



Torc to Scale Self-Driving Fleet with Next-Gen Daimler Test Trucks Designed for its L4 System

10 08, 2020

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Blacksburg, Va. – Oct. 8, 2020 - Torc Robotics will scale its self-driving truck testing in the Southwest in early 2021 using an enhanced prototype truck developed with Daimler Trucks North America (DTNA). This new generation of Freightliner Cascadia test trucks bolsters Torc's capability to develop and test its Level 4 self-driving technology.

The test trucks, internally known as 'Gen 2' are the second iteration of trucks jointly developed by the trucking and technology companies. This milestone is one of many along the Daimler-Torc journey to realize their vision of becoming the standard in self-driving trucking and advance their mission of saving lives.

Torc and Daimler Trucks' ultimate goal is to reinvent the truck by co-developing a Level 4 Freightliner Cascadia which includes safety-critical redundancy components, as well as the seamless integration of additional computes and hardware required for self-driving technology.

"To meet the redundancy and performance requirements of a self-driving truck, the traditional truck chassis must be reinvented. Just like any major innovation, it requires a stair-step approach toward the final product. We are taking this one step at a time, with safety as our guiding principle," said Michael Fleming, Torc's CEO. Torc has been commercializing its self-driving technology in heavy-duty applications for more than a dozen years. Fleming says Torc is directly applying this experience to solve the challenges ahead.

In 2019, Torc and Daimler Trucks created a unique relationship in the trucking industry by combining the pioneer and leader in trucking and a pioneer and leader in self-driving technology. This combination of complementary technologies created the foundation for Torc and Daimler Trucks to bring self-driving trucks to market within the decade.

"We knew from the outset that self-driving technology cannot be commercialized without an OEM. In trucking, there are only a handful of OEMs [original equipment manufacturers] and we were fortunate to join the industry leader," Fleming said.

The goal: a Level 4 integrated truck that provides true customer value

"Our partnership with Torc is critical to our efforts to commercialize a Level 4 highly automated truck," said Roger Nielsen, president and CEO of DTNA. "Torc's experience with developing self-driving technology and their focus on safety makes them the ideal partner. Our joint goal is a Level 4 integrated truck that provides true customer value."

Market-ready self-driving trucks must emulate the actions of the most experienced and safe truck drivers. The partners are developing software and hardware that is seamlessly integrated to reliably handle failures of safety-critical vehicle components, such as braking, steering, power distribution, and messaging.

The team's vision for a Level 4 vehicle platform is one in which component redundancies and software behaviors work together. In the case

of a brake failure in a Level 4 truck, redundancies would maintain the vehicle's ability to decelerate and stop without human intervention. Torc's self-driving software would then be able to maneuver to a safe location so a support crew could service the brake system, according to Fleming.

Another integral behavior the team is working to replicate is the way experienced truck drivers are able to feel component failures. "Our software engineers are working with highly skilled truck drivers to understand this experience and transition this human intuition into embedded sensors and algorithms," Fleming said.

Iterative truck generations for development

Torc and DTNA expect to develop multiple iterative test truck models before they release a self-driving truck for commercial customers. The prototypes will incorporate many lessons learned from testing and development since the partners started working together in 2019.

The upgrades included in the 'Gen 2' prototype truck are specifically designed to bolster the testing effort and accelerate data collection to assist in machine learning and algorithmic development.

Improvements in data collection and transfer will help the development team expand capabilities quickly and safely, supporting Torc's effort to scale its test fleet in multiple locations. Additional sensor density and coverage will assist in overall high-fidelity perception performance and long-range sensing power, critical for highway driving.

Both companies have stated that they will only deploy self-driving trucks when they are safe and reliable – not by a set date. Fleming is convinced the team will meet its goal, because "We are two pioneers joining forces – we understand the complexities of commercializing self-driving technology. Our mission is to save lives and our vision is to become the standard in self-driving trucking."

About Torc Robotics

Torc Robotics, headquartered in Blacksburg, Virginia, is a member of the Daimler Trucks family, the global market-share leader and pioneer in trucking. Founded in 2005 at the birth of the self-driving vehicle revolution, has 15 years of experience in pioneering safety-critical, self-driving applications. Today, vehicles using Torc's self-driving technology operate on multiple continents. The firm offers a complete self-driving vehicle software and integration solution and is currently focusing on commercializing self-driving trucks. "Trucking is the backbone of the U.S. economy, delivering food and products to every community in the country," said Torc CEO Michael Fleming. "Daimler has led innovation in trucking for a century, from the first truck to driver assist technology. In partnership with Daimler, Torc will commercialize self-driving trucks to make our roads safer and better fulfilling our mission of saving lives."

About Daimler Trucks North America

Daimler Trucks North America, headquartered in Portland, Oregon, is the leading heavy-duty truck manufacturer in North America. Daimler Trucks North America produces and markets commercial vehicles under the Freightliner, Western Star and Thomas Built Buses nameplates. Daimler Trucks North America is a Daimler company, the world's leading commercial vehicle manufacturer.