Daimler initiates a Europe-wide V2X communication project

Working together for more safety in road traffic

In cooperation with HERE Technologies, TomTom and the transport authorities in six European countries, Daimler, BMW, Ford and Volvo are testing how information about acutely hazardous situations can be passed on using Car-to-X technology. The project partners signed a memorandum of understanding (MoU) in Eindhoven, Netherlands where the twelve-month test phase will begin.

How can information about a sudden hazard, such as slippery conditions or an accident, be passed on to following or approaching traffic as quickly as possible? Since 2013, Daimler has used mobile networking technologies as standard to send hazard warnings from vehicle to vehicle (V2V). For the first time, leading OEMs and navigation services are now working on a joint, non-manufacturer specific and EU-wide solution, with transport ministries in Germany, Spain, Finland, Luxembourg, the Netherlands and Sweden supporting the project. The aim of the pilot project is to conduct research into the technical, economic and legal aspects of V2X, the term used to describe communication between vehicles and with the transport infrastructure.

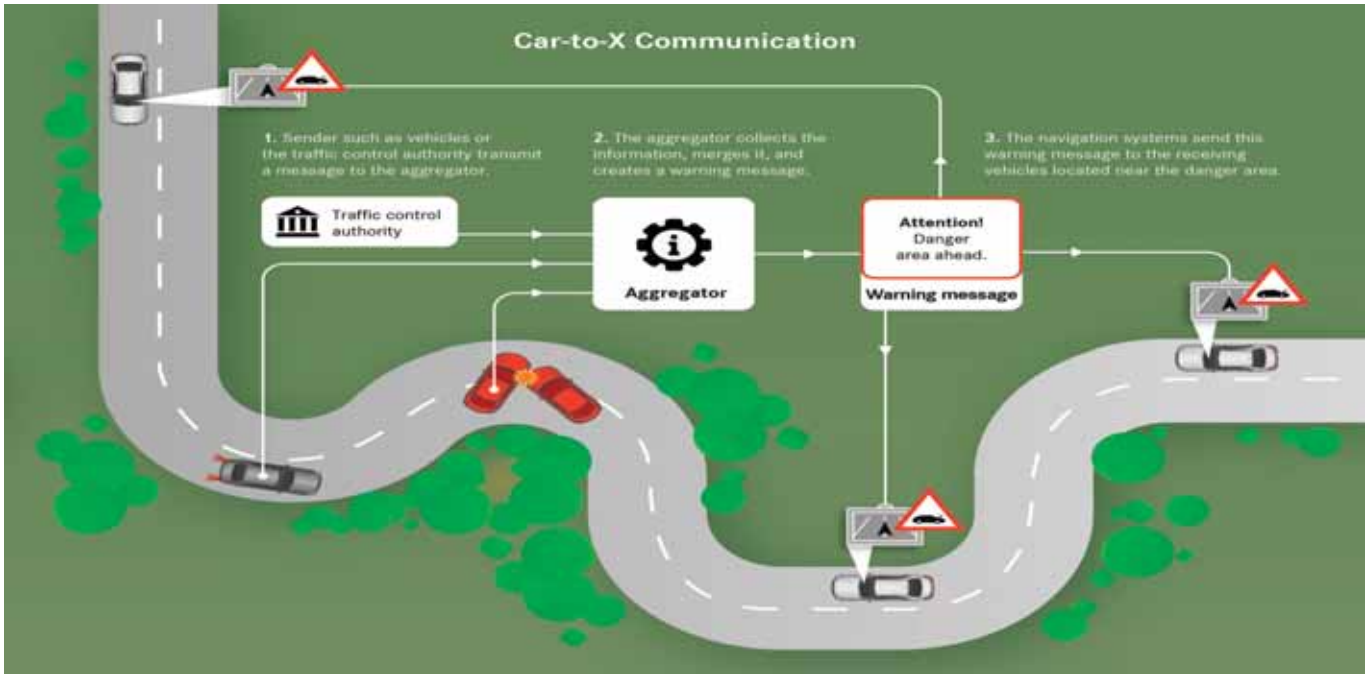
Sajjad Khan, Executive Vice President, Member of Divisional Board, Mercedes-Benz, CASE said: "V2X communication has the potential to significantly improve safety on the roads. With this project, we are raising previous approaches to a new level. For the first time, we have numerous highly capable and effective partners on board, so that warning messages can reach many road users practically in real time, which can save lives. Daimler already laid the foundations for this development years ago and today, Mercedes-Benz vehicles are equipped with the technology needed for the wide-based and secure exchange of safety-related traffic information."

The focus of the project is on the "Safety Related Traffic Information" (SRTI) discussion at EU level. With this initiative, the project partners are supporting the EU Commission in its efforts to promote the development of networked and intelligent transport systems. The long term objective of the EU is to substantially reduce the number of fatalities and severe injuries in road traffic by 2050 and an improved flow of information could make a decisive contribution. EU Directive 866/2013 stipulates that a minimum level of general, road safety-related traffic information is to be made available to all users free of charge wherever possible. This MoU is based on the political initiative.

The project partners are working on the principle of non-technology-specific testing and further development of information flows using V2X technology and already installed mobile radio-based communication systems will be used for the pilot project.

Data flow: how the information is transferred

The project partners used examples



to demonstrate how information is passed on using V2X communication. Three scenarios were used, where a "transmitter" simulated a breakdown or other hazardous situation.

- Scenario 1: The driver of a Mercedes-Benz vehicle activates the hazard warning system.
- Scenario 2: The driver of a BMW sends out an emergency call ("eCall").
- Scenario 3: A traffic management centre warns of a sudden hazard in the area (e.g. mobile roadworks).

The two "transmitter" vehicles were positioned along a route and the "receiver" vehicles (test vehicles provided by Mercedes-Benz, BMW and Ford) drove along this route to simulate following or oncoming traffic in a critical traffic situation. Immediately after the first impulse by the "transmitters", the occupants of the "receiver" vehicles received a message via their onboard systems.

The data are transferred on the following principle: each action initiates an impulse, and therefore a flow of data. A message is anonymised by the transmitter (the vehicle or the traffic authority) and sent to a so-called "aggregator", usually by mobile radio. This is the role of the experts in navigation systems, in this case TomTom and HERE.

Under real conditions, the aggregator collates the information and bundles it until a critical number of messages has been reached. The aggregator then becomes a service creator and compiles a warning message through the navigation systems or the communication systems of the automobile manufacturers, which in turn is sent to the receiver vehicles in the vicinity of the hazard. Due to the high market penetration of the navigation services involved, many road users are therefore able to prepare for an acute traffic hazard.

Over the next twelve months, the project will focus on matters of data compatibility and cloud-based data processing. Initially, the companies taking part will use the currently installed communication technologies and, where necessary, develop them further and harmonise them in the next stage. Cooperation between the project partners will start in the Netherlands and is to be gradually extended to other EU countries.

Data security always has top priority in the project. During the period of the pilot project, the information will flow within a closed "eco-system" to which only the project partners have access. Daimler will only use the test fleet for the project – no customer data will be collected. Moreover, the Mercedes-Benz vehicles involved will send all their data in anonymised form: each message will only contain information about the incident and a time stamp. No reference is made to the transmitter vehicle.

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