

Lippstadt, 21 September 2022

SHAKE Road Condition Sensor Supported on NVIDIA DRIVE Hyperion Platform

- Structure-borne sound sensor SHAKE identifies road conditions and detects water film on road surfaces
- Sensor technology complements existing assistance and safety systems, enabling vehicles to “see”, “feel” and “hear”
- HELLA 77 GHz radar sensors also qualified for NVIDIA autonomous-vehicle development platform

HELLA, the automotive supplier operating under the FORVIA umbrella brand, announced today its innovative Structural Health and Knock Emission (SHAKE) sensor for road condition detection is now supported on the NVIDIA DRIVE Hyperion autonomous-vehicle development platform. With the SHAKE sensor, vehicles are able to hear and feel the environmental noise spectrum, analyse those characteristics, and initiate actions for driver safety and comfort.

NVIDIA’s production-ready DRIVE Hyperion platform includes a computer architecture, software, and a safety-certified sensor suite, in order to accelerate development and simplify integration. Designed to be modular, the platform enables manufacturers to use what they need for their unique vehicle requirements. In addition to the SHAKE road condition sensor, HELLA’s 77 GHz radar sensors are supported on DRIVE Hyperion.

As a member of NVIDIA’s DRIVE ecosystem, HELLA is the first supplier to offer a solution for accurate, real-time measurement of the water level on roads. The SHAKE sensor detects vibrations and airborne sound from water drops that have been stirred up and uses this to determine the degree of wetness between the tyre and the road. Previous solutions addressed this issue by calculating the amount of water using high-powered cameras. However, these technologies cannot offer enough information to drivers or self-driving systems to make critical driving decisions.

“Our SHAKE sensor outperforms any technology with a similar scope that is currently available and challenges common thinking about what a car can achieve. By using a

smart sensor, a vehicle can now not only see, but also hear and feel its surroundings,” said Marco Döbrich, head of the Sensors business field at HELLA.

“The ability to augment the environmental-sensing capability vision of radars, lidars and cameras with the HELLA SHAKE road condition sensor will improve autonomous vehicle safety,” said Gary Hicok, senior vice president, at NVIDIA. “Providing current, precise road-condition data will enable vehicles to adapt automated functions for safe driving in real time.”

HELLA has developed the SHAKE sensor for road condition sensing to improve vehicle awareness by detecting structure and airborne sounds via a piezoelectric film element. This element’s acute sensing capabilities give car systems the information they need to make critical driving decisions. For example, assistance systems can predict the braking distance depending on the wetness of the road; adjust the control systems of the longitudinal and lateral dynamics; and actively adapt a car’s distance to the vehicle in front of it.

The piezoelectric film element, core to the sensor, is able to detect all types of structure and sound-borne waves, including wave frequency and duration. The advanced sensor can even differentiate between contact from a water splash on the sensor and that of gravel hitting it.

Please note: This text and corresponding photo material can also be found in our press database at: www.hella.com/press

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-purpose vehicles with its Lifecycle Solutions business group. HELLA has around 36,000 employees at more than 125 locations worldwide and generated consolidated sales of € 6.3 billion in the fiscal year 2021/2022.

About FORVIA

FORVIA brings together the technological and industrial strengths of Faurecia and HELLA, which optimally complement each other. With more than 300 industrial locations and 77 R&D centres, 150,000 employees, including more than 35,000 engineers, in more than 40 countries, FORVIA

offers a unique and comprehensive approach to the challenges of the automotive sector both today and tomorrow. FORVIA is composed of six business groups with 24 product lines and a strong portfolio with more than 14,000 patents. FORVIA is focused on becoming the preferred innovation and integration partner for OEMs worldwide. FORVIA is committed to identifying mobility change at an early stage and translating it into practice. www.forvia.com

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