New Ways In Artificial Intelligence

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Abstract

Artificial intelligence has changed the way we do things as humans. However the area it is set to revolutionize is transportation. The development of AI powered vehicles is on the fast track and sooner self-driven vehicles will be on our roads and make travel even much more effortless, accurate and safer than ever before. The AI behind Automated vehicles relies on the IoT, GPS, Lidar, remote sensors, cameras, and multiple radar systems that work together to imitate the functioning of the human brain and even more accurately. The future is more likely to use AI in collecting data, processing the data and feeding it to ensure that these vehicles can operate in modern cities and towns much more effectively. Artificial intelligence will be at the center of integration between cloud technology, big data and the IoT and this will make AVs the product of choice because of safety, accuracy and reliability. Most importantly, the transport industry is going to grow very fast because AI will make things easier for all. AVs will change the transport industry by making travel less hectic, safer and more seamless than the present. The use of AI to integrate sharing technology among AVs will make it easier to share information and among motorists and this will reduce chances of accidents.

Introduction

Artificial intelligence is based on the principle that machines can be built with the capabilities of doing complex tasks that usually require human knowledge. AI machines can learn from trends and experiences of human behavior, collect data, analyze and carry out processes in an even better way, and have higher accuracy than humans. AI has been integrated into many sectors across America, which has created widespread values and unprecedented economic growth and social prosperity. AI use extension has been supported by the need to absorb, interpret, and analyze a large number of data generated by human beings and machines for better decision making. The internet of things and the widespread use of technology mean that people want more convenience as machines perform tasks on behalf of human beings. One area that artificial intelligence has significantly helped to make great strides towards a new form of civilization is self-driving car development (Verghese, 2017). A good example is Google's Waymo, which integrates AI by coming up with futuristic vehicles that are being tested and gradually being put on the roads. In this paper, I discuss how self-driving car innovations are set to revolutionize American and global transport in the future.

The power of AI in self-driving cars

The race to develop the next driverless vehicles to be used in our roads is already a race in Silicon Valley, where Waymo is already a big player competing against other big players like Tesla. The power of AI is evident in self-driving vans such as Waymo's, where the car easily navigates through traffic, and through deep learning, the car system is able to identify situations and develop the relevant reaction (Elezaj, 2019). The AI behind all this is the computerized system powered by the IoT, GPS, Lidar, remote sensors, cameras, and multiple radar systems that work together to imitate the functioning of the human brain and even more accurately (Jazar and Dai, 2019). These systems are integrated to work together and ensure that the car is able to be self-controlled without any human intervention. Deep learning is a critical component of machine learning, and AI allows processes to be integrated for complex decision-making, such as vision and avoiding objects.

Figure 1GPS, Lidar, remote sensors, cameras, and multiple radar systems; Source: Campbell Law Observer

However, despite all the technology, minimal human input is required to ensure that the car gets the vital data, such as where the user wants to go to for the vehicle to select the optimal route accurately. Computer vision enabled by the multiple cameras plays an essential role in coming up with the data required for decision making (Latshaw, 2019). The control system powered by AI is then able to take over and use collected and trained data sets to determine the next courses of action the car will take. Path planning is also important in determining how the car will navigate, and once the path plan is conceived and the system is able to avoid obstacles, follow road rules and accurately move towards its destination (Verghese, 2017). This is far much better than humans who most often make wrong decisions about the critical path of the journey hence using a lot of energy.

The use of AI has created value in the transport industry, and the future is more likely to use AI in collecting data, processing the data and feeding it to ensure that these vehicles can operate in modern cities and towns much more effectively. At level 5, the car is able to do all the driving without requiring any human attention, further showing how the power of automation is transforming the sector and disrupting the traditional car market (Latshaw, 2019). In a nutshell, AI is the brains of the future cars, and it will play a significant role in enabling the car to make decisions such as switching lanes and following the GPS information towards the destination.

