

Driving at the Press of a Button

At the HAVEit Final Event, 17 partners from the European automotive industry and scientific community are set to demonstrate the highly automated future of driving. The EU funded project aimed at increasing driving safety and boosting the European automotive industry in the international market.

Frankfurt am Main / Borås (Sweden), 21 June 2011. An automated vehicle drives through a narrow construction site, and the driver does not steer, accelerate or brake one single time. Another car passes the vehicle in front of it, after the driver pushes the appropriate button. A truck recognizes a traffic jam and automatically slows down. All of these highly automated driving features have been developed through the collaboration of the European automotive industry and scientific community, with an eye toward making driving safer, more environmentally-friendly and more comfortable. The developments will be presented today and tomorrow at the Final Event of the EU funded research project HAVEit (“Highly automated vehicles for intelligent transport”) in Borås (Sweden) and at the nearby Hällered Volvo test track. Seven demonstration vehicles will be on display.

“In view of increasing traffic density, the growing flood of information available to drivers and the rising average age of the population, highly automated vehicles will characterize the future of mobility. Automation will relieve drivers of some of the stress of driving as it guides them through traffic more efficiently, using more environmentally friendly technology”, said HAVEit project coordinator Dr. Reiner Hoeger. 17 partners from the European automotive industry, including Continental, Volvo Group, Volkswagen and the German Aerospace Center (DLR), worked together to develop vehicle concepts and technologies through this project. The consortium received financial support from the European Union. Aside from networking technical innovations from research and science, HAVEit also aimed to secure the top spot in the international automotive industry for Europe and to tie together research and development resources. Partners from various EU member states are working on an interdisciplinary basis in projects like HAVEit, to strengthen Europe’s international competitive position in a market full of technical challenges.

Highly automated vehicles can take over three main driving functions: steering (lateral automation), path planning (longitudinal automation) and navigation. The aim is to make driving easier for people and create highly automated systems which they can use intuitively.

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As part of the HAVEit project, three automation modes which can be selected and activated by drivers were developed and implemented in all demonstration vehicles. In the first mode, the driver steers the vehicle alone, *assisted* by already-available standard driver assistance systems, such as lane keep assist or an emergency brake assist. In *partly* or *semi-automated* mode, the vehicle drives with longitudinal automation, so drivers no longer have to accelerate or brake. At the level of *high automation*, lateral automation comes into play, meaning the driver no longer has to steer. Despite the level of automation selected, the driver is always fully responsible for maneuvering the vehicle and can take control in place of the system at any time. The driver also has to monitor the vehicle's driving maneuvers. In the partly and highly automated modes, the system observes the driver with the help of a camera located inside the vehicle. The moment the driver stops paying attention to the road, the assistant prompts them to take control of the wheel. The German Aerospace Center (DLR) and the Wuerzburg Institute of Traffic Sciences (WIVW) developed the concepts of adaptive communication between the driver and the automated vehicle.

Seven vehicles will be presented at the project's Final Event today, and these will be separated into two groups:

- Four vehicles are concerned with the development of driver assistant features for innovative safety, comfort and environmentally-friendly driving. They display integrated features made possible through technology which is already widely available. The applications which have been developed within the framework of this project are an *Automated Assistance for Roadworks and Congestion* and a *Temporary Auto-Pilot*. Each of these features will be demonstrated in one vehicle each. *Automated Queue Assistance* will be demonstrated in a truck. An *Active Green Driving* hybrid bus will also be presented.
- The other three vehicles will draw attention to innovative components of safety design: These vehicles will display designs and a migration strategy for highly automated driving. In addition, by-wire actuators have been developed to open the way for fully automated driving. The applications which have resulted from this include a *Brake-by-Wire Truck for Open Roads*, a *Joint System Interaction* and an *Architecture Migration Demonstrator* vehicle.

Having created the foundation for the development of a series of highly automated features, the HAVEit project is a huge milestone for the future of mobility. “The aim of the project was to develop ideas which we could actually implement within the foreseeable future and which could be brought to the streets,” Dr. Hoeger said. “Several of the ideas we have developed in the HAVEit project could be further developed and start series production within the next five to ten years.” In the process, HAVEit has also shown how Europe’s spirit of research and entrepreneurship can discover shared answers and solutions for the mobility of the future.

About HAVEit

The EU funded R&D project HAVEit („Highly Automated Vehicles for Intelligent Transport“) is set to develop research concepts and technologies for highly automated driving. This will help to reduce the drivers’ workload, prevent accidents, reduce environmental impact and make traffic safer. Launched in February 2008, 17 European partners from the automotive and supply sector as well as from the scientific community collaborate in the project. In total, investments of EUR 28 million were made into HAVEit, EUR 17 million of which were EU grants and EUR 11 million were contributed by the 17 partners, of which EUR 7 million are invested by the automobile industry. The HAVEit consortium consists of vehicle manufacturers, automotive suppliers and scientific institutes from Germany, Sweden, France, Austria, Switzerland, Greece and Hungary:

Continental, Volvo Technology AB, Volkswagen AG, EFKON AG, Sick AG, Haldex Brake Products AB, Knowllence, Explinovo GmbH, German Aerospace Center (DLR), Ecole Polytechnique Fédérale de Lausanne (EPFL), University of Athens, Institute of Communications and Computer Systems (ICCS), University of Applied Sciences Amberg-Weiden, Budapest University of Technology and Economics, Universität Stuttgart, Institut für Luftfahrtsysteme, Wuerzburg Institute of Traffic Sciences GmbH, Institut National de Recherche en Informatique et en Automatique (Inria), Institut français des sciences et technologies des transports, de l'aménagement et des réseaux (IFSTTAR).

For further information please visit: www.haveit-eu.org

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