In the future, cars may be equipped with safety airbags outside the car

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For more than three decades sitting in mobile 'boxes', speaking in a humorous way, we are no stranger to the 'canvas bags' that explode right in front of us, which is a safe air bag - one of the most compulsory and useful safety equipment on cars. The advent of airbags has made miracles, which is to protect to the maximum the fragile meat people sitting in cars in the face of serious injuries when a collision occurs.

Many people, especially those who have been safely protected by this technology after many disastrous traffic accidents, have to ask: What if we put similar technology outside vehicle body? Does this double the protection for people in the car? Perhaps we should give this answer to car safety technology experts from German automaker ZF Friedrichshafen AG, who have spent 10 years studying and testing airbag technology outside the body.

This technology seems to be available to major automakers around the world, of course, only if ZF can convince them with their own efficiency. We will explore this technology together shortly.

1. The EU aims to bring speed limiting technology to all cars in the near future

What to do when the worst is inevitable?

Yes, just as we originally imagined when we first heard this technology, it would basically still work under the general mechanism of airbag technology, only instead of being equipped in Inside the cabin, these air bags will be installed outside the body. In other words, they are larger versions, installed outside of the airbag model fitted in the interior of your car - ugly fabric balls filled with gas to protect people when they are available. traffic collision.

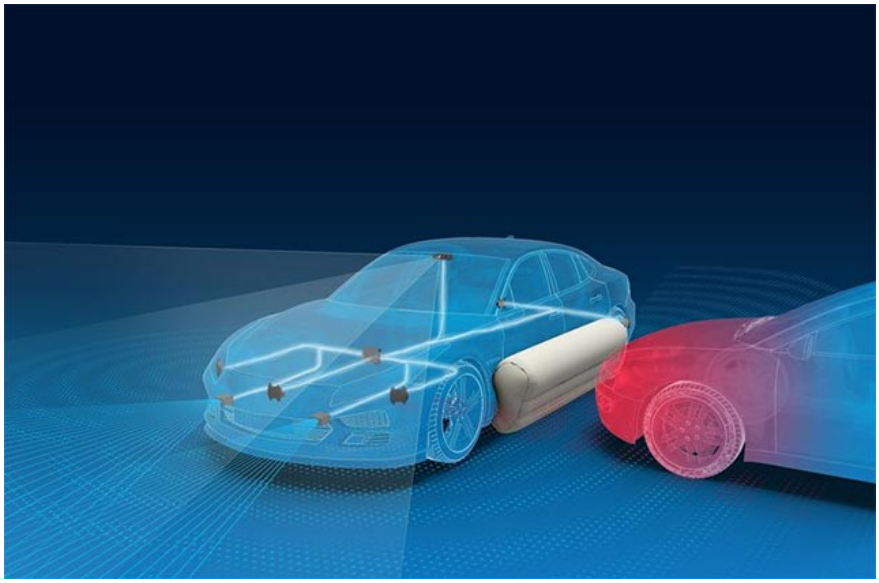
Accordingly, with the ZF system, each door sill (the car body on the outside, under the door) will contain a super large air bag, running along the length of the door. At the same time, the sensors on the car will be alert to any object that can hit the side of the car. The sensor will then continuously transmit information to the central computer (which is also equipped on the car, of course) to analyze all data collected in real time. When the computer conducts a situation analysis and determines that an impending collision is inevitable, it will immediately send an order to activate the airbag system equipped along the sill, to absorb the dark. Multi-force acting on the cabin compartment. According to the experts of ZF, if working properly according to calculations, the combination of 2 external and internal airbag systems can ensure absolute safety for the cabin compartment before typical traffic collisions are often recorded. receive now.

1. The 11 most expensive super cars in the world have ever been sold

Why should this technology be taken out of the body?

