

PRESS RELEASE

Pfronstetten-Aichelau, 14th July 2020

Schaeffler Paravan Technology receives AutomotiveINNOVATIONS Award 2020 Space Drive as an important technology for the transformation in the automotive industry

- Schaeffler Paravan with its digital driving and steering system Space Drive is the most innovative supplier 2020 in the category "Automated Driving and Driver Assistance Systems"
- The study evaluated 309 innovations from automotive suppliers of the year.
- Roland Arnold, CEO of Schaeffler Paravan GmbH & Co KG: "We provide a unique technology that the industry needs to realize its visions of autonomous driving and new vehicle concepts".

Pfronstetten-Aichelau, 14.July 2020. "This year, Schaeffler Paravan has been named the most innovative supplier in the automated driving and driver assistance systems category for the Space Drive Drive-by-Wire system", was the verdict of the eight-member jury of experts. The Swabian tinkers received the AutomotiveINNOVATIONS Award for the Space Drive multi-redundant driving and steering system. The prize has been awarded annually in a total of 16 categories to OEMs and suppliers by PricewaterhouseCoopers and the Center of Automotive Management (CAM) since 2012. This year, 309 innovations from automotive suppliers competed for the coveted prizes. In the end, the Space Drive technology won out over the other nominees. "A unique technology with a remarkable history, which receives its well-deserved recognition with the AutomotiveINNOVATIONS Award," confirms Felix Kuhner, Global Automotive Leader at PwC.



Roland Arnold CEO of Schaeffler Paravan with the AutomotiveINNOVATIONS Award as most innovative supplier 2020 in the category of automated driving and driver assistance systems for Space DriveSpace Drive.

Photo: Schaeffler-Paravan

„We are proud to have a product that is unique in the world. We are thus providing a unique technology that industry needs to realize its visions of autonomous driving and new vehicle concepts," says

Roland Arnold CEO of Schaeffler Paravan Technologie GmbH & Co. KG as well as founder and managing director of PARAVAN GmbH.

"With Space Drive, Schaeffler Paravan is active in the future field of automated driving and, by means of steer-by-wire and electronic actuating signals, realizes important driving functions while ensuring functional safety," emphasizes Prof. Stefan Bratzel, Director CAM and Chairman of the expert jury. "The company thus demonstrates a high level of competence in a growth area of the industry. For the expert jury, the drive-by-wire system represents a step towards the realization of autonomous mobility. In its statement, it attests to a high degree of benefit for the implementation of automatic driving functions. "To date, Space Drive is the world's first and only drive-by-wire system with road approval and corresponding redundancies that guarantee functional safety," it continues.

"It is impressive what can be achieved through innovative thinking and hard work. Space Drive from Schaeffler Paravan is shaping the future of autonomous driving and with this innovation not only sets an important milestone in the transformation history of the automotive industry, but also makes an important contribution to society through its use in vehicles for the disabled", says Kuhnert.

A total of 16 prizes were awarded in two categories - OEM and supplier. This year's prizewinners include renowned players in the industry such as Volkswagen, Porsche, Tesla and the suppliers Bosch and ZF. A total of 309 innovations from automotive suppliers were evaluated. The innovations come from 14 fields of technology.

