Getting the Green Light - Connectivity between Vehicle and Infrastructure

DETROIT, /PRNewswire/ -- We have all "willed" a red light to turn green, right? Well, I know I have. But, it doesn't always go my way. While you may not have this ability, what if I told you that your car might be able to make this happen? Pie in the sky talk? I'll suggest otherwise.

A world where cars talk to each other and traffic lights isn't so far off. It's actually right around the corner. We could see it come out as early as 2015. We have the technology today. It's a matter of how the technology will be deployed tomorrow.

Safety and congestion are the two biggest problems on our roads today. According to the National Highway Traffic and Safety Administration (NHTSA), more than 33,000 people died on U.S. roadways in 2009. Furthermore, NHTSA estimates that traffic crashes cost the economy $230 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 (V2X) technology. The United States Department of Transportation (USDOT) has initiated a substantial Intelligent Transportation Systems (ITS) research program called IntelliDrive(SM), which is focused on advancing connectivity among vehicles and roadway infrastructure to improve the safety, mobility and environmental impact of our nation's transportation system. The USDOT is working with all major automakers and many suppliers to test and investigate this technology.

The IntelliDrive(SM) vision is a future where vehicles and infrastructure are connected to prevent crashes and reduce congestion. This fits in nicely with DENSO's long-term vision to have an accident-free automotive society. In addition, one of DENSO's managing principles is environmental preservation - V2X can help us in that effort.

So, how will our cars and traffic signals communicate with each other? By Dedicated Short-Range Communications (DSRC) devices. DSRC is a two-way, short-range wireless communication technology designed for the automotive industry. Put more simply, DSRC is like the WiFi technology you use when you surf the internet at Starbucks – your PC or Smart phone engages in a wireless data exchange. That's basically what cars will do with traffic signals and other cars.

DENSO has been 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 accurate and precise data exchanges with other vehicle DSRC transceivers and roadside hotspots. The data exchanges include a

vehicle's location, velocity, acceleration and path history, which can enable on board computers to predict trajectories and reduce the likelihood of collisions.

That same data, along with additional information from the traffic signal can also help drivers avoid running red lights and prevent crashes at controlled intersections (roadside hotspots). And, let's not forget about seeing more of those green lights. Communication between vehicles and intelligent transportation management systems could change the landscape for coping with future economy and ecology requirements. Broadcasted vehicle data, when coordinated with traffic signal timing, can easily enable more efficient travel from point A to point B by minimizing the time everyone spends at red lights.

Right now, DENSO can test the technology at two specially equipped intersections in Michigan and several in California. In the next few months, DENSO's demonstration vehicles equipped with DSRC technology will be able to communicate with all the traffic signals on a six-mile stretch of Telegraph Road right outside DENSO's North American regional headquarters in Southfield, Mich.

What information will be communicated, you ask? 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.

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, rather than later is better.

But for this V2X technology to work most effectively, it should be on as many vehicles as possible, as soon as possible. And it would also be great if a lot of roadside communications hotspots (i.e. traffic signals) were equipped. So, are we ready? We're not quite ready yet today – but, it's not so far off that we shouldn't be thinking of ways to get it into the market now.

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