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WHEELS OF JUSTICE: ANALYSING THE LEGAL STATUS OF AUTONOMOUS VEHICLES IN CONTEMPORARY LEGAL REALM

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ABSTRACT

The research paper examines the complex legal issue of determining the status of autonomous vehicles (AVs) as an independent legal entity or an agent of the manufacturer. The paper delves into the concept of legal personhood and its application to artificial intelligence (AI) systems, including AVs. It explores various theories of legal personhood, such as the Natural Law Theory, Will Theory, and Function-based Theories, and their relevance to the classification of AVs. The paper also discusses the theory of agency law and its potential implications for the relationship between AVs and their manufacturers or developers. The paper analyzes the current Indian legal framework, including the Motor Vehicles Act and the Consumer Protection Act, and their limitations in addressing the legal issues posed by AVs. It highlights the ambiguity in liability determination, particularly in the case of partially automated vehicles, where the role of the human driver and the AV's decision-making process must be carefully considered. The paper proposes a hybrid approach to the legal status of AVs, combining elements of both independent legal personhood and agency of the manufacturer. The paper emphasizes the need for comprehensive and adaptable legislation to address the evolving landscape of autonomous vehicle technology and ensure the safety and accountability of these systems. It acknowledges the complex and rapidly changing nature of automated vehicle technology and calls for further research and discussion to develop a robust legal framework that can effectively govern the integration of AVs into India's transportation ecosystem.

Keywords: Artificial Intelligence, Autonomous Vehicles, Legal Personhood, Agency Law, Product Liability

1. INTRODUCTION

Humans have invented and discovered many objects and phenomena to make their lives easier. Before the development of transportation in its current form, humans travelled on foot, and then they started using pet animals for conveyance. Several industrial revolutions have shaped the transportation sector in its present form. (Rafferty, 2017) The advent of the fourth industrial revolution facilitated numerous breakthroughs in the transportation sector and ushered in the era of vehicle automation. Autonomous vehicles signify a substantial advancement in both artificial intelligence and transportation technology. These cars are engineered to autonomously drive and function without human involvement, use a blend of

sensors, cameras, radar, and sophisticated algorithms to comprehend their surroundings and make instantaneous judgements.

Though the transport industry has indeed made our lives easier, it is imperative to consider that road accidents are one of the leading causes of loss of life, limbs, and livelihoods throughout the world. Around 80% of the fatalities in a road accident arise due to human error. Mobility, like medicine, has the shortcoming that if the underlying technology is not well thought out, it can result in multifaceted loss of resources, both material and human. This problem can be addressed by the use of technology in the proper manner.

According to several reports and opinions of scholars, autonomous vehicles that ply without the control of a driver are predicted to cause fewer accidents than conventional vehicles. (Darsh Parekh, 2022) They also offer increased efficiency in transportation, optimizing traffic flow, reducing congestion, and reducing travel times. They can operate around the clock, making logistics and delivery services faster and more reliable, contributing to environmental sustainability. The widespread adoption of autonomous vehicles presents new challenges, including determining their legal status and ethical implications, such as liability in accidents and decision-making in unavoidable crash scenarios.

The status of autonomous vehicles is a growing concern as it is contentious that they should be treated as separate legal entities or agents of their manufacturers or the object or instrumentality of owners. Personhood is an essential aspect of legal ability, and the recent advancements like artificial intelligence (AI) have made the concept of personhood more complex. (Solum, 1992) The Restatement (Third) of Agency defines a person, distinguishing between individuals, organizations, governmental entities, and other entities with legal capacity to possess rights and incur obligations. (Institute, 2005)

