

Siemens campus in Munich-Perlach to field-test autonomous driving

- **Research project for an optimized transport system (OTS)**
- **Mobility offering for the first and last mile**
- **Testing the interplay of intelligent infrastructure, cloud-based software services and autonomous electric vehicles**

Siemens Mobility is launching a field test for autonomous driving at the Siemens campus in Munich-Perlach, Germany. Working with partners IAV GmbH, Institute for Climate Protection, Energy and Mobility (IKEM) e.V., emm Solutions GmbH, UTB Projektmanagement GmbH and the Technical University of Munich (TUM), Siemens Mobility is initiating a research project and field test. The test route runs through the campus and enables traffic simulation in a variety of real-life situations.

The project partners will work together testing the interaction between roadside infrastructure, cloud-based software services and autonomous electric vehicles. Two types of vehicles will be used to research the interplay of intelligent infrastructure and vehicles: a highly automated single-seat car and a shuttle bus. For the tests, utility poles along the route have been equipped with laser scanners, radar units and cameras to monitor the overall traffic environment and precisely locate the vehicles.

“Our research project is another milestone to serving the so-called first and last mile in a multimodal mobility mix that includes autonomous vehicles. Our infrastructure is a critically important component for providing secure and efficient on-demand transportation in urban and rural areas,” said Michael Peter, CEO of Siemens Mobility.

Providing an adequate spectrum of sustainable mobility options is a key responsibility of cities and municipalities. Strengthening and expanding public transport offerings is essential for serving the growing mobility demands of urban populations. The project, "Optimized transport system based on autonomous driving electric vehicles" (OTS 1.0), is funded by Germany's Federal Ministry for the Environment, Nature Conservation and Reactor Security (BMU). It aims to develop a system that provides autonomous driving options for the first and last mile of a journey, a need that is often neglected today.

Throughout the project, the partners will demonstrate how autonomous electric vehicles can improve road safety and efficiency while operating at the highest Level 5 autonomy, with no driver intervention. To achieve this, the Siemens Mobility's intelligent infrastructure continually feeds vehicles with comprehensive information, such as general traffic conditions and data about other vehicles operating along the route. This approach supports autonomous vehicles in complex traffic situations and difficult to monitor areas, such as under prevailing weather conditions. With external support, the monitored operating radius of a self-driving vehicle can be significantly expanded. The intelligent infrastructure enables vehicles to quickly identify potential risks and respond accordingly. As a result, the integrated system helps optimize traffic flows. The system's vehicle-to-infrastructure communication (V2I) operates via the standardized and extensively tested WLANp (ITS-G5). The entire system is supplemented by software solutions that enable traffic managers in a traffic control center to closely monitor the traffic situation, and intervene if necessary. This substantially increases the safety and efficiency of road transport. To improve the passenger experience, passengers in the self-driving vehicles can easily download their route itinerary with an app.

The research project will bring together experts from various disciplines. The Institute for Climate Protection, Energy and Mobility (IKEM) manages legal issues relating to autonomous driving and, together with Siemens Mobility, researches operator and business models that are derived from technical developments. IAV is developing a prototype for barrier-free, autonomously operating shuttles. TU Munich is using microscopic simulations to study the impact of different forms of autonomous driving on traffic. As part of a study on public acceptance, the Berlin-based project development bureau, UTB, is investigating how people react to

autonomous vehicles and how technological developments must take this into account. Emm Solutions GmbH is providing its highly automated ILO1 electric vehicle to help improve monitoring the environment, the vehicle's geopositioning and communication management between vehicle and infrastructure. Driving behavior will also be simulated. Siemens Mobility is responsible overall project integration as well as the roadside infrastructure and cloud-based software services. It will also evaluate various potential business and operating models.

This press release, press photos and additional material are available at:

www.siemens.com/press/autonomous-driving

Contact for journalists

Ellen Schramke

Phone: +49 30 386 22370; E-mail: ellen.schramke@siemens.com

Follow us on Twitter: www.twitter.com/SiemensMobility

For further information about Siemens Mobility GmbH, please see:

www.siemens.com/mobility

Siemens Mobility is a separately managed company of Siemens AG. As a leader in transport solutions for more than 160 years, Siemens Mobility is constantly innovating its portfolio in its core areas of rolling stock, rail automation and electrification, turnkey systems, intelligent traffic systems as well as related services. With digitalization, Siemens Mobility is enabling mobility operators worldwide to make infrastructure intelligent, increase value sustainably over the entire lifecycle, enhance passenger experience and guarantee availability. In fiscal 2017, which ended on September 30, 2017, the former Siemens Mobility Division posted revenue of €8.1 billion and had around 28,400 employees worldwide. Further information is available at: www.siemens.com/mobility.