Impact on the American transport system

The AI-powered full autonomous cars will have a significant but beneficial impact on the American transport system. According to a recent report by the Boston Consulting Group, AVs have been increasingly tested, and the results portray that Cities will need to restructure their current spatial plans to factor in better road designs and also ensure that roads are more secure, cycling paths more transparent and more reliable than currently to prevent the legal risks. Hopefully, AVs will be reliably produced in the following five years and might be accessible in numerous regions by 2030 (Ji, 2018). On the off chance that they follow the example of past vehicle advances, during the 2030s and likely the 2040s, they will be costly and restricted in execution, at times incapable of arriving at an ideal goal or requiring human mediation when they experience startling circumstances. Clients will incorporate well-to-do high-yearly mileage drivers and organizations. Indeed for many years, it has to become available for low-pay family units that generally will keep on utilizing human-worked vehicles.

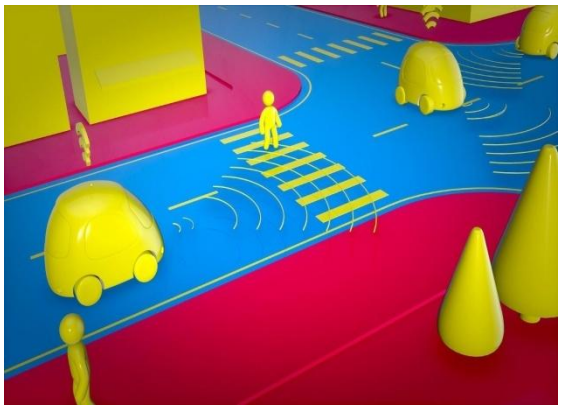

Figure 3 GPS, sensors and computer vision will change our Cities: Source: Towards Data Science

Completely robotized frameworks will be under changeless PC control, failing to seek human info and consequently never officially having what we presently see as a prompt driver. Be that as it may, all these vehicular innovations will work all together on typical roadways, in any event for various decades (Ji, 2018). This has been alluded to as the mixed-use transportation state. This is on the grounds that the vehicle framework is a common social asset, so all entertainers bear a shared obligation regarding regular citizenship. New principles may incorporate conventional traffic-control gadgets and transit regulations, and further include the planned regularities of the roadway by the structural specialists answerable for their development. Self-driving vehicles are going to affect product development, the large trucks, or the neighborhood bundle conveyance to your home or your condo (Seif, 2019). It will affect how you get around consistently. It will let more youthful individuals get around. It will let more seasoned individuals get around additional and disabled individuals and individuals who can't manage the cost of a vehicle or choose not to claim one.

Standard self-governing vehicles and rides might be broadly accessible before this current decade's over. Mutual vehicles have moderate working expenses and offer moderate accommodation and solace (Ryeng, Lindseth and Haugen, 2019). They ought to be less expensive than the ebb and flow taxi and ride flagging down administrations, yet offer lower quality help since no driver will be accessible to help travelers, give security, or clean vehicles. Vehicle dispatching will, in some cases, be moderate and flighty, especially in rural and provincial territories. Typical rides will have the most minimal expenses, yet the least accommodation and solace. Due to their high work costs and unsurprising courses, long stretch transports and cargo trucks are especially proper for

independent activity, so self-driving transports and vehicles may get normal.

One chance it opens up is a conclusion to, or if nothing else, a considerable decrease in the requirement for individual vehicle possession. Rather, transportation could be solely a help because it is currently on account of cabs, Uber Lyft, and classic mass travel. These independent fleets could lessen the all-out number of vehicles out and about, regardless of whether they likewise increment interest for transportation administrations (Shaver, 2019. AVs could make congested communities progressively charming to live in and simpler to assemble. Additionally, shrewd AVs could blend all the more unreservedly with people on foot and bikers in certain territories, decreasing the sharp line among streets and different sorts of surfaces.

