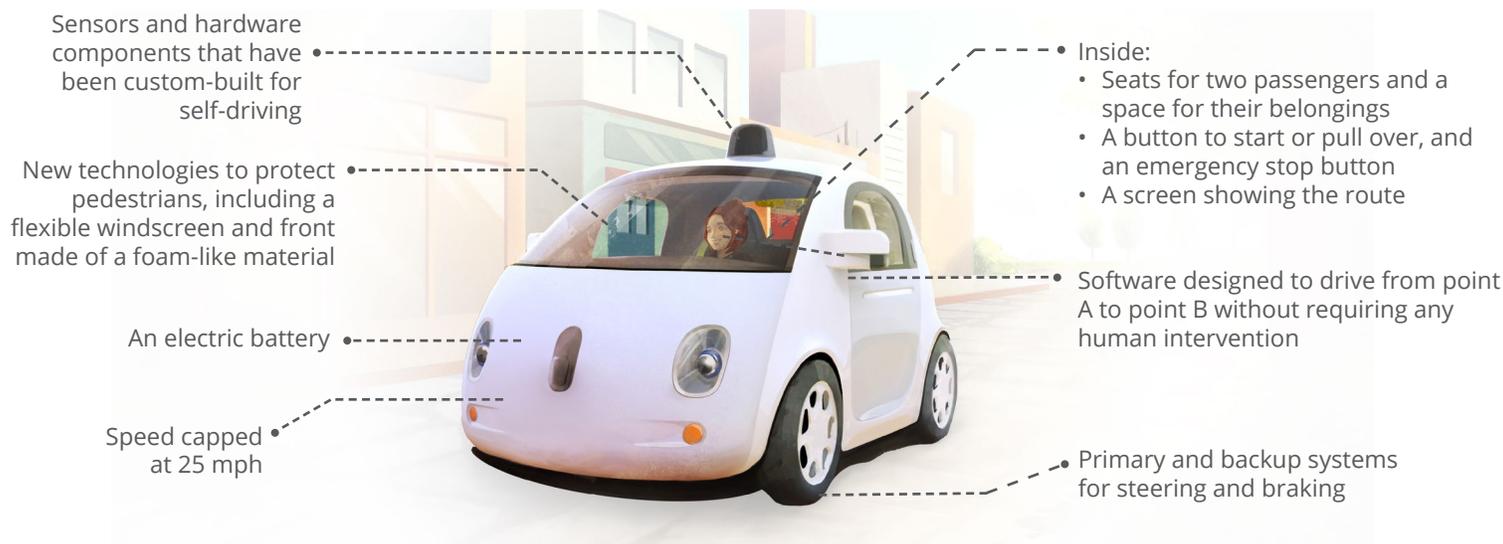


Fully autonomous driving has always been the goal of our project, both to improve road safety and help people who can't drive. We're now developing prototypes of vehicles that have been designed from the ground up to drive themselves — push a button and they'll take you where you want to go! We'll use these vehicles to test our software and learn what it will really take to bring this technology into the world.

## Key facts about the vehicle



## Why did you take this step?

A fully self-driving vehicle is a natural next step. Googlers who tested our self-driving Lexus vehicles wanted a vehicle that could handle their whole route, not just the freeway part. For the elderly and people with disabilities — groups that could really have their lives transformed by this technology — this was essential too. We also thought a vehicle that doesn't require you to do anything could be safer; when the technology is encouraging you to relax, it's hard to keep your attention on the road. (Various studies, e.g. [this one](#) from GM and Virginia Tech, have shown this.)

## Layers of safety built in

Self-driving cars never get sleepy or distracted like humans, and their ability to see 360° and simultaneously track 100s of objects around them means they can potentially respond more quickly than humans in many scenarios — which helps them avoid accidents.

**1) Awareness of environment:** The prototypes have new sensors that eliminate blind spots, both right next to the vehicle (where passengers are getting in and out) and out to 200m in all directions (which helps protect from the most dangerous types of accidents, like red-light runners).

**2) Baked in defensive driving behavior:** Our vehicles stay out of other drivers' blind spots, nudge away from big trucks and lane-splitting motorcycles, pause before proceeding after a red light turns green, and more.

**3) Redundant systems:** We have backups for major systems, like steering and braking.

**4) Passenger and pedestrian protection:** We're testing some new technologies to help keep people safe, inside and outside the vehicle, including a foam front-end and a flexible windscreen. The 25 mph maximum speed of the vehicle also decreases the likelihood of severe injury.

## WHY THIS MATTERS

### INCREASED ROAD SAFETY FOR DRIVERS, CYCLISTS AND PEDESTRIANS



Over [1.2 million people](#) are killed in traffic accidents worldwide every year. That's 3,400 each day.



[33,000 people](#) die in car crashes each year in the U.S. — that's like a 737 jet crashing every weekday.



[93% of accidents](#) are caused by human error.



Alcohol impairment [contributes to 30% of road fatalities](#) in the U.S.



12 pedestrians are [killed each day](#) in the U.S. by motor vehicles

### IMPROVING MOBILITY FOR EVERYONE

Millions of people can't drive because of age or health reasons. Many families face heartbreaking conversations to convince aging loved ones to give up their car keys. Yet in many communities, fundamental services like doctors' offices, pharmacies and grocery stores are only accessible by car.

79% of seniors age 65 and older [live in car-dependent suburbs or rural communities](#).

Seniors who are lonely are 50% more likely to die early; [lack of transportation/mobility is a factor](#).



### TRANSFORMING OUR CITIES



[30% of cars](#) in congested urban areas is searching for parking. And on average, cars in the US are parked [96% of the time](#).



There are [3+ spaces for every car in the U.S.](#), which adds up to a space the size of Connecticut.



[86% of millennials](#) want to live in a city where they can get around without relying on a car

#### More Information

##### Will you sell these vehicles? What's the business model?

No — these are just for learning. They will help us refine our technology and learn how people might want to use them — once you actually see a vehicle like this, you might start to think differently about how you'd want a vehicle in your life.

##### Are the vehicles ready today? How will they be different from your Lexus vehicles?

No. A vehicle is built in stages, so you may see multiple versions of our vehicle between now and when we have our polished prototypes ready, hopefully later this year or early next. The polished prototypes will run the same software as our Lexus fleet, but with the extra benefit of sensors that have been built and put in the best place for self-driving, rather than bolted on wherever they happen to fit.

#### Additional Resources

Official Google Blog post: ["Just press go: designing a self-driving vehicle" — May, 2014](#)

Official Google Blog post: ["The latest chapter for the self-driving car: mastering city street driving" — May, 2014](#)

Official Google Blog post: ["The self-driving car logs more miles on new wheels" — August 7, 2012](#)

Official Google Blog post: ["What we're driving at" — October 9, 2010](#)

Google Self-Driving Cars on Google+: [plus.google.com/+GoogleSelfDrivingCars](https://plus.google.com/+GoogleSelfDrivingCars)

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