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2014 Detroit Auto Show: Laser Sensing for Autonomous Driving

Your self-driving car will "see" the world like a not-so-blind bat

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Research This Vehicle:

In its grand new "Behind the Blue Oval" space at this year's 2014 Detroit auto show, Ford showed off its not so cleverly named Hybrid Fusion Automated Driving Vehicle, a joint research project in conjunction with the University of Michigan and State Farm [Insurance](#).

One of the coolest parts of the car is its array of four Velodyne scanning LIDAR sensors. Each is the size of an [engine](#) oil filter, and contains 32 laser beams that scan the world around them out to a distance of about 200 feet by spinning and sending out laser pulses. They replace the single giant helmet-size scanner on the early Google cars.

The main image on this post is the instantaneous view these lasers were "Seeing" as I snapped the shot (somewhere off the left rear corner of the car). The next image is an aggregate image constructed of the downtown Ann Arbor area after numerous passes with the scanner car. The next is that image overlaid with the view the red car is measuring at the

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moment.

This shows how the future of autonomous driving will work. A rich map of the permanent stuff will be measured, maintained, and shared. Individual cars will use smaller, less obtrusive sensors with fewer scanning lasers to see only what is new or moving (like the bikes you can barely see crossing the street in yellow).

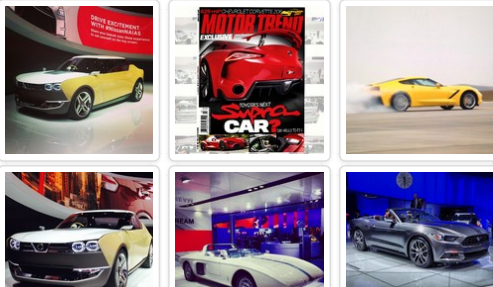
The final shots show the shrinking in size from Google to Fusion, to the future, when such sensors might be incorporated into the side-view mirrors. Pretty cool...



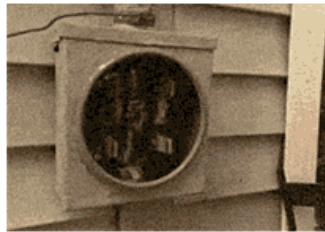
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