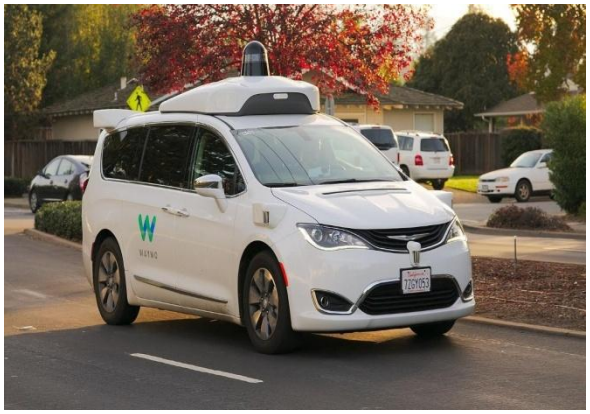

Figure 4 Waymo could be used as ride sharing taxis in future, Source: Waymo.com

Reason AI will drive the future of AVs

There is no doubt that AI will be more integrated into the future of fully autonomous vehicles or L5s. So as to continue to a genuinely self-driving world, vehicles must accomplish more than work freely simply as the human brain can do. For instance, for a genuine L5 self-driving, the vehicle should settle the entryway to-entryway transportation task, which implies the whole framework should be coordinated and directed by AI. That AI will take numerous structures - everything from recognition to dynamic, to management (Oliveira, Novais, and Reis, 2019). While it's direct enough to show AI the distinction between another vehicle, or walker, or bike, or working, there is a lot more prominent trouble in preparing AI for the genuine chance of nasty climate, antagonistic driving conditions, surprising deterrents or fender benders. As perplexing as AI getting ready has become, the truly pushed bit of using AI in independent driving is in the development (Welch and Behrmann, 2018). Far past fundamentally helping the vehicle to drive, development joins using AI to move and limit as a general rule, and clarify the dynamic driving endeavor. Past the ability to watch and see distinctive traffic circumstances and issues all over town, in order to be truly self-administering vehicles, will similarly need to pick and react rapidly, much like a human would, yet with progressively noticeable precision and improved deftness.

AI will surely replace steering wheels when level five of automation is reached, as already portrayed by Waymo. Despite Waymo cars having the steering when and pedals, the designs currently available have them only to meet legal requirements for testing, but in a real sense, there is no need for steering wheels and pedals in AVs (Nielsen and Haustein, 2018). However, researchers at MIT are a step ahead as they are testing AVs that do not need any form of mapped roads to follow but just a simple GPS data and sensors to observe all road conditions and drive under all conditions. Such a system will be a great leap in the race to have completely automated vehicles in the near future. AVs engineers rely upon the limit with respect to the vehicle to assemble information and a while later procedure it through the fluid Artificial Intelligence computation (Verghese, 2017). The authentic power of this approach is recognized considering the way that vehicles have one favored position that human drivers don't make them drive; vehicles can confer their experiences and readings to various vehicles right away. Information and conditions experienced by means of self-overseeing vehicles along every mile driven can be bestowed to various vehicles with the objective that each PC can alter its figuring to the circumstances looked by changed vehicles.

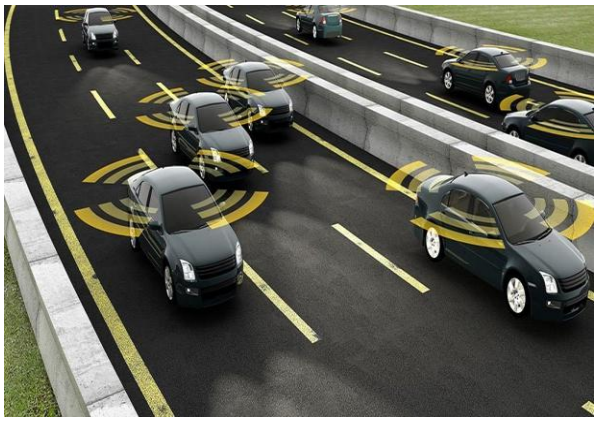

Figure 5 Future AVs are expected to communicate and share data; Source: Machine design.com

