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SUPPLIERS VEHICLE TECHNOLOGY

Suppliers advance in mass market safety tech

Conti, Velodyne develop lidar detection systems





Continental's lidar-and-camera combo system is to be first used in the 2016 Toyota RAV4 and Avalon.

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Looking ahead

Using a lidar and camera, Toyota's Safety Sense C package will provide

- Self-dimming high beams for headlights
- Lane-departure warning
- Collision-avoidance braking up to 50 mph

David Sedgwick Automotive News

September 12, 2015 - 12:01 am ET

Lidar, a kind of radar based on laser beams instead of radio waves, is moving closer to becoming a mass-market safety technology.

Two suppliers have announced plans to launch mass production of lidar systems for automakers, a sign that the technology is compact and cheap enough for widespread use.

German supplier Continental AG says it is producing a combination lidar-and-camera system for Toyota Motor Corp., which will install it first in the 2016 Toyota RAV4 and Avalon.

Separately, Velodyne Acoustics Inc. of Morgan Hill, Calif., is negotiating production contracts to mass-produce a lidar system within 18 months.

Lidar, seen operating as the spinning, coffee can-shaped device on the roofs of automated vehicles that Google and others have been testing, is considered a crucial technology for self-driving vehicles.

Lidar measures a vehicle's distance from an obstacle in the road by illuminating the obstacle with a laser beam, then analyzing the reflected light.

Automakers are working on combinations of cameras, radar and lidar to determine the most reliable and cost-efficient way to detect and identify road obstacles. Radar can accurately determine an object's distance and speed, while cameras can identify a silhouette.

Continental's partnership with Toyota suggests that lidar has become an inexpensive alternative to radar.

Toyota plans to introduce collision-avoidance braking systems "in nearly all U.S. Toyota and Lexus models ... by the end of 2017," a spokeswoman confirmed.

Toyota's system, dubbed Safety Sense, will include lane-departure warning, self-dimming headlights and collision-avoidance braking. According to Toyota, the lidar-and-camera system, which will be mounted behind the rearview mirror, will be operational at speeds up to 50 mph.

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Safety Sense C will be available on some models for as little as \$300, although prices will be higher for certain option packages. In general, Toyota "will strive to make Safety Sense as accessible as possible, especially for the lower end segments of the market," the spokeswoman wrote in an email.

Volvo Car Corp. introduced a Continental-designed lidar unit for its low-speed collision avoidance system, called City Safety. The German supplier is producing an updated version for Toyota.

Toyota's lidar system has a range of 16.4 yards, while the camera can spot obstacles at greater distances. (A more expensive radar-and-camera system, available on some models for as little as \$500, will operate at highway speeds.)

The combination lidar "is very cost effective for providing [obstacle detection] at a short range," said Lutz Kuehnke, North American chief of Continental's Advanced Driver Assistance Systems business unit.

Velodyne is developing high-end lidar systems for vehicles that are fully autonomous -- that is, able to steer, brake and accelerate automatically.

President Marta Hall said the company is negotiating with carmakers to provide a two- or four-lidar package to provide 360-degree obstacle detection. The system would be designed to detect obstacles within a range of nearly 220 yards, which would enhance its ability to avoid accidents at highway speeds.

"It would involve test fleet production and design for mass production," Hall said, declining to name companies with which Velodyne is in discussions. "We hope to complete the deal this year."

You can reach **David Sedgwick** at dsedgwick@crain.com.

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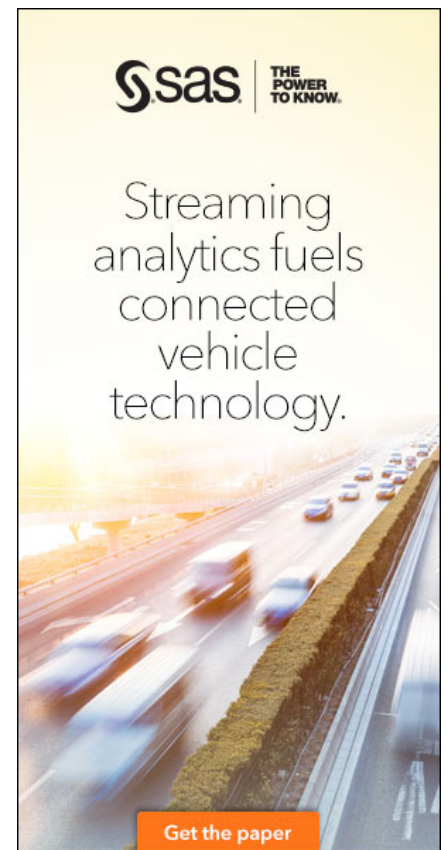
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