

Autonomous cars

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What do we know about autonomous cars? I bet a lot of people imagine these vehicles as something that is mentioned by science fiction writers, something that will be invented in the future. But in fact, autonomous cars are much closer to reality than we think.

In March 2015, the autonomous car passed 5500km from San Francisco to New York City for 9 days. Audi SQ5, produced by Delphi Automotive was equipped with a camera on the windscreen, four radars in the corners, the main radar in the front bumper, six laser radars at the stern, and the system of Advanced Drive Assistance Systems from Delphi. The car was accompanied by six engineers- observers, however, a man took the wheel only a couple of times - during maintenance work on the road, and let the police pass. All the rest of the time the car was moving itself. Isn't this the future that everyone is talking about?

Of course, now autonomous cars exist only in the form of test specimens. However, right now they are closer than ever to the serial production. Autonomous cars have passed a very long way from the exhibition samples, such as remotely controlled car «Linrrican Wonder» represented in 1925 to a truly autonomous vehicles in the 1980-s. Now the majority of car companies are engaged in the research of autonomous cars, and they are not alone: in this area, on a par with auto giants such as, for example, Mercedes-Benz, Ford, Toyota and Audi, there are also an electric vehicles manufacturer Tesla and IT-giant Google.

The results of these studies won't take long to wait: even the members of the conservative automotive industry, believe that there are only about five years before the release of autonomous cars on the market. "In the next five years, you'll see somebody introduce autonomous vehicles", Ford CEO Mark Fields said for press during Consumer Electronics Show this year.

However the autonomous cars still have many unresolved issues that are to be solved during five years. First of all these are legal problems, because in the most countries the laws governing the autonomous cars are not available. But there are exceptions, and in some places you can use the autonomous cars even now. For

example, in the state of Nevada in the United States. In 2011, earlier than elsewhere, there was issued the law allowing the use of autonomous cars. And in 2013, the British government not only allowed to test autonomous cars on public roads, but also reduced the cost of insurance for such vehicles, due to the fact that the computers that control the autonomous cars produce fewer errors than men. In the wake of the US and the UK Germany, the Netherlands and Spain also allowed to use the autonomous cars on public roads.

Another problem is that people are not used to the autonomous cars, and treat them very cautiously. It may lead to the fact that if there are any major accidents associated with the autonomous cars, people will be afraid to drive them and will not buy them what may reject all the industry for many years. This has already happened once: after a series of plane crashes, both models of supersonic passenger aircraft available in the world were taken out from the service that endangered the future of the industry. Therefore, the familiar to us cars are expected to "accumulate" slowly autonomous features to help people get used to the autonomy of their cars and cease to be afraid of them. Adaptive cruise control will morph into a feature that will drive your car autonomously in traffic jams. Lane keeping alerts will turn into real lane keeping while you drive down the highway. Assisted parking will turn into fully autonomous parking. And all of these advances - plus many others - will accumulate over time. Hopefully this slow burn will help regulators to keep up and develop a framework that allows the integration of autonomous cars into regular traffic.

As a result, autonomous cars will completely replace alive, and those, in their turn, will be outlawed because they can be dangerous. So says the head of the company Tesla Motors Elon Musk, and he does not see anything wrong with that. "I do not think we have to worry about autonomous cars, because that's sort of like a narrow form of AI," Musk told NVidia Jen-Hsun Huang at the technology company's annual developers conference. "It would be like an elevator. They used to have elevator operators, and then we developed some simple circuitry to have elevators just automatically come to the floor that you're at ... the car is going to be just like that."

The effectiveness of the autonomous cars can be significantly increased by connecting them to the car communication system (Vehicular communication systems), functioning on the principles similar to the networks in which we connect our PCs. Car communication systems are used in cars as units in the decentralized network, allowing them to communicate with each other.

The main advantage of such systems is certainly the increased security. According to World Health Organization, every year accidents on the roads cause 1.2 million deaths around the world, are 79% of them can be avoided by using the road communication system, at least this is the opinion of the US National Highway Traffic Safety Administration.

The cars that can communicate with each other will be able to send each other messages about the dangers or obstacles on the road to warn about the planned maneuvers, enabling other traffic participants to adjust and to calculate the proper route. The most advanced systems even will be able to control traffic, significantly reducing the problem of traffic jams. The example of such a system is a project of autonomous crossroads developed at the University of Texas in Austin specifically for robotic vehicles. At such crossroads there will not be lighting nor will signs, the computer controlling the road will bind directly to each machine.

As we can see, autonomous cars are becoming more visible in our lives. Only five or ten years separate us from the first production samples and the start of using them. Of course, at first they will be used in the United States and Europe, but in any case the process is global, because the innovations of this kind can't be overlooked. What concerns Russia, KAMAZ plans to hold the first test of their cars in 2016, and in 2017 - to carry out tests on public roads. We have just to wait, and perhaps soon we will be able to get rid of the chaos on the roads, which we have now.

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