Artificial intelligence will be more ingrained in the design and modeling of self-driven vehicles and it will be at the center of integration between cloud technology, big data and the IoT in relation to AVs (Olariu, Assem, Ortega and Nieto, 2019). In the near future, self-driven vehicles will be able to integrate data from their environment and use that information to make relevant decisions (Bimbraw, 2015). This will allow the vehicle to foresee dangers that a human being would naturally be able to anticipate before driving into certain situations with passengers on board. For example, a self-driven car may need to be aware of the weather and the latest news in the areas it operates to ensure that it does not drive into a demonstration or a tornado. AI can integrate machine learning to get data about dangers and an array of factors when choosing routes, and this will give AI the impetus it deserves to dominate American roads in the future.

How AI technology in self-driving cars will benefit America

Global Economic dominance

The use of A in self-esteem driving cars will have a significant impact on the US economy. Apart from the US and China other countries are still behind concerning this technology. People are now finding it favorable to use the use of these cars. The fact that they are using AI then their safety is well recognized. Therefore, to the US this is a big deal to them since they will supply to the other parts of the world. It has been noted that in the next few years, AI will transform this industry into the best factors that favor the operation of these cars to various countries. Since Ai has made it easier to coordinate these cars, the US will be much far ahead of other countries in terms of Technology (Shaver, 2019). The country will dominate the market since it will be in full capacity to produce better self-drive cars than other countries. Depending on how the sales are increasingly going up, it is vital to note that the economy will be in a better position in the future. Once the US dominates the market, then it means that the dollar will gain more value (Viter, 2019). The less competitive market will give the US a good advantage to dominate the economy.

Opening up of new industries

Looking at how AI has improved the security in self-drive cars, it means that it can be trusted in other organizations. Every business was to use Technology that can give security to their business and make work easier. From the trend, one can tell that in future human labor or workforce will not be required. Through the US of AI people can just relax back home and control their businesses from home. Due to this factor, the US will be in a position to open up new industries that are related to self-drive cars and ones that are not. Many industries are going to open up because they ate assured that the business will work through using AI. Other Organizations are going to expand on other sectors that they had not ventured in before. Most importantly, the transport industry is going to grow very fast because AI will make things easier for the managers. As people speculate about the growth of industries, it is vital to note that the old ones will be removed from the market. Alternatively might be required to invest more towards adopting new technology. Growth of Industries will make the US remain Dominance in the market.

Reduced carbon emissions

The use of AI has made the Motor industry to transform in the right direction. For instance, if we make a comparison of the self-drive cars and the manual ones, you will find that automated cars do not emit smoke. These cars are favorable to the environment and are likely to change the environmental pollution cases. It is vital to understand that automation is enhanced by AI. This Technology is working in a way that it detects any issues that might not be environmentally friendly. Again these cars are automated such that they do not need diesel to move since they are controlled by the machine (Jenner and Barriales, 2017). This means that they do not emit smoke to the environment. This is a significant impact on the US since it is still struggling with issues of air pollution from industries and motors. Every country wants to be in a position where air pollution can be limited (Lee, n.d.). It is a dream of every person to live in a clean environment and this is a solution that has been given by AI. Therefore in the next few years, the US will be able to reduce the number of cases reporting diseases caused by environmental pollution.