The rise of AI systems has disrupted conventional agency law and prompted inquiries into the novel definition of personhood. The rapid advancements in autonomous systems' technology have brought into sharp focus the necessity for legal recognition and reaction to the apparent differences between automated and autonomous systems. (NHTSA, 2016) SAE has prescribed six levels of automation in vehicles ranging from level 0 to level 5, and the same is accepted by the US Department of Transport. (NHTSA, Levels of Automation, 2022) Each level of automation provides increased automation functions, but they cannot be said to be autonomous systems, as the driver has certain levels of control over the vehicle. Level 5 of automation provides full automation and the driver is not required to drive a vehicle. All the cognitive decisions are taken by the machine itself. Such vehicles can only be termed as Autonomous Vehicles. While deliberating upon the legal status of Autonomous vehicles, these factors must be taken into consideration. Computer programmes, being non-juridical entities, are categorized as “instrumentalities of the creators and users.” (Buxbaum) Autonomous systems display autonomy, supporting the moral justification for recognizing legal personhood. Professor Shawn Bayern recently proposed a shell using Limited Liability companies to wrap autonomous systems in personhood. (Bayern, 2015) Self-driving cars are a rapidly evolving technology with little to no regulation in development and use. One of feasible legal frameworks for determining the liability of self-driving cars is the concept of electronic legal personhood. (Carroll, K. (2021)

The emergence of autonomous vehicles (AVs) introduces a host of legal challenges, particularly in ascertaining liability when accidents occur. These challenges are compounded by the varying levels of automation and degrees of human control, as well as the complexities of integrating AVs into a traffic

environment still dominated by conventional vehicles. The Society of Automotive Engineers (SAE) defines six levels of automation, ranging from Level 0 (no automation) to Level 5 (full automation). As the level of automation increases, the role of the human driver diminishes, shifting the locus of control from the individual to the vehicle's software and systems. This transition raises critical legal questions about liability.

Currently, automated vehicles range from automation level-0 to level-4 which requires the involvement of a driver to a certain extent and thus can be considered as a product of their developers, acting dependent upon the information provided by the manufacturer and developer. At the lower levels of automation, i.e. (levels 1 and 2), the vehicle possesses limited autonomy and the driver is in control most of the times. Therefore, the human driver is primarily responsible for monitoring the environment and driving the vehicle. At the intermediate levels of automation (Levels 3 and 4), the vehicle can handle most driving tasks. However, the human driver may still need to take control under specific conditions (Level 3), or the vehicle can operate autonomously within specific environments or conditions without human intervention (Level 4). Distinguishing between human error and system failure becomes a crucial legal challenge. This ambiguity in these levels creates a legal grey area. If an accident occurs while the vehicle is in autonomous mode, but the system expects the human driver to take over, determining whether the driver had adequate time and information to react is crucial. Liability could potentially shift between the driver and the manufacturer depending on these factors.

The current law imposes liability in the form of no-fault liability, product liability, tortious, and criminal liability, which is based mostly on defects of the product or human error. However, in the case of a fully autonomous vehicle where the machine makes its own decisions in all scenarios, it would be difficult and unfair to continue with the present liability regime. A new legal framework is needed to address the issue of liability for self-driving cars, specifically those classified as fully autonomous vehicle SAE level 5.

The most pressing issue regarding self-driving vehicles and liability is who should be held liable in a traffic accident. Traditional liability frameworks will not adequately address the situation where the car is conducting all of the driving without assistance on behalf of the driver.In the well-known Uber case in Arizona, the driver of a self-driving Uber was held criminally responsible for negligent murder. This was due to the driver being preoccupied while operating a test vehicle and failing to apply the brakes before the vehicle collided with and caused the death of a pedestrian. This can be regarded as a case study for semi-autonomous cars up to level 4. Nevertheless, this fails to tackle the issue of completely self-driving automobiles. (Arman, 2020) When autonomous vehicles reach a stage where the driver is no longer required to intervene, it becomes difficult to hold the driver accountable for criminal negligence as the driver is completely relieved of all driving responsibility. Potential defendants have the option to argue that the car was in control of the driving, so establishing whether the responsibility lies with the developer or the driver-passenger.

The integration of autonomous vehicles (AVs) into traffic environments, which still include conventional vehicles, complicates liability issues. Human drivers are unpredictable and error-prone, and AVs, relying on algorithms and sensors, may not interact smoothly, making it difficult to determine fault in accidents involving human behaviour and AV decision-making processes. Liability distribution in the event of a collision involving an AV and a conventional vehicle consists of

considering the responsibility of both the human driver and the entities in charge of operating the AV. Nevertheless, the emergence of AVs may give rise to situations where liability becomes complex, posing challenges in determining the party accountable for wrongdoing. For example, if an autonomous vehicle (AV) abruptly stops to prevent hitting a pedestrian, resulting in a rear-end collision with a regular vehicle, determining liability would require assessing the AV's programming, the driver's response time, and the pedestrian's behaviour.

