

Tesla's Elon Musk Trashes Lidar For Self-Driving Cars, But Waymo Is Rolling Out A New One

Elon Musk packed a lot of [audacious claims](#) into Tesla's "[Autonomy Day](#)" conference this week, including a bombastic pronouncement that "lidar is a fool's errand and anyone relying on lidar is doomed." Waymo, the Alphabet Inc. unit with a decade of driverless car research under its belt, sees things differently: It's rolling out a next-generation version of the sensor that uses lasers to create 3D, 360-degree views of the world.

The company isn't sharing details of its latest lidar unit, designed and built entirely in-house, but began testing it in the San Francisco Bay Area in recent weeks. Human-driven Chrysler Pacifica minivans outfitted with the device and modified cameras and radar—also created in-house—are readying the upgraded vision system for use on electric Jaguar i-Pace SUVs that begin entering Waymo's fleet later this year in metro Phoenix (where Waymo began its [on-demand robo-taxi service in late 2018](#)).

While Waymo wouldn't tell *Forbes* if the new device has more range than the current version's 300 meters, better durability and lower cost than the lidar it replaces, CEO John Krafcik has previously said sensor performance needs to improve, particularly to operate in areas with snow and inclement weather.

"We're going to have new lidar, radar and cameras, which is pretty much the whole thing," Krafcik [told CNET last October](#). "One of the things to really focus on is ensuring four-season robustness. And that means that sensor cleaning is a critical, up-front design parameter."

Musk has disparaged lidar in the past, a technology he appears to dislike as much as [hydrogen fuel cells](#) and the [U.S. Securities and Exchange Commission](#). His comments this week, however, were a remarkable line in the sand as his belief that cameras, radar and ultrasonic sensors are sufficient for self-driving car vision systems isn't just at odds with Waymo's but with the approach of every major autonomous vehicle program.

To Musk, they are "expensive sensors that are unnecessary. It's like having a whole bunch of expensive appendices. One appendix is bad, now we'll put on a whole bunch of them. That's ridiculous. You'll see," he told analysts on Monday.

While lidar has challenges, including how well it distinguishes between soft and hard objects, cost and electric power consumption, its ability to generate detailed, ghostly 3D point-cloud maps of a moving car's surroundings in all lighting conditions, working in tandem with cameras and radar, gives self-driving cars awareness of road conditions that's superhuman.

Waymo declined to comment on Musk's remarks, though detailed its belief in the technology in a [2017 blog post](#).

"It can distinguish between a pedestrian and a picture of a person. It can also see shapes in three dimensions, detect stationary objects, and measure distance precisely. Like a person's own five senses, our sensors are more useful and more powerful when we put them all together."

Separately, Waymo said the factory that will be installing those new lidars, cameras and radar, as well as all technology needed for its self-driving vehicle fleet will be set up in Detroit.

"We're excited to announce that we've found the perfect facility in Detroit," it said in a blog post. "We will partner with American Axle & Manufacturing to repurpose an existing facility, bringing a workforce back to an area where jobs in the automotive industry were recently lost."

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