Enhanced road safety and reduced traffic

Implementing AI in self- drive cars has been associated with a significant impact on security. AI works in a way that Controls the vehicle from any dangers. It can detect danger before the vehicle gets there. This has been made possible by the use of cameras and sensors. The sensors send information to the computers where the vehicle is being monitored. Once the information is received action is taken very fast to control the accident from occurring. Since these vehicles began operating, few accidents have been reported (Ji, 2018). . This means that the other cars are more likely to cause an accident that is automated. If this technology is implemented in the right manner

and using the right people to run the system, then many people will prefer to have self-drive cars because of safety. In terms of traffic, these cars will reduce high traffic since they are fast and they can be controlled on how to change direction. Heavy traffic is something that the US has been struggling to eliminate for many years (Lee, n.d.). Therefore, it is vital to consider AI in reducing traffic. Once traffic is reduced, people will enjoy driving in the towns and the cost of living will decrease.

How AI in self-driving cars can be best implemented

Artificial Intelligence (AI) is an advanced technology that functions as the brain of the self-driving car while driving.it helps a person driving to apply fewer efforts since it does everything on behalf such as; when given the GPS it while driving the car to that location, by maintaining the right lane and by avoiding accidents since it is equipped with the right speed and it can know the cars and people that are using that particular road (How AI is paving the way for autonomous cars, 2019). Many organizations in the U.S that with cars are carrying out more research on AI and some have implemented it.

How AI can be best implemented

In the U.S, AI can be best implemented in these cars by using a software application that will enable this car to self-drive. This software is equipped with the following

Sensors

The sensors act as the eyes of the car by using cameras that are installed at the front, back, and in the sides of the car that help in detecting everything that is around the car to facilitate the driving process to be easy (Coppola and Silvestri, 2019). This camera can be of different types such as those that can be able to view a large area and others can cover a large distance of view. These cameras are affordable though using them during the night can a little challenge but radar helps in capturing the signals. Radar also helps in detecting the speed of the cars that are within and how far they are from each other and where they are located (Jenner and Barriales, 2017). Radar is also positioned in different parts of the car to facilitate driving. Light detection and ranging also work hand in hand with radar and camera to measure the amount of light being reflected and it gives the correct measurement. In case one of them fails the rest can act on behalf. They complement each other.

Advanced computer system

An advanced computer system acts as the brain of this car by understanding everything that has been sent to it. The information that was collected by the cameras and radar is sent to the computer to process it and give accurate feedback it analysis that information to be able to know the size of the cars around it and at what speed are they driving. This facilitates the self-driving cars in knowing what's it's in their surroundings and what direction they are supposed to drive to. If the computer processes more information it becomes more used and this makes it more reliable.

Control

After the computer processes the information, the self-driving car has now all the necessary information it needs to drive. It's at this stage that it gets in a position to decide on how it's going to get at the required destination without having any hindrances.it will be able to calculate the speed it will use, the amount of time it will take and which lane to follow because it has the correct GPS.by doing this it will be able to obey all the traffic rules set because it has the potential to detect any signs and it understands them well.it can change lanes easily and the passengers in it can be all safe (Fallon, 2018). It will be able to reach a destination when all these are applied correctly that is sensors, computer system, and control. Automated Intelligence when implemented in cars it will make driving so easy and help in reducing the number of accidents experienced in the roads (Artificial intelligence driving autonomous vehicle development, 2020). Traffic rules will be followed to the core since these cars are self-driven unlike when they were being driven by people who violated them. Organizations in the U.S should continue to put more in implementing AI since its being recognized in the whole world and they will increase their net worth if they implement it.

Conclusion

In a nutshell, AI Technology is changing many industries in the US in regards to how practices are carried out. It is a technology that has come to eliminate the traditional procedures of running businesses since people can now run businesses from home. In the US, AI has been used in self-drive cars which are now being preferred by most people due to safety. Once implemented, there will be more significant impacts on the US regarding economic growth. The US will dominate the market at large because other countries are yet to adopt this technology. To implement this technology, there is a need to comply with the policies provided by the government. It is vital to ensure that Technology provides privacy to consumers. Therefore it is vital to note that privacy is a key challenge that needs to be addressed. Other countries should work towards improving Technology to benefits like in the US.

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