Autonomous Vehicles .

An autonomous vehicle - also known as a driver-less car - is a vehicle that can sense its environment and move safely on its own with very little or even no human input. Autonomous vehicles carry several different sensors to see and sense their surroundings, which include radar, LIDAR (Light Detection and Ranging - a sensing method that uses light in the form of a pulsed laser to measure distances), GPS, odometry and inertial measurement units. An advanced onboard computer takes all the inputs from these sensors to identify the roads, road signs as well as obstacles such as pedestrians, other vehicles and roadblocks. Ideally automotive companies want to aim for level 5 automation which classifies as: “steering wheel optional” and require no human intervention at all. At this present moment in time we are at level 2, which classifies as "hands off.” At level 2, the automated system takes full control of the vehicle, however the driver must keep an eye on the road and be prepared to take control straight away if the automated system fails to respond properly. Although this level is called “hands off”, the vehicle still requires the driver’s hands to be on the wheel at all times for the system to engage.[1]

Over the next three years it’s unlikely that we will see much more advancement in autonomous passenger cars on our roads. It is likely to be decades before we reach level 5 advancement. Several car makers and technology companies have concluded that making autonomous vehicles is going to be harder, slower and costlier than they thought.[2] Car makers have made it to the point where their vehicles can easily spot and identify obstacles on the road. The difficult part is preparing the vehicle for unusual circumstances, such as pedestrians crossing the road when cars have a green light and human drivers making illegal turns. What is most likely to happen in the next few years is autonomous industrial, agriculture, construction and mining vehicles.[3] In these situations, there is very little chance for human factors to cause these machines to unnecessarily stop or even accidentally injure or kill someone. Case, which is a company the builds farming equipment has already released a concept tractor which is fully autonomous.

The biggest impact this will have is in the areas where there will be very little factors that will cause death or injury. We'll see major changes in the mining and agriculture fields as there is very little vehicle traffic and most of the time there is plenty of room to move. With the advancement of autonomous vehicles, mining companies will be able to devote more manpower to searching for minerals while the menial jobs like transporting the earth to the sorting facility can be done my machine. This will be a more efficient approach which saves the company time and produces more end product. The downside to this approach is that transport jobs will be lost. In agriculture, autonomous vehicles will improve the lives of farmers as they will not need to spend time struggling to find workers to drive their vehicle or pick produce. Again, this is a situation that has very little risk factor as once the vehicle is programmed and under way it’s likely that no one will around except for possibly a supervisor keeping an eye on the vehicle. This will have major benefits for farmers of the future as they will no longer have to search for reliable employees, and they can spend more time tending to their crops. This creates a greater yield and less down time for the farm.

Another big opportunity for autonomous vehicles will be the taxi/public transport industry. With future technology we will not need drivers and instead be shuttled around in taxis like the ones used in the science fiction movie “Total Recall.” Australia and other countries around the world are already testing out autonomous buses and hope to have them online in Sydney's busiest routes by 2022.[4] According to itsnews.com.au, New South Wales already has driver-less buses in operation in Sydney Olympic Park.

Finally, autonomous vehicles will vastly improve the lives and mobility of the elderly and handicapped. These vehicles will give them the freedom to do tasks such as grocery shopping and will enable them to stay socially active with family and friends. A downside to this is the demand for caretakers will decrease as most people will be able to move about freely without the need for someone to shuttle them around. On the plus side, people who were once unable to find employment due to mobility issues may be able to find themselves a job in the workforce again or even for the first time.

In the short term, I do not see this this technology affecting my daily life directly. I rarely catch public transport, so I won't be dealing with autonomous buses and trains and I don't see myself owning an autonomous vehicle at any time in the foreseeable future. The only way this may affect me in the short term could be the possibility of sharing the road with an autonomous vehicle. Depending on how reliable their software is, it could be challenging to make an insurance claim when the autonomous vehicle is at fault. In the long term when I'm a lot older, I may need one if I become unable to drive myself around safely. I'd much prefer to travel in an autonomous vehicle than depend on someone to drive me around or catch public transport. Autonomous vehicles have a great ability to change lives in the future. I hope I'm around to see the positive changes they could have on many peoples lives.

[1]https://en.wikipedia.org/wiki/Self-driving_car
[2]https://www.nytimes.com/2019/07/17/business/self-driving-autonomous-cars.html
[3]https://www.cnbc.com/2016/09/16/future-of-farming-driverless-tractors-ag-robots.html
[4]https://www.itnews.com.au/news/driverless-buses-trialled-on-sydneys-busiest-routes-by-2022-518815