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LEGAL IMPLICATIONS OF ARTIFICIAL INTELLIGENCE (AI) IN AUTONOMOUS VEHICLES.

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ABSTRACT:

The integration of artificial intelligence (AI) in autonomous vehicles presents significant legal implications that require careful consideration. This manuscript explores the legal issues surrounding AI in autonomous vehicles, with a focus on the Indian legal system. The current regulatory framework in India lacks specific laws addressing autonomous vehicles. However, existing legislation can be applied to regulate their usage. Liability for accidents is primarily assigned to vehicle owners, but determining responsibility for accidents involving autonomous vehicles can be complex. Ethical considerations regarding AI in autonomous vehicles raise complex questions, particularly in scenarios where accidents are unavoidable. Determining the programming of autonomous vehicles in ethically challenging situations, such as choosing between potential casualties, poses a significant challenge. Data privacy and security are crucial concerns in autonomous vehicles. AI-driven systems generate vast amounts of personal data, raising concerns about its collection, storage, and potential misuse. Cybersecurity risks associated with autonomous vehicles are another key concern. Interconnected networks in autonomous vehicles expose them to potential cyber-attacks. Hackers gaining control of autonomous vehicles can endanger lives, manipulate navigation systems, or extract sensitive data. Legal regulations must enforce strict cybersecurity measures, including secure communication channels, encryption protocols, and regular software updates. In the Final Section, suggestions are provided in order to advance the industry in a proper way.

Keywords: Legal implications, Artificial intelligence, Autonomous vehicles, Liability and accountability, Ethical considerations.

INTRODUCTION:

The ability for machines to understand and behave like humans is made possible by artificial intelligence, or AI, which is developing into a powerful tool. Numerous scientific studies support the notion that artificial intelligence (AI) is "Cognitive Computing," in which

computers are specifically built to reason, perceive, understand, sense, and act like humans. AI is used for steering autonomous or self-driving cars. Sensors, actuators, complex algorithms, machine learning systems, and robust processors are all need for autonomous vehicles to operate. Based on a number of sensors positioned in various parts of the car, autonomous vehicles are able to sense their surroundings.[1] Despite the fact that AI in driverless vehicles has many advantages, it also has important consequences in the Indian legal system. The legal issues and concerns regarding AI in autonomous vehicles in India are explored here.

REGULATORY FRAMEWORK FOR AUTONOMOUS VEHICLES:

At this moment, India doesn't have any laws that solely deal with autonomous vehicles. But there are some laws that may be applied to control how autonomous vehicles are used and driven. The main regulations governing automobiles and traffic in India are the Central Motor Automobiles Rules, of 1989[2], and the Motor Vehicles Act, of 1988[3]. According to section 140 of the Motor Vehicle Act[4], "No Fault" liability applies to both the issue of liability for Death and Permanent Disability. The vehicle's owner is responsible for paying the injured party's compensation. Provisions of the Indian Penal Code, 1860 can also be applied if a particular situation is not covered by the former two acts.

Unlike India, special laws are under development in the United Kingdom; The Automated and Electric Vehicles Act was adopted in 2018 in the United Kingdom. The owner of the vehicle shall be responsible for any accidents, according to Section 2(2). When someone dies in an accident, the same rule applies.[5] However, the UK's proposed plan of 2025 for self-driven cars states that the manufacturer, not the owner, will be held accountable for any accidents that occur while operating the vehicle in self-driven mode. This proposal was made in early 2022.[6]

The United States of America is also pacing in this area. In 2018 alone, 15 states enacted 18

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[1] Susan Meyer, How do self-driving cars work?, THE ZEBRA (Jun. 6, 2023, 6:15 PM), https://www.thezebra.com/resources/driving/how-do-self-driving-cars-work/

[2] The Central Motor automobiles Rules, 1989, Ministry of Road Transport and Highways.

[3] The Motor Vehicles Act, 1988, No. 59, Acts of Parliament, 1988 (India)

[4] *Id.* at 02.

[5] Automated and Electric Vehicles Act 2018 becomes law, PENNINGTONS MANCHES COOPER (Jun. 7, 2023, 5:05 PM), https://www.penningtonslaw.com/news-publications/latest-news/2018/automated-and-electric-vehicles-act-2018-becomes-law

[6] Who is to blame if a self-driving car crashes?, WORLD ECONOMIC FORUM (Jun. 7, 2023, 5:50 PM), https://www.weforum.org/agenda/2022/08/who-is-to-blame-if-a-self-driving-car-crashes/

Autonomous Vehicles related bills.[7] Various states in the USA worked since 2012 on those laws.[8]

ETHICAL CONSIDERATIONS, LIABILITY, AND ACCOUNTABILITY:

Due to the laws of physics, there are instances when no one can prevent an accident from happening. For example, a car is being driven and there comes to an intersection where the car goes ahead because of the green signal, simultaneously, there is an ambulance coming in the cross-section and because the ambulance is allowed to cross the red light (in case of emergencies), it doesn't stop at the red light. The car driver sees this and makes a sudden stop, this saves the ambulance from the accident but the person driving a truck behind that car is unable to stop quickly and hits the car which then heads into a pole, consequently causing head injuries to the driver of the car.

