's Show, features an advanced navigation and destination planning database along with a companion app allowing drivers to send addresses and POIs from their smartphones. Mbrace also features live operator route assistance and the Drive2Friend feature, allowing a friend's location to be sent from their smartphone to a vehicle's navigation system.

These are just some of the latest advancements that can be experienced in many of the vehicles featured at this year's L.A. Auto Show.