

VDI Nachrichten

Fully automatic through a traffic jam

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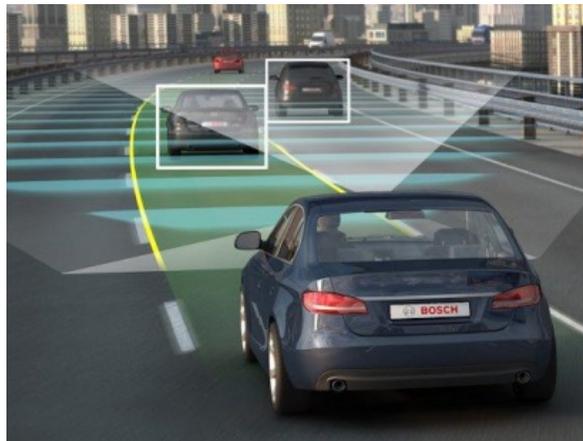
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Automobile: *Bosch wants within the next year to introduce a traffic-jam assistance system into production cars. The system takes over starting, stopping, and steering in a traffic jam on the autobahn. Relief for the driver and at the same time a taste of the future on the road.*

The fully automated car that drives itself gets closer with giant steps. Ever more intelligent driving assistance systems pave the way from utopia to reality. They take ever more decisions and actions from the driver, and—depending on your mentality—may be received either as a blessing or a curse.

Within the next year a traffic-jam assistance system from Bosch is to go into a production car. This system would, temporarily at least, make the driver superfluous. He/She could then, for example, while the car fights its way forward in stop-and-go traffic, eat breakfast or communicate casually with Facebook friends. In the first phase the electronic helper will accelerate, brake, and steer at a speed up to 30 kph (19 mph) without any intervention by the driver.

The technological components needed for such a system are already onboard most new cars today. ACC (adaptive cruise control) recognizes a car in front and governs already speed and distance from that car. With the electronic stability program (ESP), which has a video camera and an electro-mechanical steering mechanism, the requirements are there for complete automated steering. The car will get its driving commands from more advanced software.



Most new cars today already have on-board the fundamental components needed for an automatic traffic-jam assistant. Those are Adaptive Cruise Control and the Electronic Stability Program and also radar sensors and cameras. (Photo: Bosch)

The next step is then automatic lane-changing. For that additional radar sensors are needed on the car's rear section and also a navigation card that gets real-time information on construction zones and speed limits.

Traffic in front of a car will be detected with a combination of radar and a mono-camera or with a stereo-camera. Here Bosch already has a technologically capable long-range radar sensor in its LRR 3, which can "see" forward 250 m with an opening angle of 30°. A new mid-range radar sensor will be significantly more economical. It is to go into production cars this year. It has a range of 160 m with an opening angle of 45°. Steering in the very near range will also be supported by the ultra-sound sensor used in the automated parking system.

"Fully automated driving is today not just utopia," believes Gerhardt Steiger, chairman of Bosch's business unit for Chassis Systems Control. "The traffic-jam assistance system is the first step in this path. The degree of automation and the speeds at which they can be employed with continually increase, until, one day, the "Highway Pilot" will take over the driving from merging to exiting the autobahn." After leaving the autobahn, the driver will for a long time yet still have the steering wheel in hand, because there, on highways and in city traffic, the various participants in traffic come together from all directions.