Autonomous driving: First tests on barracks grounds

Industry leaders lay foundation stone for New Mobility Campus - driving school to follow

HOHENTENGEN - The first test drives with an autonomously driving small electric bus have taken place on the grounds of the former Oberschwabenkaserne. A campus for new forms of mobility is being created here on the initiative of Roland Arnold, Managing Director of Schaeffler Paravan Technologie GmbH. His company has rented various buildings and acquired the rights to use the road infrastructure. Hanseatische Fahrzeug Manufaktur GmbH (HFM), whose vehicle called Busbee is equipped with control technology from Schaeffler Paravan, is on board as a partner. "We really do find perfect test conditions here," enthuses HFM Managing Director Wolfgang Bern. There are various roads, intersections, buildings, driveways and curbs on the barracks grounds.

"Anyone who wants to test their vehicles under such realistic conditions would otherwise have to have residential areas or university campuses closed off." Thanks to the collaboration with Bin Haider Hohentengen Sàrl, which owns the site, test drives can now take place whenever the development team feels they are necessary. Even though the small bus, which seats eight passengers and an accompanying person, is already in use on a fixed route in North Friesland and is the first electric vehicle of its kind approved for road use to date, testing is important. "We mainly want to collect data here and see how the vehicle behaves," says Bern. First, he says, the control system must be fed information about the route the bus will later drive autonomously. "We're still teaching it everything."

During a small presentation for Hohentengen's mayor Peter Rainer and CDU member of the state parliament Klaus Burger, the bus can just drive from its position in front of the large hangar around a curve and up to a stop at the end of a row of trees. Then Bern takes over the joystick and drives the bus, which reaches a maximum speed of 25 kilometers per hour, further himself. Gradually, the routes will become more complex and other road users will also be added, which must be detected. From a purely legal point of view, the latest legislation even makes it possible for autonomous e-vehicles to travel without an attendant at all. "There has to be someone who controls the journey and can intervene and take over the controls in an emergency," Bern said. But that person would no longer necessarily have to be in the vehicle, he said, but could also maintain an overview from a control room. Solutions and training would still have to be developed for this as well. "In a transition phase, there will have to be personnel in the vehicle, if only because of the psychological effect on passengers," Bern predicts.

The Space Drive System from Schaeffler Paravan can be used not only in buses, or cars, but also in agricultural or construction machinery. Originally developed to support people with disabilities in vehicles converted for this purpose, the engineers can draw on corresponding experience. A triple redundant safety concept brings fail-safety, so that a steering wheel inside the car is no longer necessary. "A joystick is all that's needed to intervene," says Roland Arnold. The Tesla converted by his company, which he brought with him to Hohentengen, can even be steered from the back seat if the driver has the appropriate joystick license. "After all, we've been testing our vehicles for the DTM here at the airfield in Mengen for some time now," explains press spokeswoman Anke Leuschke. The data then collected on the race track would in turn flow into the further development of the systems for road traffic.

The technology is already helping many people with disabilities to be able to drive a car themselves. In order to obtain a corresponding driving license, they come from all over Germany to the Paravan Driving School in Pfronstetten-Aichelau. Ralf Buhmann, the head of the driving school, aims to get all driving students through the driving test after four weeks of block instruction. During this time, the driving school car is equipped with the steering system that best suits the respective student and with which his later car will be equipped. "The first few hours, until someone is familiar with the steering and voice control, we can now complete in the protected space at the test site and then venture into real traffic," he says.

In the long term, according to Roland Arnold, there are also plans to set up accommodation for the learner drivers and the test team on the former barracks site. The development plan, which was originally designed for the Ehoch4 project, would also allow for this use.

This vehicle is one of the only autonomously driving buses to have road approval in Germany. On the grounds of the former Oberschwabenkaserne barracks, the manufacturer, Hanseatische Fahrzeug Manufaktur GmbH, and Schaeffler Paravan, the company responsible for the steering system, plan to test it in a protected space under realistic conditions. PHOTOS: JENNIFER KUHLMANN

Hohentengen's mayor Peter Rainer (left) has Wolfgang Bern, managing director of Hanseatische Fahrzeug Manufaktur GmbH, explain how the autonomously driving bus works.

The electronic driving and steering system was developed by Roland Arnold.

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