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HELLA develops series production-ready key components for all-electric steer-by-wire system

- The steer-by-wire system enables the steering to be flexibly adjusted to the specific customer or situation and opens up new design possibilities in the vehicle interior
- The all-electric steering system is being developed together with other partners; HELLA is contributing essential key components
- The development partner is Geely's Lotus Tech Innovation Centre and the steering system will be rolled out to other customers within and outside the Geely Group

The automotive supplier HELLA, which operates under the umbrella brand FORVIA, is pressing ahead with the development of a series production-ready steer-by-wire system solution together with other partners. With this technology, steering commands are transmitted fully electrically without the assistance of mechanical or hydraulic components. This kind of steer-by-wire system could be in use from 2026. It will initially be made ready for series production together with the Lotus Tech Innovation Centre (LTIC), which is the research and development centre of the automobile manufacturer Geely. Subsequently, it is planned that the system be rolled out to other customers inside and outside the Geely Group.

"Steer-by-wire is one of the main technologies paving the way to the automated, software-based vehicle. As a highly efficient supplier of indispensable safety-relevant components for fully electric steering systems, we are at the forefront of shaping this trend," remarks Björn Twiehaus, Managing Director responsible for the Electronics Business Group at HELLA.

Since on the one hand steer-by-wire steering systems dispense with mechanical or hydraulic components, notably the steering rod, the settings of the steering system can be adapted to the customer or situation. For example, the software that controls the steering system can be used to switch flexibly between comfort and sport modes, and the steering angle range, steering assistance and active power feedback can be adapted to the requirements of the particular driving situation. There is also no longer a rigid relationship between steering movement and wheel behaviour, which means the required steering wheel lock angle can be reduced, especially at low speeds.

On the other hand, as the hardware components have been eliminated, there is now a whole new range of design options for the interior. With all-electric steering systems the steering wheel in particular can be completely stowed away in the dashboard, for example. This is an essential basic requirement for more advanced levels of automated driving, where the driver can relinquish control of the vehicle and, for example, relax or turn to other activities. The space freed up could also be used for larger dashboards or head-up displays. "There is further potential here, not least through cooperation with Faurecia, with regard to the design and functional scope of the vehicle interior as well as the cockpit area," remarks Electronics Managing Director Björn Twiehaus.

The steer-by-wire system is being developed in a network which, in addition to HELLA as a major subsystem supplier and LTIC as the launch customer, consists of other partners. In this context, HELLA contributes two central components: the sensors and the control electronics: The Hand Wheel Actuator therefore detects the respective steering movement and passes this on to the Road Wheel Actuator via the electronics, which in turn adjusts the wheels accordingly. In addition, because both components communicate continuously, information can be fed back, when the vehicle comes into contact with kerbs for example. These components are being developed at the company's headquarters in Lippstadt, in France and India.

"With the series development of key components for all-electric steering systems, we are further expanding our strong market position in this forward-looking field of technology," adds Electronics Managing Director Björn Twiehaus. The series development of fail operational designs of steering electronics is already underway at HELLA for example. Using redundant architecture, this ensures that vehicle control is unrestricted even in the event of a potential fault. HELLA is thus expanding its expertise in the field of X-by-Wire technologies. HELLA, for example, recently received the world's first large-volume order for a completely electric brake pedal sensor, which will go into series production in 2025.

Note: This text and corresponding photo material can also be found in our press database at: www.hella.de/presse

About HELLA

HELLA is a listed, international automotive supplier that operates under the FORVIA umbrella brand. Within the de facto group, HELLA stands for high-performance lighting technology and vehicle 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 Business Group Lifecycle Solutions. 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 combines the technological and industrial strengths of Faurecia and HELLA, which complement each other perfectly. With more than 300 industrial locations and 77 R&D centres, 150,000 employees including 35,000 engineers and with a presence in over 40 countries, FORVIA offers an unique all-encompassing approach towards 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 of putting this into practice. www.forvia.com

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