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HELLA develops intelligent system components for the automated charging of electric vehicles

- The electronic charging lid actuator (eLA) makes the tank cap intelligent and thus supports robot-assisted charging processes
- Customer-specific functions for even more convenience and safety can be integrated in the future
- Innovative light components intuitively visualize the status of the battery and charging mode and set additional design accents

The electrification of mobility continues to gain momentum. As early as 2030, two out of three newly produced vehicles worldwide will be at least partially electrified. However, this also requires simple, consumer-friendly charging options, among other things. "Automated charging processes, in which a robot takes over the charging process, for example, will be an important lever in this process," says Björn Twiehaus, Managing Director responsible for the global electronics business at the internationally positioned automotive supplier HELLA. "Based on our strong lighting and electronics expertise, we are therefore working on further automating the charging process. Partially automated charging processes are also conceivable as a first step."

One important requirement is that the charging lid opens and closes independently; at the same time, the charging robot must be able to communicate with the charging lid and the vehicle. This requires new technologies and mechatronic systems that must be able to be implemented in the smallest possible space near the charging connection. HELLA has therefore developed an electronic charging lid actuator (electronic Lid Actuator, or eLA for short). This allows the lid position to be changed automatically or manually and ensures that this functions reliably at all times, even in conditions with frost and ice, for example.

In the future, customer-specific functions can also be integrated to further increase convenience. This includes, for example, gesture control for automatic opening and closing of the charging lid or a push to run function. This means the actuator detects when the lid is tapped with a finger and opens or closes it as a result. To protect against trapped fingers, the actuator has an integrated protective mechanism. Additional

functions can also be integrated depending on the manufacturer's requirements. To this end, HELLA contributes its many years of expertise in the fields of actuators, sensors and control modules.

In addition to the electronic components, intelligent lighting solutions are also an important part of the automated charging process, for example, to intuitively visualize the battery status or charge level. For this purpose, HELLA has developed an innovative, space-saving concept based on red, green and amber LEDs as well as EdgeLight technology, which is based on the experience of end consumers in the field of consumer electronics.

For example, most digital devices already display battery status with a combination of bars: a red bar means the battery is empty; all bars in green means the battery is full. The charging status display, for example, is hidden behind the charging lid and is only visible when the lid is open and the car is stationary. This also fulfills the legal requirements for motor vehicles and spare parts (ECE regulation). To make it easier for the robot to position the charging plug, HELLA has also designed a so-called ring light with two white or RGB LEDs. Furthermore, lighting elements can be used to add additional design accents, for example by also illuminating the charging port of the electric vehicle with static or dynamic animations.

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About HELLA

HELLA is a listed subsidiary of Faurecia. Together they operate under the overarching umbrella brand FORVIA. Within the factual 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 Business Group Lifecycle Solutions. HELLA has 36,000 employees at more than 125 locations worldwide and generated currency and portfolio-adjusted sales of € 6.5 billion in the fiscal year 2020/2021.

About FORVIA

FORVIA comprises the complementary technology and industrial strengths of Faurecia and HELLA. With over 300 industrial sites and 77 R&D centers, 150,000 people, including more than 35,000 engineers across 40+ countries, FORVIA provides a unique and comprehensive approach to the automotive challenges of today and tomorrow. Composed of six Business Groups with 24 product lines, and a strong IP portfolio of over 14,000 patents, FORVIA is focused on becoming the preferred innovation and integration partner for OEMS worldwide. FORVIA aims to be a change maker committed to foreseeing and making the mobility transformation happen. www.forvia.com

For more information, please contact:

Dr. Markus Richter
Company spokesman
Tel.: +49 (0)2941 38-7545
Markus.Richter@forvia.com

HELLA GmbH & Co. KGaA
Rixbecker Straße 75
59552 Lippstadt / Germany
www.hella.com