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BUSINESS

Ford Developing Fully Driverless Car

Auto maker acquired Israeli firm SAIPS and invested \$75 million in Velodyne

By **CHRISTINA ROGERS**

Updated Aug. 16, 2016 2:09 p.m. ET

Ford Motor Co. plans to release a fully driverless car without a steering wheel or pedals in the next five years, the latest salvo in a technological arms race engulfing the global auto industry.

The Dearborn, Mich., auto maker on Tuesday said it would initially target ride-sharing fleets and package-delivery services with the unnamed model, underscoring the still-incremental approach many car companies are taking before offering vehicles to consumers that don't require humans behind the wheel.

Ford expects the first of its driverless cars to be used by commercial-fleet operators looking to cut the costs of employing human drivers, company executives said. The vehicles largely will be confined to cities with pre-mapped zones designed for autonomous vehicles.

Separately, Ford said it had acquired an Israeli machine learning firm, SAIPS, which has 12 employees, and invested \$75 million in Morgan Hill, Calif.-based laser sensor maker Velodyne Inc. Both are aimed at boosting Ford's autonomous-vehicle know-how, with the latter working on sensors to help autonomous cars successfully recognize objects and navigate traffic. Chinese web-service provider Baidu Inc. invested in Velodyne alongside Ford.

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The nation's No.2 car maker also plans to double the staff at its Silicon Valley office to 260 by the end of 2017, hiring researchers and business-development staff in an effort to expand into new transportation services.

Ford's forays mark the latest attempt to keep up as traditional car companies and Silicon Valley upstarts race to deliver automated-driving technologies. But those endeavors have come under increased scrutiny after the May fatal crash of a Tesla Motors Inc. car driving itself. Questions also remain over regulations and legal liabilities arising from the advancements.



Ford CEO Mark Fields holds a Velodyne sensor that is being used in Ford's autonomous-vehicle plans. Ford and Chinese web-service provider Baidu are leading a \$150 million investment in Velodyne. *PHOTO: GETTY IMAGES/ETHAN MILLER*

General Motors Co. punched the accelerator earlier this year, taking a \$500 million stake in ride-hailing startup Lyft Inc., with which it plans to soon start testing a fleet of driverless Chevrolet Bolt taxis. The Detroit car maker also has said it expects next year to roll out its SuperCruise feature that allows for hands-free driving on the highway. It this year acquired the Silicon Valley autonomous-driving startup Cruise Automation Inc. to aid development efforts.

Other global giants including Toyota Motor Corp., Nissan Motor Co. and Volkswagen AG have committed to putting self-driving cars on the road. Nissan pledged it would roll out 10 new models within the next five years with a range of self-driving features aimed at individual buyers, including a fully autonomous car. Tesla, which released its driver-

assist Autopilot system last year, says it will be the first to put a fully driverless car on the road, although it hasn't set a specific date.

'It is still going to be a relatively expensive vehicle.'

—Mark Fields, Ford CEO

Google parent Alphabet Inc. recently said it was pairing with Fiat Chrysler Automobiles NV to jointly test self-driving technology in minivans.

Ford's driverless car won't be made available for sales to individual customers until later in the decade, Chief Executive Officer Mark Fields said in an interview.

"We've done a lot of work reducing the cost on the technical components, but at the outset, it is still going to be a relatively expensive vehicle," he said.

Ford declined to say whether it plans to operate its own robo-taxi fleet or sell its forthcoming driverless car to independent ride-hailing services such as Uber Technologies Inc.

Like other major auto makers, Ford is allocating significant resources to developing self-driving cars, viewing the technology as a way to reach consumers who live in large, congested cities and don't own a vehicle. Earlier this year, the company established a separate division, Ford Smart Mobility LLC, to explore new business models that will cater to that growing market.

But Mr. Fields said Ford isn't interested in being the first auto maker to put a fully autonomous car on the market, noting "we're not in a race to make announcements."

'The regulators are being very forward leaning on this.'

—Mark Fields, Ford CEO

Many car companies, including Ford, are installing semiautonomous features such as automatic emergency brakes and adaptive

cruise control in vehicles. But Ford remains keenly focused on fully driverless cars, with product chief Raj Nair expressing concerns over whether drivers can take over quickly enough when driverless systems are disabled.

Other hurdles also remain. Regulators are still trying to sort out what rules and guidelines need to be in place before driverless cars start hitting roadways in large numbers.

“The regulators are being very forward leaning on this,” Mr. Fields said. “Our desire is to get a 50-state national framework” on operational standards for driverless cars, he added. The National Highway Traffic Safety Administration plans this summer to release guidelines for local rules on driverless cars.

Ford and Baidu’s investment in Velodyne also is aimed at helping the tech firm lower the costs of its sensors to between \$300 and \$500 a unit, inexpensive enough for mass adoption. The first Velodyne laser device cost \$75,000 and was large and obtrusive, sitting on the roof of the car.

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