Driverless cars are on the road in the U.S. with permission

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Automobile: In the USA California is the third state to permit driverless cars on the road. Google had asked for this permission for its self-driving cars. Thus the search-machine company makes further progress in the area of mobility. Already for a number of years Google has made use of the system developed at Stanford University. The U.S. auto industry looks on with concern.

Besides Nevada and Florida, California has now give a green light for the test operation of Google's self-driving car. "What looked to us like science fiction only a short time ago has become quickly the technology of today," said Governor Jerry Brown in a short speech at the headquarters of Google in Mountain View in Silicon Valley. The new law permits the test operation of Google's self-driving car on all public roads and streets in California, including expressways and freeways.

On U.S. roads ever more often to find: Autonomous vehicles from the search-engine specialist Google build experience in everyday traffic

More states will soon follow, since similar measures are under consideration also in Arizona, Oklahoma, the District of Columbia, New Jersey, and Hawaii. With these laws vehicle manufacturers and operators will get a genuine platform to be able to test their vehicles in real conditions on public highways and byways.

The main lobbyist for these laws is Google. The Internet giant has now 12 such vehicles, most of these based on the Toyota Prius. For the sensor network, Google uses a 360°-laser, which is installed on the roof of the car and which delivers 1.5 million pixels/second. In total Google's cars have driven 300,000 miles on public streets and roads without an accident.

The most thorough tests have been in Nevada, where last year the first test permission was granted. The first intensive tests were to have the vehicle pass a driver's license test. The high point was a drive during rush hour on the beloved Las Vegas Boulevard, better known as "The Strip".

After all the tests were successfully passed, the automobile received a license plate with the infinity symbol printed on the left edge. "We are very proud that Nevada is the first state worldwide to have licensed a driverless car," said Bruce Breslow, head of Las Vegas's traffic agency.

While the license in California costs only $100, the further requirements for the permission and operation of these vehicles in all three states are significant. Each car, for example, it must prove that it has driven 10,000 miles accident-free on roads and highways as well as on freeways. Furthermore Google had to put up a bond for $1 million for every five cars. Also, each car must have a black box, which stores data for the last 30 seconds, so that in case of an accident, the sequence of events can be analyzed very precisely.

In the end, one does not trust the robot-car 100%, for it can only drive with two supervisory drivers in the car, each independently able to take over the driving at any moment.

According to expert opinion, there are at least two to three years of intensive testing required before the system is ready for production cars and city traffic. "There are still many problems to solve—and not just technical ones. There are also legal and behavioral problems to address," said Google's project leader Anthony Lewandowski at a press conference in California.

With the "behavioral problems" he means the programming of decision alternatives. For example the problem that an auto suddenly must steer away from a pedestrian and then has a frontal collision with an on-coming vehicle. At Google, however, one is working already on the time after the general permission is given. Google has already gotten a patent on a system where an autonomous car receives through a barcode or an RFID signal an order to drive to a given destination.

In the patent description Google does not mention open, public streets. Rather it sees this system for closed situations, like tours through city parks or a shuttle service in large parking lots or parking structures, like those found at large airports. However once this technology is proven, it'll be quick to follow that the pizza deliverer becomes a small robot-car.

America's auto industry is not at all happy about this development, since it has been completely excluded from the entire development process. "Today's cars are built so that the responsible person has control over the vehicle and drives it through city traffic. It is required that the vehicle manufacturer must at least agree to having the vehicle modified for autonomous driving," stated the website of the Alliance of Automobile Manufacturers upon the permitting in California.

But the thinking is rather on economic concerns. At the end of this development the danger exists that the manufacturers will have to pay Google royalties to be able to use the self-driving technology, since the demand for it unquestionably exists.