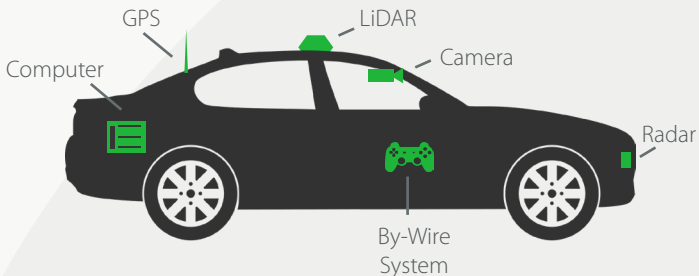


## THE ANATOMY OF AN AUTONOMOUS VEHICLE

**THE EYES & EARS:** Self-driving cars are equipped with an array of sensors to gather surrounding information. LiDARs emit laser light to bounce off and measure object distance to create a map around the vehicle. Radar works similarly, but uses radio waves instead of light. Cameras and GPS are also commonly utilized for object detection and mapping.

**THE BRAIN:** Sensors pass information to the computing stack of the car. This software contains advanced algorithms that instruct the vehicle on how to predict, avoid, and react to different driving scenarios.

**THE MUSCLE:** Instead of a person pressing the pedal or turning the steering wheel, a driverless vehicle needs the ability to be given action commands electronically or "by-wire". The computing stack sends the vehicle command signals to the by-wire system to shift, accelerate, steer, or brake the car.



# ADVANTAGES OF AUTONOMOUS VEHICLES

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**INCREASED SAFETY:** An estimated 40,000 people lost their lives in car accidents in 2018 in the U.S. - the majority of which were caused by human error. Autonomous vehicles can react more quickly and appropriately in most challenging or unexpected driving situations; therefore dramatically reducing the number of automobile related deaths.

**TRANSPORTATION ACCESSIBILITY:** Autonomous vehicles will allow for more mobility and independence for those who cannot obtain a driver's license, have a disability, or who face significant barriers to driving.

**LESS TRAFFIC:** Self-driving cars help ensure traffic moves at a consistent speed. With smoother braking and acceleration in heavy traffic, stop-and-go scenarios are stabilized. Vehicle-to-vehicle communications (V2V) technology could allow vehicles to broadcast information regarding things such as speed, direction, road conditions, construction, and traffic patterns.

**INCREASED PRODUCTIVITY:** The average American spends nearly an hour of their time driving each day. Individuals can gain valuable time back with the introduction of fully automated vehicles.

## WHO IS DATASPEED?

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Dataspeed Inc., located in Metro Detroit, provides complete autonomous research and development vehicle integrations that allow engineers to get up and running quickly on their algorithm, sensor, or data research. Dataspeed's industrial grade by-wire solutions form the foundation of these platforms.