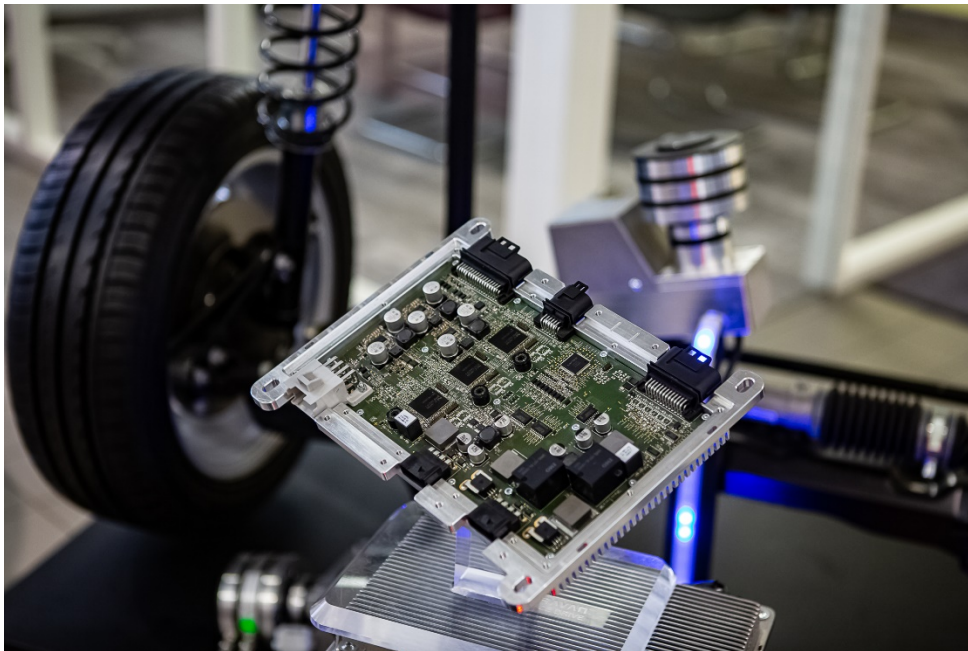
The Space Drive technology originated from mobility for the disabled. To enable people with the most severe movement restrictions to enjoy independent mobility, PARAVAN GmbH developed the first TÜV-tested fully redundant drive-by-wire system "Space Drive 1" by 2005, which was revised by 2013 with a completely redesigned safety architecture. The computer unit (ECU) meets the highest functional safety requirements according to ISO 26262 ASIL D and is therefore a key technology for autonomous driving at levels 4 and 5, road-approved and tested over a good billion kilometres.

„With the Space Drive System we can practically reach level 5 of autonomous driving," emphasizes Roland Arnold. "No supplier and no car manufacturer has a steer-by-wire system that already allows driving without a steering column. The redundancy is integrated in our system. In today's practice, the human being has to intervene in the steering wheel as redundancy. This results in completely different possibilities for redesigning vehicle interiors; you can rethink the car in the future.

The joint venture founded in 2018, Schaeffler PARAVAN Technologie GmbH & Co. KG - 90 percent is held by the global automotive and industrial supplier Schaeffler Technologies AG and 10 percent by PARAVAN founder Roland Arnold - will now further develop the technology and industrialize it by the end of 2022. "The steering column will fall," Arnold is sure of that. Development vehicles - road vehicles, such as racing cars - equipped without a mechanical connection between the steering unit and the steering gear are currently being tested under extreme conditions for this purpose. An important milestone last year was the approval of the technology carrier Audi R8 LMS GT3 by the German Motor Sport Federation. (DMSB) frame of the DMC GTC. In the meantime, the technology has become an integral part of the regulations of the GTC Race - as the racing series is called this year. At the same time, the technology is also being tested on the road in test vehicles - street legal and also without mechanical connection.

In the third generation of Space Drive, the system will be completely revised. Schaeffler-Paravan will integrate more powerful electric motors and electronics as well as completely revised and individually adaptable / modular software. The system architecture is based on the classic Autosar standard. The features will be developed on a "state of the art" model-based basis and can be individually adapted

to any type of vehicle. The software meets the latest automotive regulations with the corresponding functional safety standards and is certified according to ISO 26262 ASIL D. Space Drive 3 thus represents the basic development for large-scale production.



The Space Drive system from Schaeffler Paravan Technologie GmbH & Co. KG is a key technology for autonomous driving. Space Drive is the only system of its kind that has worldwide road approval and has already proven itself over more than one billion kilometers. Photo: Schaeffler-Paravan



Already on the road today, without a mechanical connection between steering column and steering gear - street legal, Space Drive makes it possible *Photo: Schaeffler-Paravan*



Space Drive: Key technology for autonomous driving in levels 4 and 5

Photo: Schaeffler-Paravan

You can find more pictures for download [here](#)

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About Schaeffler Paravan Technologie GmbH & Co. KG

The Schaeffler Paravan Technologie GmbH & Co. KG is a company specializing in the development of fail-safe drive-by-wire systems - "Space Drive" - and chassis system solutions. It is based in Herzogenaurach with an operating facility in Pfronstetten-Aichelau. Schaeffler Paravan Technologie is a joint venture (90 percent Schaeffler Technologies AG and ten percent Roland Arnold) and was founded in October 2018. The space drive system developed by Paravan founder Roland Arnold has been completely transferred to the joint venture and will be industrialized there. Schaeffler Paravan is also developing a "rolling chassis" with intelligent corner modules for future autonomous vehicles - with integrated Schaeffler wheel hub motors, brakes, Space Drive steering (90 degrees) and suspension in one system. www.schaeffler-paravan.com