**Autonomous vehicles**At the moment this topic is discussed more controversially in relation to cars. Often they are the centre of attention when it comes to autonomous vehicles and what they can do with AI (artificial intelligence) implemented in them. At the moment, this kind of technology is still in ongoing testing. Big companies like Tesla and Waymo are in the race to develop the technology in the hopes that they can be made available commercially in around a decade’s time. Autonomous cars or more commonly known as self-driving cars will be a huge breakthrough and have a big influence once it has been fully tested and implemented into the world we live in. As mentioned before, a lot more testing will need to be conducted perfect this sort of technology before it is deployed into the real world with people. If this proven to be successful with cars in the future, I can imagine it then being tested on other forms of vehicles and methods of transportation. These can be trucks, trains, trams, buses etc.

Self-driving cars would not be possible without technologies like the camera, radar, and LiDAR (Light Detection and Ranging). These kinds of technologies are used to generate constant data of the surrounding environment the car is driving in. This data is then fed continuously to the AI so that it can analyse and make decisions while keeping track of what is currently happening. These different technologies come with their own unique advantages and disadvantages, but at the moment there is no apparent winner when it comes to a better alternative. LiDAR is seen definitely as the most expensive sensor to implement in these self-driving cars.

There has also been an international standard introduced by SAE International in 2014 that ranks cars in order of autonomy (0-5). Level 0 meaning fully controlled by a human driver (no automation) and level 5 meaning fully controlled by an AI (full automation). The system is also split into two halves determining who is responsible for monitoring the environment (0-2 and 3-5). Levels 0-2 are where the human driver is responsible for monitoring the driving environment while driving. Levels 3-5 are where the automated driving system or AI is responsible for monitoring the driving environment while driving. Each level also has four categories which are used to check for automation capability.

These 4 categories are:

* Execution of steering and acceleration/deceleration
* Monitoring of driving environment
* Fallback performance of dynamic driving task
* System capability (driving modes)

The level classifications also go as follows:

* Level 0 – No assistance
* Level 1 – Driver assistance
* Level 2 – Partial automation
* Level 3 – Conditional automation
* Level 4 – High automation
* Level 5 – Full automation

The first fatal crash involving a pedestrian and a self-driving car happened in the US on 18 March 2018. Uber’s self-driving car had radar sensors which failed to detect a 49 year old woman crossing the road at night. As a result she was hit at full speed and died from her injuries. Huge debate followed with regards to whether these self-driving cars were fit to be on the roads alongside human life with fears many lives will be taken. Investigation is being conducted to find the possible cause for why the car did not detect the woman and brake. Uber has since suspended all testing on all fleets equipped with this technology.

Autonomous cars being introduced into the world will have a profound impact on everyone, good and bad. This sort of development will most likely create a redundancy in taxi jobs causing hundreds and thousands if not millions of job losses if vehicles become 100% capable of driving on their own. This will save taxi companies many millions but will also be detrimental to employment rates and those who have a current job in that area. On another note, rates of accidents and fatalities may be reduced. AI is pictured to be perfect unlike its human counterparts and so is perceived to be incapable of making any mistakes. This may be true to a certain degree but there is also the possibility they can malfunction and do unpredictable things or worse than what human error can bring. One concern about driverless cars is that they may be out of the price range of what ordinary people can afford. This can make it really hard to sell driverless vehicles once they are introduced. The benefits they offer can almost be very well make it worth the investment for buyers. There is also a huge concern around driverless cars for the fact that they may be hijacked by criminal hackers or even broken into and used to commit crimes like ram raids or the even more serious ones. So companies should be investing somewhat in the security of these cars to prevent any possible criminal use. That aside, autonomous cars are able to drive by themselves. For long road trips, people can sleep through the journey and get there faster without having to stop along the way. These types of cars may also be much better at saving petrol as they should be able to drive at more consistent speeds as well as choose the most efficient routes to take. As people start getting into driverless cars, overtime their experience and skills with handling a car will diminish. In the long term, emergency situations that require drastic action will be hard to manage when manual operation is required. Good or bad, there are still many more things to discover about autonomous vehicles. Only time can tell as further research and testing is put in to perfecting the technology.

I find that self-driving cars will limit our ability to physically interact with our own cars. It would be more comfortable knowing I am in control of my own car rather than having an AI making the decisions on the road. Although having the ability to enable and disable automatic driving would be an ideal feature to allow people to toggle between manual and AI automatic driving. Not much will change in my life from this sort technology as I prefer control of my own car. Cars with this type of technology will probably cost a fortune to afford for normal people and so I will definitely be sticking with a normal car. It can also be really boring if you don’t having anything to do but stare at the windshield until you get to your destination. Even though humans are more prone to errors, an AI slipping up just once can turn into a disaster for the passenger(s) inside the car. There have already been reports of a driver who has died in a self-driving car by Tesla and a woman who was struck by self-driving car owned by Uber. This only means that these kinds of cars are not yet ready to be introduced on our roads and will need to go under more safe testing if they are to be ready in the future.