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Artificial Intelligence in Driving

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Abstract: *This research paper is conducted to address the influence of artificial intelligence in self driven cars or automobile industry, for that matter of fact, and the drawbacks associated to it. The primary focus in this research is given to finding and suggesting concrete solutions to the loopholes that come with affluence of technology on driving. The outcome of this research attempts to bridge the gap between the certainty and uncertainty of the number of accidents happening with driverless cars. The approach used in this research is, beginning with identifying the drawbacks, analysing and understanding the reason behind it, and finally incorporating solutions to overcome those drawbacks from the conclusions drawn by analysis report.*

I. INTRODUCTION

With the advent of technology, where humans have just began tapping the door of immense potential that current era has given, artificial intelligence is emerging has the foundation of all future and forth-coming inventions. The designs of the future, with no doubt, will be revolving around artificial intelligence. Be it robots, for commercial or domestic use, systems and satellites that would no longer require human presence or intelligence to discover neighbouring planets, virtualization and augmented technology used in educational and tourism attraction, all of these would work on the principles of artificial intelligence.

Artificial intelligence together with machine learning and deep learning, altogether forms a bundle for data science, have successfully acquired its spot in the field of driving. With the current scenario of these technologies, walking hand in hand with driving, the vision of a future of flying cars does not seem impossible. From artificial intelligence in driving to artificial intelligence in flying cars, there is a long way to go. Public response towards the introduction of artificial intelligence in self driving cars is slightly inclined towards a positive rate due to the guiding parking, cyber security and other features [1]. As long as driving exists, traffic accidents are deemed to happen, as 1.4 million accidents happens every year. This can be significantly reduced with cars having the AI technology, with which comes the advantage of minimal fuel consumption [2].

It is evident and an obvious fact that artificial intelligence in self driving will rule the future of driving and much advancements are yet to come as the study of this emergence is still in process [3]. A glimpse from the future would be quite descriptive about how self-driving cars have indulged itself in the lives and chores of common people. Not only fully developed countries will be having the self-driven cars on roads but also many currently developing countries have began making committees and the study of self-driven cars [4].

II. METHOD

In the design of this research paper, with reference to the context of the research paper, the approached used in here is descriptive method. This implies that the content of the research is drawn after pre-cautious studying and analysing the research papers already published previously by various personalities who have had experience and the expertise to comment on the subject. To make the conclusions of this research absolute and concrete, interviews have been conducted with fellow mates and guides of the department who have been proved essential for the precise outcome of the study.

III. FEATURES

A. Best-Route Searching

The voyage from the initial point to the destination is not difficult as long as the driver drives his car. In driverless cars mode, however, the automobile must be able to plot the route to the destination automatically, which is done by Integrated Navigation System. Geographic information systems (GIS) and the Global Positioning System (GPS) are utilized in automotive navigation systems to obtain information on the longitude and latitude of satellites.

B. Device Position

The primary goal of using positioning system technology in self-driving cars is to generate the vehicle's position using only the initial information of its location and destination. The Global Positioning System (GPS) would be used to create this information.

C. *Physics of the Device*

The speed and direction of vehicles, together, constitutes the control of the vehicle. The vehicle proposed controller would then carry out the necessary calculations and pass them to the vehicle control system, with the end result of controlling the direction, speed, and light, among other things.

IV. DRAWBACKS AND SOLUTIONS

Presently, it is a known and proven fact that Artificial Intelligence in driving has re-shaped the future of automotive industry in such a way that effort is minimized for both, the driver and passenger. But as each coin has two sides, the technology that has made driving swift and independent also brings the baggage of drawbacks.

A. *Lane-Structure*

A self-driven car is no ordinary car that can ride on a concrete road. The change in lane-system is a must for any autonomous car to function and swift drive. Huge bodies like Audi, Google, BMW, Nissan have claimed to launched autonomous cars soon, may not be aware of the fact that the current road infrastructure may not be suitable for these types of cars. For countries where even normal cement and stone roads are obstacles, involving poor quality and puddles, for conventional cars, degrades the possibility of such an advancement [5]. An ideal solution to put an end to such a problem would be re-constructing lanes with sensors and camera embedded within them, instead of installing poles supporting them.

B. *Privacy*

As long as the internet lives, compromising on privacy is doomed to happen. Autonomous cars technology involves sensors and adapters at various checkpoints that capture visual data so that these data can be used for analysis and learning. This training data is then applied on test data for future prediction or perception. The problems arises when the administrator of the system attempts to steal these data and circulates to organizations that are known for terrorists' happenings. Hence, proper authorization and strict legal laws are to be enforced within the jurisdiction involving the usage of self-driven cars [5].

C. *Substitution of Traditional Cars*

This is one of the biggest challenges which is being faced by the experts, replacing old conventional car would be required to increase the efficiency of the autonomous cars. If the old cars are left over under the same platform, then this may lead to unpredictable results for the autonomous car and compromises the security during its interaction with the other cars [5].

D. *Valuation*

The technology that has made self-driven cars possible is still new and comes with the limitation of raw materials that has led to a much higher pricing of autonomous cars than normal cars. Although JD power conducted a study that predicted how 37% of the people driving conventional cars today will select self-driven cars as their next investment [5]. For instance, Google, who is emerging as one of the top self-driven car's producers, constructs AV model that is utilised in self-driving. And this costs up to \$80,000 which is extremely expensive for a common middle-class person to buy or even start-up companies for that matter of fact. Few reports suggest and estimation that the prices will drop down by half in the near future.

E. *Unemployment from Driver's Point of View*

Artificial Intelligence in driving can almost completely eliminate the human interference in driving. As the usage of this technology in driving advances, very soon drivers will be replaced by engineers. Any form of vehicle that uses artificial intelligence and is self-driven will never require any human driver for its maintenance or operation.

The only manual requirement will be during design and manufacturing. Driving is one of the bread-earning profession of millions of people in the world. Taxis are required for every possible short and long routed transport. It could take a huge toll on businesses involving this type of employment. Inversely, the demand for engineers familiar with technology increase which would again affect the time constraints [5].

V. CONCLUSION

The existence of Artificial Intelligence technology, which is expected to meet human requirements with automation technology in all areas of life support, is no exception in the field of automotive/transportation. Industry is the need for facilities needed by humans at this time, and the existence of Artificial Intelligence technology, which is expected to meet human wants with automation



technology in all areas of life support, is no exception in the field of automotive/transportation. Artificial Intelligence in the form of Driverless Cars is extremely beneficial because it allows customers to have more free time to accomplish other things while still providing better transportation services.

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