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HELLA and TÜV Rheinland: New "Traffic Rule Engine" software for autonomous vehicles

- Software module knows the applicable local traffic regulations and thus enables autonomous vehicles to behave in accordance with the rules
- In comparison to closed systems, the "Traffic Rule Engine" can be continuously updated via over-the-air updates
- HELLA focuses on software development and the database, TÜV Rheinland provides support with type approval

Automotive supplier HELLA, who operates under the FORVIA umbrella brand, and TÜV Rheinland have agreed to cooperate in the field of autonomous driving. The aim of the collaboration is the market-compliant development of a new "Traffic Rule Engine": this new software module knows the applicable local traffic regulations and thus enables autonomous vehicles to behave in accordance with the rules.

The collaboration between the automotive supplier and the testing service provider focuses on automated vehicles with SAE level 3 and higher. Vehicles at this stage of development have a system that enables at least temporary autonomous driving. Drivers can therefore turn away from road traffic in certain situations and turn their attention to other things. In this mode, the responsibility for driving the vehicle is transferred from the driver to the manufacturer.

"When highly automated vehicles are to manage driving situations autonomously and without human intervention, they must know the applicable rules of the road at all times and be able to control them without restriction. With the Traffic Rule Engine, we are creating a powerful technological basis for this and, in cooperation with TÜV Rheinland, are completely covering the process chain from start to finish," says Kay Talmi, Managing Director of Hella Aglaia, a Berlin-based subsidiary of HELLA that specialises in software development.

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For this reason, a software module is being developed that monitors the planned actions of the vehicle and compares them with the current traffic regulations based on sensor and map data. If a deviation is detected, feedback is sent to the driving system in real time. To ensure that the latest traffic regulations of a country are used at all times, the software module can be updated continuously and cost-effectively via over-the-air updates compared to closed systems.

As part of the collaboration, Hella Aglaia is focussing on the development of the "Traffic Rules Engine" with the underlying traffic rules database and the algorithm used to execute the corresponding rules. TÜV Rheinland's priorities include taking into account the approval-relevant requirements for the Traffic Rule Engine software and the type approval of automated and autonomous vehicles.

"The rapid pace of digitalisation is driving mobility forward, but at the same time it is also presenting developers, manufacturers, approval authorities and national and European legislation with new challenges," says Thomas Quernheim, Global Director Engineering and Homologation at TÜV Rheinland. "We often accompany and support innovations with our expertise long before the approval-relevant stages of the product life cycle begin. We were the first in the world to successfully achieve approvals at automation levels 3 and 4."

The "Traffic Rule Engine" will now be presented to the public for the first time at the Consumer Electronics Show 2024 (CES), which takes place from 9 to 12 January in Las Vegas. The next step will be to extend the development to various car manufacturers. Target markets are initially Europe and North America.

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About TÜV Rheinland:

Safety and quality in almost all areas of business and life: That's what TÜV Rheinland stands for. The company has been active for more than 150 years and is one of the world's leading testing service providers. TÜV Rheinland has more than 20,000 employees in over 50 countries and generates annual sales of around 2.3 billion euros. TÜV Rheinland's highly qualified experts test technical systems and products around the globe, accompany innovations in technology and business, train people in numerous professions and certify management systems according to international standards. In this way, the independent experts ensure trust along global flows of goods and value chains. Since 2006, TÜV Rheinland has been a member of the United Nations Global Compact for more sustainability and against corruption. Website: www.tuv.com

[ABOUT HELLA](#)

HELLA is a listed, internationally positioned automotive supplier operating under the umbrella brand FORVIA. Within this de facto group, HELLA stands for high-performance lighting technology and automotive electronics. At the same time, the company covers a broad service and product portfolio for the spare parts and workshop business as well as for manufacturers of special vehicles with its Lifecycle Solutions Business Group. HELLA has around 36,000 employees at more than 125 locations worldwide and generated sales of € 4.4 billion in the seven-month short fiscal year 2022.

[ABOUT FORVIA](#)

FORVIA combines the technological and industrial strengths of Faurecia and HELLA, which complement each other perfectly. With over 300 industrial sites and 76 R&D centres, 157,000 employees, including more than 15,000 R&D engineers, in over 40 countries, FORVIA offers a unique and comprehensive approach to the automotive challenges of today and tomorrow. FORVIA consists of six business groups with 24 product lines and a strong portfolio with over 14,000 patents. FORVIA strives to become the preferred innovation and integration partner for OEMs worldwide. FORVIA has set itself the goal of recognising the change in mobility at an early stage and putting it into practice.