

Advantages of the autonomous vehicles



INCREASED ACCESSIBILITY

FLEXIBLE AND SAFE MOBILITY FOR DISABLED OR ELDERLY



REDUCE ROAD ACCIDENTS

HUMAN ERROR IS INVOLVED IN 95% OF ALL ROAD TRAFFIC ACCIDENTS



IMPROVE SAFETY

ACCIDENT DECREASE THANKS TO A360° DETECTION



REDUCE CONGESTION

CONNECTED BETWEEN EACH OTHER, CARS WOULD TRAVEL MORE EFFICIENTLY



IMPROVE THE ENVIRONMENT

CONSISTENT SPEEDS WILL REDUCE FUEL CONSUMPTION



LESS LAND USED FOR PARKING

VEHICLES CAN SELF-PARK FAR AWAY FROM THE DESTINATION SIDE BY SIDE

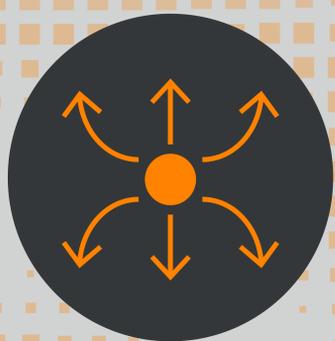
Which one do you think is more important?

 **CARNET**

FUTURE MOBILITY RESEARCH HUB

How do self-driving cars work?

As a person you move by perceiving your surroundings with your senses, processing the information in your brain and sending signals to your muscles to move. A car is something similar...



THE SENSES

CAMERAS

With a single camera (one eye) you can recognise objects. With two+ (both eyes) you can estimate how far they are, but with limited precision.

DISTANCE SENSORS

They measure the distance to an object by the time it takes for a wave to reflect back. Depending on the type of wave: Ultrasonic, Radar, Lidar.

INERTIAL SENSORS

Measures accelerations. As your ears, they give a sense of orientation.

GPS

Through trilateration of satellites they estimate location in meters.

ENCODERS

Measure the turn rate of the wheels.



THE BRAIN

3D MAP

Without this, the car can move but without much precision, e.g. it can mistake the moon for a yellow traffic light.

LOCALIZATION

Merges multiple sensor data to increase the accuracy of GPS into cm.

PERCEPTION

It defines what to do with the info. E.g. matching the shape and colours of a traffic signal with its meaning.

PLANNING

It builds a route & a path to a destination. The path is translated into speed and steering.



THE MUSCLES

Actuators' job is to convert electrical signals (like your thoughts) into a controlled action. Actuators move the steering wheel, brakes and accelerate.