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Autonomous car technology of the future

Autonomous transport is a type of transport based on an autonomous control system. The control of an autonomous vehicle is fully automated and is carried out without a driver using optical sensors, radar and computer algorithms. The main purpose of autonomous transport is to move passengers or goods.

Vehicles currently available to consumers include computer-based driving functions, such as parking autopilot or cruise control. These features are considered as a basic level of autonomy. By the standard features added the ability to warn drivers of danger, control of brakes, steering, etc.

Autonomous cars have a variety of sensors, cameras and sensors in their equipment. For example, there are ultrasound and infrared sensors. Some car models even have laser sensors.

Using sensors and cameras, the machine scans the surrounding space every few milliseconds. The environmental scanning system is able to determine around itself the landscape and other vehicles not only on the highway, but also in a large metropolis.

For now, autonomous cars cannot safely overtake other vehicles without driver participation. But technology continues to improve, and analysts predict that by 2020 this innovation will have been brought to perfection.

Autonomous vehicles are owned by Google, Nissan, Robot Car UK, General Motors and Yandex. In May 2012, Google received its first license for unmanned vehicles in some US states (Nevada, Florida and California). The test car - a robot created on the basis of the Lexus RX, drove about seven hundred thousand kilometers. A large number of instruments and sensors, located on the roof of the car, allows you to follow the road, drive around the pits, avoid collisions, stop at traffic lights and park.

Volvo is working on an automatic parking system. With it, you can put the car in a free place without the driver. It is assumed that the car will independently find the right place in the parking lot. It's enough for the owner to get out of the car and send the corresponding signal from its smartphone. Such a system will appear in the new version of the Volvo XC90. "Autonomous parking attendant" is also developing of the company Audi.

There is already robotic parking in Dubai. The system is fully automated. At that moment, when the motorist leaves the car at the entrance, it automatically parks the car in the designated empty slot.

According to The Economist, about 90% of all accidents occur due to human error. Google unmanned cars had already hit several thousand kilometers without a single accident. Experts believe that autonomous vehicles can significantly reduce the number of traffic accidents and accidents that occur due to a driver error. While safety is the most important benefit, introducing autonomous vehicles can reduce congestion and improve fuel economy.

Innovation will lead to enormous changes in the economy — a huge part of the population will lose their jobs, entire markets will collapse.

The transition has already begun. Tesla Motors CEO Elon Musk once said that the cars produced by his company will be able to manage 90% of the way independently. Major automakers are also lagging behind in the development of "smart" cars - according to Bloomberg, Cadillac plans to soon introduce a technology that will control the acceleration, braking, vehicle trajectory in traffic at a speed of 120 km per hour.

Google and Telsa predict that autonomous cars, which they describe as "a car that you can sit in, sleep on and get off at your destination," will be available to the public already in 2020.

The Morgan Stanley study showed that motorists spend on driving only 4% of their time per year - this figure sounds surprising, considering that, on average, the cost of owning a car reaches \$ 9,000 a

year. After the real estate, the car is the second most expensive asset for people. Therefore, experts believe, it is not surprising that most citizens never buy it - because there are services on the market like Uber and Zipcar.

Following the automakers, the insurance market will collapse, estimated at \$ 198 billion. The same fate awaits the market for auto financing (\$ 98 billion) and parking (\$ 100 billion). Car rental companies, public transport, parking, speeding tickets will gradually disappear.

The changes will affect not only public transport - the delivery of goods and goods will also occur without the participation of drivers.

According to the Bureau of Labor Statistics of the United States, 915,000 people are currently employing in the automotive industry. Another 6 million people work as professional drivers. Almost all of their jobs will be eliminated within 10-15 years.

The Morgan Stanley study showed that by reducing the number of accidents by 90%, 30 thousand lives would be saved, and 2.1 million people would avoid injuries. Autonomous cars do not need to park (about 30% of cars on city streets are cars that drive in search of a place to park). Lanes that were previously occupied by parked cars can now be used for traffic. There will be no traffic jams on the streets, which will allow residents to save 38 hours every year - that is, a full working week. More real estate will appear - parking lots, garages, dealerships will not be needed.

Thus, technology can even affect the environment. Since the majority of autonomous cars are likely to be electric, the demand for gasoline will sharply decrease - which is 134 billion gallons of fuel per year in the United States alone.

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