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## **PRESS RELEASE**

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## **Cars with the gift of second sight**

### **When the car warns the driver about impending collision – Satellite based driver assistance system for increased road safety in urban areas**

Braunschweig, November 2011

A consortium of nine European companies, including global players like Volkswagen AG and TomTom International BV, participated in the research project GENEVA which was funded under the 7th European Framework Programme. Goal was the development of innovative safety relevant advanced driver assistant systems for high precision, reliable and certifiable use. These applications support and assist the driver by monitoring the traffic situation.

GENEVA in particular addressed two specific intersection scenarios to demonstrate collision avoidance: the left turn assistance, where the driver is informed about oncoming traffic and the stop-line assistance, when the traffic light indicates 'stop'. This special positioning system for urban areas stands out by its accurate integrity monitoring, high position accuracy, and unlimited scalability. Existing map technologies are enhanced with additional attributes, such as stop lines and lane indicators which provide the underlying information for safety-related driver assistance systems in urban areas.

GENEVA has strategic importance in the implementation of European satellite navigation initiatives, EGNOS and Galileo, in the automotive industry, one of the biggest and economically important markets.

Already available and new ADAS ideas warn the driver in an acceptable time about any potential critical situation. Such systems must perceive the actual traffic situation. This includes the static traffic situation, such as lanes, stop lines, or traffic control systems, as well as the dynamic traffic situation such as other road users or the status of traffic light signals. In order to support the driver at intersections, the vehicle has to detect its own geographic position and to identify the ego lane. Although cartographic data is available for all European regions, it does not provide the accuracy combined with the level of detail required by ADAS to support drivers at intersections. Satellite navigation on the other hand suggests itself as a technological solution for high accuracy positioning. Especially the combination of GPS, EGNOS, and Galileo holds a chance to improve road safety significantly because it offers more accuracy, availability, and reliability of satellite signals.

To determine in which lane the car is positioned and therefore what implications this will have at the next intersection satellite navigation signals have to be combined with sensors, such as odometers or inertial sensors and high accuracy maps. Additional information, such as the

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car indicator or data from stereoscopic cameras support the system in the situation perception. This increases redundancy, improves system functionality, and increases reliability.

Information about the position of all vehicles at an intersection itself can then be exchanged using car-to-car or car-to-infrastructure communication. Additionally installed radar and lidar sensors in the vehicles help to also recognise non-motorised road users such as cyclists and pedestrians.

Advanced driver assistance systems (ADAS) as developed in GENEVA support the driver by monitoring the traffic situation. The intelligent use of modern technology increases the safety and security of vehicle passengers during an accident, but even more importantly, prevent the accident happening. Therefore the number of fatalities and serious injuries in road traffic has declined consistently in recent decades.

During the Final Demonstration Event in Wolfsburg on November 22<sup>nd</sup> 2011 more than 60 experts, including from the European GNSS agency (GSA), the automotive industry, map and content providers, GNSS technology providers, and research organisations had the opportunity to experience the outcome of the project GENEVA. The achievements of almost two years of research Galileo / EGNOS Enhanced Driver Assistance have been presented and discussed. Highlight for most of the guest was of course the live demonstration of the developed assistance systems on a ride inside the equipped test vehicle during a real life intersection scenario.

(4264 characters, 620 words)

### **Information about GENEVA**

The research and development project GENEVA (Galileo / EGNOS Enhanced Driver Assistance) is partly funded by the European Commission, represented by the European GNSS Agency (GSA) in the 7th Framework Programme. Thus, GENEVA is one of several R&D projects which push the research and the introduction of the European satellite navigation system Galileo in various application domains. In the context of Galileo, GNSS technologies, in particular of EGNOS/EDAS and Galileo, shall be adopted for advanced driver assistance systems for high precision, reliable and certifiable service. The GENEVA consortium consists of OECON Products & Services GmbH (Germany), Volkswagen AG (Germany), Fraunhofer IIS (Germany), TeleConsult Austria GmbH (Austria), TomTom International BV (The Netherlands), NavCert GmbH (Germany), The 425 Company Ltd (United Kingdom), Institute of Flight Guidance and Control of the Technical University Braunschweig (Germany), Institute de Geomàtica (Spain).

### **Information about Galileo**

The Galileo programme is Europe's initiative for a state-of-the-art global satellite navigation system, providing a highly accurate, guaranteed global positioning service under civilian control. While providing autonomous navigation and positioning services, the system established under the Galileo programme will at the same time be interoperable with GPS and GLONASS, the two other global satellite navigation systems. The fully deployed system will consist of 30 satellites and the associated ground infrastructure.

### **Information about EGNOS**

EGNOS (European Geostationary Navigation Overlay Service) is the geostationary navigation augmentation service for Europe and is a satellite-based system for the improvement of radio navigation signals. EGNOS provides correction data that can improve

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the accuracy of current GPS signal from about ten to about two meters. EGNOS is the first European project in the field of satellite navigation. It paves the way for Galileo - Europe's independent global satellite navigation system currently under development. The EGNOS open service is now available for use.

### **Information about OECON Products & Services GmbH**

OECON Products & Services GmbH has been a successful service provider for telematics, applications in aviation and mobile positioning for more than 17 years. As integrator of mobile positioning technologies its competence includes technology fields in the area of satellite positioning systems GPS/GLONASS/GALILEO, positioning within mobile networks (GSM/UMTS) and positioning systems in wireless radio networks (RFID/Bluetooth/WLAN).

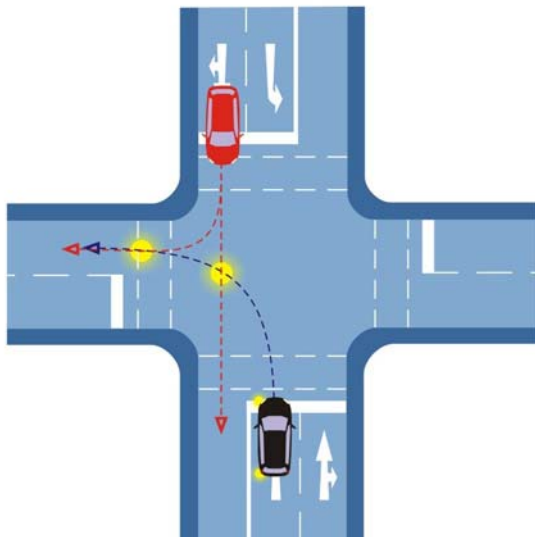
### **Information about European GNSS Agency**

The official European Union regulatory authority, the European GNSS Agency (GSA) manages public interests related to European GNSS programmes. GSA strategic objectives include the achievement of a fully operational GALILEO system. This includes the laying of foundations for a fully sustainable and economically viable system and its security. Moreover, GSA's key stated objective is to make GALILEO not just a functioning system but also the world's leading satellite navigation system for civilian applications.

### **Information about 7th Framework Programme**

The 7th Framework Programme bundles all research-related EU initiatives together under a common roof playing a crucial role in reaching the goals of growth, competitiveness and employment. The broad objectives of the 7th Framework Programme have been grouped into four categories: Cooperation, Ideas, People and Capacities. For each type of objective, there is a specific programme corresponding to the main areas of EU research policy. All specific programmes work together to promote and encourage the creation of European poles of (scientific) excellence.

## **Illustration**



The advanced driver assistance system has to recognise oncoming vehicles in a left-turn scenario.

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