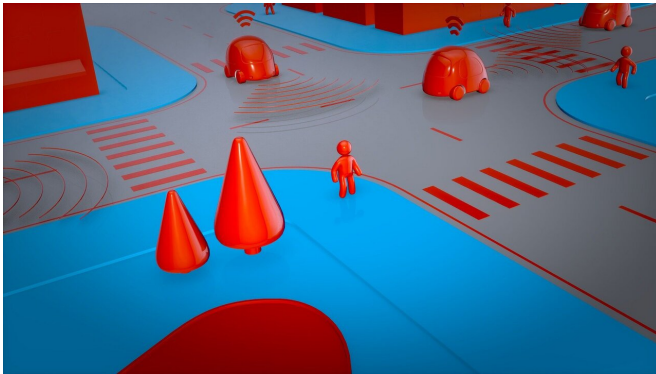


Bosch: Will its lidar tech turn a corner for autonomous driving?

3 January 2020, by Nancy Cohen



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Lidar can be the third eye and an essential component for safe driving in your automated car's future. That is the word from Bosch. They want the world to know that two is not ideal company; three is better company. Cameras and radar alone don't cut it.

CES is just around the corner and Bosch wants to make some noise at the event about its new lidar system which will make its debut there. The Bosch entry is described as a long-range lidar sensor suitable for car use.

The company is posing a question that makes it difficult to refuse: Do you want safety or do you want the highest level of safety? Two things Bosch wants you to know: (1) it can work in both highway and city driving scenarios, as said in the company release, that "Bosch sensor will cover both long and close ranges—on highways and in the city" and (2) it will work in concert with cameras and radar.

Bosch management board member Harald Kroeger said in a [company](#) release: "By filling the sensor gap, Bosch is making automated driving a viable possibility in the first place."

The company stated that "Before safe automated driving can become a reality, a third sensor principle is needed in addition to camera and radar. Consequently, Bosch is making long-range lidar [sensors](#) production-ready."

Bosch in its official release had much to say about the benefits of lidar:

"in lidar systems, the sensor emits laser pulses and captures the laser light that is scattered back. The system then calculates distances based on the measured time it takes for the light to bounce back. Lidar offers very high resolution with a long range and a wide field of vision. As a result, the laser-based distance measurement tool can reliably detect even non-metallic objects at a great distance."

That is why radar and camera need long-range lidar as a "third element," with three technologies complementing each other and delivering "reliable information in every driving situation," said Bosch, with developers having investigated use cases of automated driving functions from highway assist to fully automated modes in cities.

Case in point: if a motorcycle approaches an automated vehicle at high speed at a junction, lidar is useful in addition to camera and radar to ensure the reliable sensing of the two-wheeler...radar in and of itself "can struggle to detect the bike's narrow silhouette and plastic fairings. Moreover, a camera can always be dazzled by harsh light falling on it. "

Roadshow's Sean Szymkowski [said](#) "the system can detect anything near or far away—even a rock in the road."

Kris Holt in [Engadget](#), meanwhile, saw the real news element in the Bosch attempt to drum up interest in its lidar plans as not merely news that the company had a lidar (light detection and

ranging) sensor for self-driving cars but that it has developed production-ready lidar sensors for use in vehicles with the aim to keep costs down by making them at scale.

"That way, it might be able to offer them at a lower price and bolster more widespread adoption of autonomous driving systems," said Holt. Indeed, that is why [Reuters](#) led its report on the Bosch announcement with a headlined accent on price: "Germany's Bosch to offer lower-cost sensors for self-driving cars."

Bosch is one of the lidar sensor suppliers; Holt wrote that "It's not clear when Bosch will start selling its own sensors or how much they'll cost, but at the very least more competition should help drive down lidar prices."

Wait and see what further information may come from Bosch at CES. *Roadshow's* Szymkowski brought up these points:

"Today, lidar is rather bulky and clumsy-looking as it sits atop the roof of a vehicle. Bosch said this will be the first system "suitable for automotive use," though plenty of other companies would likely argue that fact."

Also, he said that the company did not provide too much system details ahead of CES 2020 and "we don't have photos of the system yet either," he added.

Sam Abuelsamid in [Forbes](#) likewise noted that technical details of the new sensor were "extremely sparse."

Ben Klayman in Reuters also noticed that Bosch had not provided a timeline, pricing or further technology details for its lidar announcement, other than the company was working on making the sensors "production ready" with the focus on "affordable mass market" technology.

Also, it was strongly stated by Elon Musk earlier this year that he did not think lidar was necessary for self-driving car safety. He swatted it off his wish list. "Lidar is a fool's errand," Musk said at a Tesla event earlier this year.

Steve Crowe quoted him in *The Robot Report*. So did Matt Burns for [TechCrunch](#): "Anyone relying on lidar is doomed. Doomed! [They are] expensive sensors that are unnecessary. It's like having a whole bunch of expensive appendices. Like, one appendix is bad, well now you have a whole bunch of them, it's ridiculous, you'll see."

The Robot Report [told](#) readers about research at Cornell University in which two cameras on either side of a vehicle's windshield detected objects with nearly Lidar's accuracy. Crowe quoted a co author of the research paper. "The common belief is that you couldn't make self-driving cars without Lidars," said Kilian Weinberger, associate professor of computer science at Cornell and senior author of the paper Pseudo-LIDAR from Visual Depth Estimation: Bridging the Gap in 3-D Object Detection for Autonomous Driving. 'We've shown, at least in principle, that it's possible.'"

"Even if lidar units were \$10 Tesla is too smart to waste time with them," said one reader comment in *Engadget*.

Nonetheless, the Reuters report looked at the bigger picture of lidar technology, using light-based sensors to generate a three-dimensional view of the road.

Klayman observed that one is talking about "a relatively young technology that is still in flux. In its current form, it is too expensive for mass market use, but if a cheaper lidar sensor were widely adopted, it could provide more depth data that would allow self-driving cars to detect the distance to other road users like pedestrians."

Furthermore, with start-ups working on [lidar](#), a supplier like Bosch getting involved "could help speed adoption of the technology."

Let's wait and see.

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