TECHNOLOGY OVERVIEW

DENSO

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DENSO's V2X Technology
Be Connected. Be Safe. Be Green.

— A technology with the potential to save thousands of lives, billions of gallons of gas and hours of your time—

DETROIT – Safety and congestion are the two biggest problems on our roads today. According to the National Highway Traffic Safety Administration (NHTSA), more than 32,000 people died on U.S. roadways in 2010. Furthermore, NHTSA estimates traffic crashes cost the economy $299.5 billion per year. And, Americans waste about 3 billion gallons of fuel each year stuck in traffic – which amounts to billions upon billions of dollars and a not–so-green impact on the environment.

So, how do we save lives, save money and have a greener, cleaner automotive society? The industry calls it vehicle-to-vehicle and vehicle-to-infrastructure or V2X technology. Basically, this technology will allow your car or truck to communicate or "talk" with other equipped vehicles and roadway infrastructure – like traffic signals.

NHTSA is due to make a decision in 2013, whether to standardize it on future cars and trucks. Who can argue with a technology that could revolutionize roadway safety *and* alleviate traffic congestion *and* reduce emissions? That's why deploying V2X technology sooner is better.

How does V2X technology work?
Dedicated Short-Range Communications (DSRC) devices. DSRC is a two-way, short-range wireless communications technology designed for the auto industry. Basically, it's like Wi-Fi technology, allowing cars to wirelessly exchange data with other cars and traffic signals.

DENSO has been globally working on V2X technology since 2003, and one of our main focuses is on DSRC devices. The DSRC's primary function is to assess the surrounding environment based on precise data exchanges with other DSRC-equipped vehicles and roadside hotspots.

Vehicle-to-vehicle (V2V): Crash Prevention
The more vehicles equipped with DSRC devices, the more effective the technology. When all cars have V2X, it creates a 360-degree situational awareness for each vehicle's surroundings. The embedded computing device on each car can use information about nearby vehicles to calculate its current and future positions. This can help predict hazardous situations and alert drivers of precautions to avoid crashes.

Vehicle-to-infrastructure (V2I): Easing Congestion and Improving Fuel Efficiency
V2X can also support enhanced mobility and environmental responsibility. This same DSRC technology can provide advisories to in-vehicle systems on the timing of traffic signals to optimize fuel efficiency and time-saving driving habits. The DSRC will be able to "talk" with the signal to tell you how many seconds you have left at a red light or green light. It can also tell you what speed to drive (under the safest limit of course) to make all the green lights.

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Testing the Technology
Right now, DENSO's demonstration vehicles equipped with DSRC technology can communicate with traffic signals at select intersections in Michigan, including a six-mile stretch of Telegraph Road right outside DENSO's North American regional headquarters in Southfield, Mich. Similar test beds also exist in California, New York and Florida.

In addition, the United States Department of Transportation (USDOT) has been conducting a series of first Connected Vehicle Driver Acceptance clinics throughout the country for drivers to test the technology and provide feedback. And, in fall 2012, USDOT is launching a Model Deployment in Ann Arbor, Mich., where they will equip about 3,000 cars, as well as many traffic signals with DSRC technology to continue gathering real-world feedback. DENSO's DSRC devices will be included in the Ann Arbor Model Deployment.

DENSO fully supports V2X technology and expects deployment in the U.S. in the next few years.

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