

Autonomous Cars Aren't Perfect, But How Safe Must They Be?

Regulators consider possibility that some self-driving cars will still crash despite best efforts

Tom Krisher
Justin Pritchard
Associated Press

DETROIT — As autonomous car technology rapidly progresses, makers of the cars face the difficult question of how safe they must be before they're ready to move people on highways and

selves almost 1.5 million miles, with a person as backup in the driver seat. The company also uses a simulator to test the cars in a variety of scenarios. Other companies such as Nissan, software firm Cruise Automation and parts suppliers Bosch and Delphi also are testing on public roads. Test

ware. In about a dozen other crashes on city streets, Google blamed the human driver of the other vehicle.

Google wants to make cars available to the public around the end of 2019, assuming its data shows the time is right for deployment.

A Virginia Tech University study commissioned by Google found that the company's autonomous cars crashed 3.2 times per million miles compared with 4.2 times for human driv-



AP PHOTO/TONY AVELLAR, FILE

In this Wednesday, May 13, 2015, file photo, Google's self-driving Lexus car drives along street during a demonstration at Google campus on in Mountain View, Calif. As Google cars encounter more and more of the obstacles and conditions that befuddle human drivers, the autonomous vehicles are likely to cause more accidents, such as a recent low-speed collision with a bus.

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city streets.

Right now, companies such as Google, Audi, and Mercedes-Benz are testing the cars in a small number of cities to demonstrate they can be safer than human drivers. They also must figure out what level of risk is acceptable to both government regulators and a potentially skeptical public.

Government statistics show that human mistakes are responsible for 94 percent of the 33,000 traffic fatalities each year. Autonomous cars won't get drowsy, distracted or drunk, so in theory they could eliminate those mistakes and save an estimated 31,000 lives a year.

But as a Valentine's Day fender-bender involving a Google autonomous Lexus and a public bus shows, cars that drive themselves can make mistakes.

“We cannot expect any technology, any solution to be perfect all the time,” says Raj Rajkumar, a computer engineering professor at Carnegie Mellon University who has led autonomous vehicle research for 15 years. “We live in a very uncertain world where lots of things happen.”

Given that, regulators and would-be passengers may have to accept that the cars will cause a limited number of crashes, including deadly ones, if overall they save thousands of lives.

“We should be concerned about automated vehicles,” says Bryant Walker Smith, a University of South Carolina law professor who studies the technology. “But we should be terrified about today's drivers.”

Google is testing a fleet of 56 autonomous cars on the streets of Mountain View, California; Austin, Texas; and Kirkland, Washington. The cars have driven them-

cities also include San Francisco, Las Vegas and Pittsburgh.

Chris Urmson, head of Google's self-driving car program, wrote in a January blog that during the past two years, drivers took control 13 times when its cars likely would have hit something. He noted that the rate of human intervention is dropping and he expects it to keep falling.

In the bus crash, Google for the first time admitted its car was at least partly responsible. The computer and human driver assumed the bus would yield as the car moved around sandbags. Instead, the bus kept going and the car hit its side. Google has updated its soft-

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Ready For Take Off
Sea-Tac IAF Overview & Procurement Plan

Meet the Clark/SOM/Port Team and get an overview of upcoming opportunities on the project
Small and Diverse Businesses are encouraged to attend.

Project Description: The project will involve the construction of a 350,000 square-foot International Arrivals Facility Building on the east side of the South Terminal Expansion (Concourse A). It will also feature an elevated sterile corridor, raised nearly 32 feet above the apron level, which will house gates A6-A14 and approximately 45,000 square feet of floor space, as well as an “iconic” bridge, which will span 900 linear feet over the existing taxi lane, connecting the S Terminal to the IAF.

Agenda: Project Overview and Schedule, Procurement Schedule, Small Contractors and Suppliers (SCS) and Diverse Business Goals, and Upcoming Early Work Packages.

When: Thursday, April 7, 4:00pm – 6:00pm
- Presentation will start promptly at 5:00pm

Where: Port of Seattle Commission Chambers, Pier 69
2711 Alaskan Way, Seattle Washington 98111

RSVP: rsvpclark@clarkconstruction.com or (206) 447-8700

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