There are many instances on a daily basis that pose a question that even humans struggle to answer. For example, there is a situation where an accident is unavoidable. An old woman is crossing the street unaware of the walking sign, now a minivan is crossing the street parallel to the old woman, now the driver who is going towards that street comes from a blind spot where he is unable to see the old woman, at that point of time, he has two options, hit the minivan carrying more than one person, possibly injuring them or causing death; or hit the old woman almost definitely causing death. This problem is similar to the trolly problem[9] where there are five persons on one track and only one on the other track, and a person has the option to save the five but he has to pull the lever which will kill the one person on that other track if doesn't do anything, the five will be killed. This question is not easy to answer for any human.

These questions should be kept in mind when the autonomous vehicle is being programmed. How should the programming of the autonomous vehicle be optimized, continuing the above example, whether to save the old woman or the minivan which is carrying more than one person? And what if the factor of the passengers in that vehicle comes into the picture? If the

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[7] NATIONAL CONFERENCE OF STATE LEGISLATURES, https://www.ncsl.org/transportation/autonomous-vehicles (last visied on Jun. 7, 2023)

[8] *Id*. at 03.

[9] Judith Thomson, *Killing, Letting Die, and the Trolly Problem,* 59 The Monist 204, (1976), https://learning.hccs.edu/faculty/david.poston/phil1301.80361/readings-for-march-31/JJ%20Thomson%20-%20Killing-%20Letting%20Die-%20and%20the%20Trolley%20Problem.pdf

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old woman is hit then the passengers' safety is guaranteed, however, if the vehicle hits the minivan, it can possibly cause injury or death to the passengers of the vehicle.

Given the traffic in India, a human driver has to remain alert at all times to prevent any accident. The legal liability as discussed, is always of the owner of the vehicle according to the Motor Vehicle Act of India, and then the driver of that vehicle who actually caused the accident (following the provisions of the Indian Penal Code). As far as the moral question is concerned, there is no right or wrong answer, sometimes some questions are better left unanswered. However, completely removing the ethics and emotions, and using pure logic, less damage is better than more damage, which points out that if five lives can be saved by sacrificing one life, then it should be done.

DATA PRIVACY AND SECURITY:

Autonomous vehicles powered by AI produce an enormous amount of data while they are in use. Personal information, including location, travel habits, and behavior, may be included in this data. Concerns regarding security and privacy are raised by the gathering, storing, and use of such data. The Digital Personal Data Protection Bill, 2022[10], which aims to protect personal data and establish standards for data processing, was recently introduced in India. To protect people's privacy, it is crucial to make sure that the gathering and processing of data in autonomous cars comply with the rules laid down in this bill.

There have been worries about the potential misuse of personal data by third parties as algorithms in AI systems use sensors to collect data and big data technologies to store, process, and transmit data through external communication networks.[11] There have also been increasing calls for more comprehensive data governance frameworks to ensure the reliable sharing of data within and between organizations.

"AI systems store extensive personal information about their users that can be transmitted to third parties to profile individuals' preferences, such as using past travel data collected in autonomous vehicles to tailor advertisements to passengers, using personal and medical

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[10] KRISHNADAS RAJAGOPAL, *New Digital Personal Data Protection Bill in Monsoon Session*, THE HINDU, (Jun. 10, 2023, 6:10 PM), https://www.thehindu.com/news/national/new-data-protection-bill-likely-to-be-introduced-in-monsoon-session-in-parliament-centre-to-supreme-court/article66723887.ece

[11] Araz Taeihagh, *Governance of artificial intelligence,* 40 Policy and Society 137, 142 (2021), https://academic.oup.com/policyandsociety/article-pdf/40/2/137/42564427/14494035.2021.1928377.pdf

information collected by personal care robots and networked medical devices for the surveillance of individuals."[12]

Key issues that need to be resolved include who controls such data and how developers of AI systems should build these robots to adhere to rules governing privacy. Another major concern with the usage of AI is surveillance, such as the use of employee performance monitoring robots at work and the potential for government agencies to track passenger movements with autonomous vehicles, which could have a negative impact on democratic freedoms and individual autonomy.

