

Autonomous vehicles

What does it do?

Autonomous vehicles are an emerging technology that completely automates the driving element of the vehicle using complex AI technology. Autonomous vehicles are capable of sensing the environment around them and navigating their way through said environments safely with little to no human influence.

Technology

Autonomous vehicles use a combination of old and new technologies such as Radar, Sonar, Lidar, GPS, IMU (inertial measurements units) and odometry to operate a fully driverless vehicle. All these technologies help to identify appropriate navigation paths alongside identify relevant road signage and obstacles such as civilians and structures.

Today we are seeing a definite future with autonomous vehicles as more and more companies are funding more and more research to develop driverless vehicles such as Tesla, Uber and Navya. Which have all put out semi-autonomous vehicles. Tesla has said it will offer a “subscription-based full self-driving” to vehicle owners in 2021. The technology now to develop driverless vehicle is rapidly advancing into a reality, so far Tesla has created an Autonomous vehicle which was under the name “Tesla Autopilot” in 2015. Tesla rolled out a version 7 update in the US which concluded Autopilot capability. Later in 2016 version 7.1 emerged adding a new feature that allowed to summon cars or self-park at parking locations. This feature is still being used today but required the full attention of the driver as the Tesla Autopilot will occasionally fail to detect lane markings and disengage itself. In regards to the Tesla Autopilot, it is almost certain that we will see fully automated vehicles in the distant future. With companies such as Tesla reducing human activity with certain driving elements is certainly a step closer to achieving a fully automated vehicle.

However, there have been reports regarding Tesla’s reliability in terms of the “Autopilot feature” as on the 20th January 2016 the first fatal crash occurred whilst under the “Autopilot feature” where the driver wasn’t paying attention to their surroundings and this is one of those incidents where the autopilot failed to identify the road markings and crashed the vehicle. There have been multiple occasions where the Tesla vehicle has crashed and even killing a passenger. The technology used in these vehicles needs further refinement over the years to truly be autonomous without any human support.

Today technological advancements in autonomous vehicles today have been mostly used consistently with long-distance truck drivers which have a feature called “cruise control” which maintains the speed and has sensors to indicate the driver if you are in danger of a collision using sensors. These procedures half automate the long-distance control over the vehicle. If technology keeps advancing at this rate by 2030 one in every 10 cars will be fully automated globally.

What is the likely impact?

This technology will have a tremendous impact on society as we know it. Driving will be completely automated with the driver having little to no interaction with the controls. The impacts of this development are technological, economic and societal. Impacts include.

- The decline in sales of transportation costs due to competition
- Mobility for the elderly and disabled will increase
- Fewer cars will travel more miles because of the increase in-vehicle use.
- Fewer vehicles will have to be produced yearly
- The oil industry will experience a severe decrease in sales
- Air pollution and greenhouse gasses will virtually be eliminated from vehicles

What will change

Changes will be made to the society, economy and technology such as

Societal

The way people drive

Fewer people will own a car as it will become a service

Economical

Saving costs

Reduced crashes

Fuel efficiency

The creation of new jobs.

Environmental

Eliminated fossil fuels emitted from vehicles

Eliminated the emission of greenhouse gasses from vehicles

Reduction of global warming

Technology

Advancements in technology.

Who will be affected

There will be a margin of people who will be affected by the roll-out of automated vehicles, such as taxi companies e.g Uber, Didi, infinite cab, taxicabs, 13 cabs. Taxi drivers will be made redundant cutting the job entirely. A lot of workers will have lost their jobs in the transportation industry due to vehicles being automated. Trains have already started and are on the typing point of being fully automated. For example, the Sydney metro in Australia is one of the first fully automated vehicles. The Sydney Metro is completely automated with no human interaction. And has proven to be a success with the daily transportation between each stop. This has eradicated the workforce for the metro line as they do not require staff on board which has reduced jobs in the transportation industry.

What jobs are automated vehicles going to create?

With automated vehicles taking numerous jobs from the transportation industry. Autonomous vehicles have created more jobs such as...

- Customer success field representative
- Perception software engineer
- Strategic account manager
- Autonomous navigation software
- Field service technician
- Industrial engineer
- Field autonomy manager

With autonomous vehicles taking a huge number of supervisory roles in the transportation industry. It will create a number of new ones and create a demand for existing jobs such as “engineers” this will greatly help the economy with the job loss.

The technology used in vehicles today will not be lost but merely transformed and elevated to a higher standard. With the introduction of autonomous vehicles comes more software being placed into the vehicles. And where the next generation vehicles are, we are seeing a high rise in electric cars instead of the diesel/petrol cars. This is extremely environmentally friendly and eradicates greenhouse gasses and other pollutants, which will greatly help our environment. Furthermore, several governments around the world have been pleased with this new idea and have eradicated carbon emission in various cities e.g “London city” which is helping the environment. Technologies such as the “combustion engine” will soon become obsolete as the “induction motor” will replace it proving to be less complicated, heavy and more efficient than the standard “combustion engine”.

How will this affect you?

This will be a drastic change for me as having control over your driving was a natural thing but if technology reaches the point of autonomous vehicles it would definitely be strange being in the driver's seat but not being able to drive. The trains, trucks and other vehicles wouldn't personally affect me too much as it rarely concerns me in my way of life but it would definitely take time for me and my family to get used to not being behind the wheel.

