

Tesla gears up for fully self-driving cars amid skepticism (Update)

April 22 2019, by Michael Liedtke And Tom Krisher



Tesla CEO Elon Musk maintained that the electric carmaker had developed the "best" computer chip for autonomous driving

Tesla expects to have full self-driving cars in which humans won't have to touch the steering wheel around the second quarter of next year.

The company made the announcement during an investor conference at its Palo Alto, California, headquarters Monday, in which it outlined its bold but risky bid to transform Tesla's electric cars into driverless vehicles.

CEO Elon Musk told investors that the company's computer to enable its electric cars to become self-driving vehicles is powered by the best processing chip in the world.

Tesla had never made its own computer chip before it hired an ex-Apple engineer three years ago to design it. Now, Musk boasts the chip is better than any other on the market "by a huge margin."

Experts say they're skeptical whether Tesla's technology has advanced anywhere close to the point where its cars will be capable of being driven solely by a robot, without a human in position to take control if something goes awry.

"It's all hype," said Steven E. Shladover, a retired research engineer at the University of California, Berkeley who has been involved in efforts to create autonomous driving for 45 years. "The technology does not exist to do what he is claiming. He doesn't have it and neither does anybody else."

More than 60 companies in the U.S. alone are developing autonomous vehicles. Some are aiming to have their fully autonomous cars begin carrying passengers in small geographic areas as early as this year. Many experts don't believe they'll be in widespread use for a decade or more.

Musk's description of Tesla's controls as "Full Self-Driving" has alarmed some observers who think it will give owners a false sense of security and create potentially lethal situations in conditions that the autonomous cars can't handle. They also say they're waiting for Musk to define self-

driving and show just under what conditions and places the vehicles can travel without human intervention.

Some Tesla critics say Musk is making the full self-driving announcement to distract from poor earnings expected Wednesday. Analysts polled by FactSet predict a \$305.5 million first quarter net loss based on disappointing deliveries. Even bullish analysts expect bad news.

Wedbush analyst Daniel Ives, who expects Tesla shares to outperform its peers, wrote in a note Monday that while positive news is expected Monday, he foresees "a train wreck quarter."

Meanwhile, Musk continues to use both his Twitter account and Tesla's website to pump up a new computer now in production for full self-driving vehicles. Once the self-driving software is ready, those with new computers will get an update via the internet, Musk has said. Currently the self-driving computer costs \$5,000, but the price rises to \$7,000 if it's installed after delivery.

On Monday, Musk said Tesla has a huge advantage over autonomous vehicle competitors because it gathers a massive amount of data in the real world. This quarter, he said Tesla will have 500,000 vehicles on the road, each equipped with eight cameras, ultrasonic sensors and radar gathering data to help build the company's neural network.

The network allows vehicles to recognize images, determine what objects are and figure out how to deal with them.

That's different from the self-driving systems being built by nearly every other company in the industry, including Google spinoff Waymo, General Motors' Cruise Automation, and Ford-affiliated Argo AI. They all use cameras and radar covering 360 degrees, and also have light beam sensors called Lidar to the mix as a third redundant sensor, as well as

detailed three-dimensional mapping.

"Vehicles that don't have Lidar, that don't have advanced radar, that haven't captured a 3-D map are not self-driving vehicles," Ken Washington, Ford's chief technical officer, said during a recent interview with Recode. "They are great consumer vehicles with really good driver-assist technology."

But Musk trashed Lidar on Monday, calling it a "fool's errand."

"They're expensive sensors that are unnecessary," he told investors. "It's like having a whole bunch of appendixes."

Amnon Shashua, CEO of Israeli autonomous vehicle computing company Mobileye, says cars with 360-degree cameras and front facing radar could drive autonomously, but they would not be as safe as human drivers. Careful humans can drive 10 million hours without a mistake leading to a fatal crash, but cars without full redundant sensors cannot, he said.

Tesla already has been offering a system called "Autopilot" that can control cars on a limited basis with constant monitoring by a human driver. But questions already have been raised about Autopilot's reliability after its involvement in three fatal crashes.

In one, neither the driver nor a Tesla Model S operating on the company's Autopilot driver-assist system spotted a tractor-trailer crossing in front of it on a Florida, highway in 2016. The car drove under the trailer shearing off the roof and killing the driver.

In a 2017 report, the National Transportation Safety Board wrote that driver inattention and design limitations of Autopilot played major roles in the fatality, and it found that the Model S cameras and radar weren't

capable of detecting a vehicle turning into its path. Rather, the systems are designed to detect vehicles they are following to prevent rear-end collisions.

The agency also is still investigating the two other lethal crashes, one last month in Delray Beach, Florida, eerily similar to the 2016 Florida crash, and another involving a Tesla SUV that was operating on Autopilot when it hit a highway lane-dividing barrier in Silicon Valley.

Tesla maintains that its current systems are only for assistance, and that drivers must pay attention and be ready to intervene.

With "Full Self-Driving Capability," Tesla touts that you get automatic driving from the highway on ramp to the off ramp including interchanges and changing lanes automatically to overtake slower cars. Later this year, the cars will be able to recognize and respond to traffic lights and stop signs and drive automatically on city streets, the website says.

Those feats are something that Tesla will likely have to prove to regulators in California—its largest U.S. market so far—before its fully autonomous cars are allowed on the roads there. But most other states don't have the same requirements as California, where Tesla would need a state permit and have to prove the cars can drive safely on public roads without a human driver. And experts say there's no federal law requiring preapproval for fully autonomous driving, as long as a vehicle meets federal safety standards, which Teslas do.

"Unfortunately, it may be necessary for several people to die before regulators step in," Shladover said.

© 2019 The Associated Press. All rights reserved.

Citation: Tesla gears up for fully self-driving cars amid skepticism (Update) (2019, April 22)
retrieved 19 April 2024 from

<https://techxplore.com/news/2019-04-tesla-gears-fully-self-driving-cars.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.