CYBERSECURITY RISKS:

Despite the fact that the possibilities brought on by the integration of technology with cars appear to be limitless, new dangers, as well as vulnerabilities, arise.[13] Due to the fact that the vehicles and various networks are interconnected, the networks they are connected to—whether they be the banking networks that handle payments, the roadside sensor networks, the electrical infrastructure, or the traffic control features—also face security issues. Being a relatively new activity for automobile firms, software development is now primarily focused on ensuring secure product quality and, therefore consequently, passenger safety.

Autonomous car cybersecurity vulnerabilities could have major consequences. For example, hackers might be able to remotely take control of a vehicle, putting the lives of passengers and other drivers at risk.[14] They might interfere with the car's navigation system, diverting it from the intended route or possibly causing traffic jams. Additionally, hackers could use vulnerabilities in the software to steal sensitive data such as financial or personal information, compromising the security and privacy of the car's users.[15]

Legal guidelines are required to make sure that makers of autonomous vehicles follow strict cybersecurity requirements in order to reduce these risks. Governments and law enforcement have begun to realize how crucial it is to solve these issues. In order to enforce strong security

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[12] *Id.* at 04.

[13] Jose Monteagudo, *Cyber Security for Connected and Autonomous Vehicles*, CYBER STARTUP OBSERVATORY (Jun. 11, 2023, 6:40 PM), https://cyberstartupobservatory.com/cyber-security-connected-autonomous-vehicles/

[14] *Id.* at 05.

[15] *Cyber Security of Autonomous Machines and Systems*, UNIVERSITY OF NORTH DAKOTA (Jun. 13, 2023, 7:15 PM), https://onlinedegrees.und.edu/blog/cyber-security-of-autonomous-machines-and-systems/

measures for autonomous vehicles, they are developing regulations that will call for secure communication channels, encryption methods, and regular software upgrades to fix bugs.

Furthermore, liability concerns connected to cybersecurity breaches must be addressed in the legal framework governing autonomous vehicles. In the event of a cyber attack on an autonomous car, identifying liability can be difficult because it involves not only the maker of the vehicle but also software developers, network providers, and other parties. To determine liability and offer suitable remedies for victims of cyberattacks, clear rules, and legal frameworks are required.

As autonomous vehicles continue to evolve, it is imperative to address the cybersecurity risks associated with them through robust legal regulations. By establishing comprehensive standards and guidelines, governments can ensure that manufacturers implement adequate security measures to protect vehicles and their occupants from potential cyber threats.[16]

SUGGESTIONS:

Although autonomous vehicles are only at a preliminary stage of its development, it has already inspired the whole world towards a new future of traveling. As the journey advances, it is important to keep in check the following points in order to take full advantage of this-

1. Autonomous vehicles must undergo rigorous testing to ensure their safety and reliability before being deployed on public roads. Establishing clear guidelines and standards for testing procedures, safety protocols, and certification processes is crucial to mitigate risks and build public trust in autonomous vehicle technology.

2. The successful implementation of AI in autonomous vehicles requires appropriate infrastructure, including road infrastructure and communication networks. Developing an intelligent transportation system that can support the safe and efficient operation of autonomous vehicles is essential.

3. Developing specific insurance policies that address the unique risks and liabilities associated with AI-driven autonomous vehicles is crucial to protect all parties involved.

4. As autonomous vehicles operate across different jurisdictions, it becomes imperative to establish international collaboration and harmonize standards. International cooperation can facilitate the sharing of best practices, the exchange of information,

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[16] *Id*. at 06.

and the development of global regulations that ensure the safe and ethical deployment of AI in autonomous vehicles.

5. Collaboration between automotive industry stakeholders, cybersecurity experts, and policymakers is crucial in developing effective legal regulations for autonomous vehicles' cybersecurity. This collaborative effort can help establish standards and best practices that prioritize the safety and security of autonomous vehicles, fostering public trust in this emerging technology.

As this industry grows, all stakeholders should contribute towards the development and at the same time formulate good practices in order to successfully use this technology without jeopardizing anyone's safety.

CONCLUSION:

Whether it is transportation, services, agriculture, healthcare, etc., AI has taken over this globe. The rise in the use of autonomous vehicles indicates that they will soon become common. It can be challenging to determine who is responsible for self-driving car accidents, and it can be equally challenging to establish whether the driver or the manufacturer is at fault. As opposed to India, where there are no regulations on such vehicles, the USA and the UK have numerous laws pertaining to autonomous vehicles. Examining the relevant laws is important in order to examine the issue in the context of India. Similar to the IT Act of 2000, which addresses sensitive information and personal data protection and privacy, AI is also vulnerable to attacks from hackers. Therefore, it's crucial to establish who is responsible for accidents brought on by AI system hacking in autonomous vehicles. As a result, in order to accept autonomous vehicles in India, Indian laws must be strict on accidents involving autonomous vehicles and the issue of liability that results from such incidents, taking into account various laws enacted by other countries.