As mentioned above, one of the leading advantages of equipping external airbags is that they help disperse the impact force significantly on the body. In fact, when another car is about to crash into the side of your vehicle, the main impact will be the front bumper (the protruding edge of the front of the car), and if two vehicles collide at an angle, the contact area is even smaller, leading to the position of contact between the two vehicles is subject to a great impact, can cause serious damage and affect the lives of the occupants of the cabin . However, when a car crashed into the inflated airbag system, the impact force would be spread through the airbag and along the side of the vehicle structure, spreading the power to the entire body, thus, the collision position will also bear

much less force. Experts at ZF said their technology could help reduce up to 30% of the impact force on the passenger compartment, and at the same time reduce 20 to 30% of the level of injury for the occupants when a collision occurs. .



1. Tesla's plan to use Chromium in cars is hacked before it is completed

ZF said it will equip each vehicle with different types of sensors to determine when airbags should be inflated, because each type of car possesses different characteristics. 'Radar sensors will be a great priority in this case. They can measure the distance between objects very quickly, accurately, and especially without being "fooled" by lighting or weather conditions, "said Uwe Class, director of safety systems. cars at ZF said. Meanwhile, the camera will also be an integral part of this system because it is particularly useful in identifying objects by distinguishing between, assuming, a large displacement motorbike and a bicycle. . In addition, cameras often give a wider view than radar sensors, so they can observe and retrieve the data of an object sooner.

And finally, the Lidar sensor will be the last piece for this 'puzzle'. If you don't know yet, Lidar is a method of surveying the distance to a target by illuminating the target with a laser around and measuring reflected pulses with a sensor. When applied to this new airbag technology, the Lidar sensor will emit light to the active vehicle around your vehicle, and then perform a measurement by analyzing the reflected wavelength. Radiation bounced back. In this way, the sensor can provide information that helps the computer create a detailed three-dimensional image of all objects obtained. At the point where the collision is unavoidable, the short response delay and the fast refresh rate of the sensor will allow the system to quickly detect and track any fast-moving object that is about to crash. Your car, thereby triggering the airbag timely. Even small changes in the direction of the object that occur only in this last millisecond can significantly change the way the airbag is activated properly, so the general role of the sensor It is very heavy, they must be really fast and accurate to the point of ours.

1. Summary of penalties for violations of traffic errors of motorcycles and cars

Thorough application from the design stage

If you think that integrating this system on one device sounds quite difficult, this thought is absolutely correct. Because ZF technology requires that it be integrated into the sensor on the vehicle and also requires more space

in important structural areas, this external airbag technology will not be able to. 'More for current cars. That is, if you want to put this technology into practice, you will have to install it on a completely new car, designed to meet the technical and physical space needs of the technology. Specifically, the vehicle needs to be designed from the beginning to make room for the airbag module, inflatable pump, sensor and structure of the side door system.

This is really a simple task. So, instead of persuading car companies to add another sensor to their car, ZF designed their own sensors to be able to perform two or three separate tasks at the same time. That is, the system will take advantage of many cameras and radar sensors in computerized safety subsystems. For example, the ZF's external airbag setup can use the same sensors that are being used in many other safety technologies such as lane departure warning, speed warning system or lane adjustment system. initiative is often found on new cars.

1. New charging technology allows electric cars to charge for 3 minutes to travel 100km, as fast as filling gasoline

On the other hand, the external airbag system can also operate in parallel with forward-facing safety systems, such as a collision warning system (warning the driver to keep a distance from the vehicle ahead), and automatic emergency braking system (automatically brakes the car if the driver does not brake or has an awake expression). In addition, adaptive cruise control (Adaptive cruise control) - technology that allows vehicles to keep speed and distance automatically with front vehicles on the highway - is another system that uses sensors this.

Mr. Uwe Class revealed that the first external airbag systems of ZF can be shipped after about 2 years. Although there are still many issues to be faced, the prospect of this project is huge. When asked about regulatory issues, the company representative said: "ZF is in the early stages of clarifying potential barriers and paving the way for market exploration for this technology."

The cars are becoming more and more secure, the hope of ZF Friedrichshafen AG technology will soon be deployed to help minimize the unfortunate damage that we could absolutely avoid.