Legal personhood is a concept that establishes a legal entity capable of having rights and subject to specific responsibilities and liabilities. (Singh, 2017) Foreseeability, or negligence, is a critical component of tortious acts, but it does not adequately address liability in a self-driving car accident. Current Indian traffic liability law is not sufficient to address liability issues with self-driving cars, as they revolve around the notion of a human driver. (The Motor Vehicles Act, 1988) Therefore, regulation and guidance are necessary to facilitate laws that address the autonomy of cars and driver liability.

The concept of intent in artificial intelligence, particularly in self-driving cars, is a complex issue due to the lack of understanding of how the human brain works. Intent is a crucial element in many liability suits, and with the difficulty of determining intent in artificial intelligence, there is a lack of an adequate liability framework. Intent is crucial in liability suits, especially in artificial intelligence. There are different categories of intent, including inscrutable intent, which is undeciphered by humans, explicated intent, which requires translation, and induced intent, which suggests humans implant intent into AI and the AI deriving new intent from the programmed software. Emergent intent refers to the process of developers relinquishing control over dependent intent and the subsequent formation of a new type of intent by the artificially intelligent entities. These categories help clarify the liability framework in the context of AI. The theory centres on the enigma of

the black box, which pertains to the ambiguity surrounding the mechanisms via which artificial intelligence executes algorithms and engages in autonomous cognition. The statement proposes considering culpability in a consistent manner, independent of the intentions of a self-driving automobile. This issue remains unresolved in both scientific and legal circles. (Carroll, 2021)

2. LEGAL THEORIES AND CONCEPTS

2.1. THE THEORY OF LEGAL PERSONHOOD

Legal personhood is the concept where an entity, such as an individual, corporation, or even a non-human entity like a trust or partnership, is recognized as having rights and responsibilities under the law, much like a natural person. (Wrbka, 2022) A legal personality is created through legal fiction, a legal construct that is assumed to be true even though it may not be factually accurate. Legal fictions are commonly employed to achieve particular legal objectives and create rights and obligations for entities that may not naturally possess them. In the context of legal personality, legal fiction allows certain entities to be treated as legal persons, with the rights and responsibilities that come with personhood. This concept is often used to confer legal personality on artificial entities, such as corporations, partnerships, and other organizations. (Gaakeer, 2016)

Several different theories of legal personhood have been developed over time. This article delves into the various theoretical frameworks used to conceptualize the legal personhood of business entities. The theory of affectation posits that the protection accorded to the legal relationship between a material good and a person

is akin to that granted to the connection between an asset and its designated purpose. It argues that a subject of law requires the capacity for free will to manifest legal personhood and distinguish itself from other involved parties. The apparent subject theory, developed by Rudolph Von Ihering, suggests that law comprises substantive and formalistic elements, with natural persons only attaining legal personhood if they are the sole recipients of these protected interests.

In contrast, legal entities lack this essential attribute. The atomistic state theory, advocated by Lingg, contends that legal personhood can only be ascribed to individuals, not states and that legal business entities are governed by the legal system, with personhood arising from the collective exercise of power by multiple individuals towards a common goal. The fiction theory, attributed to Friedrich Carl von Savigny, equates personhood with the ability to exercise certain rights, drawing parallels between legally incapacitated natural persons and juridical persons. The legal action theory proposes that juridical persons are a state of being, analogous to an organic garment used for commercial purposes, with no significant distinction between informal associations and corporations. The corporate veil doctrine, originating from American law, allows corporate officers to remove the legal personhood of a corporation for personal gain, harm third parties, or circumvent laws. This concept has been subject to both criticism and support. (Elvia Arcelia, 2015)

In jurisdictions like India, legal personhood is typically granted to natural persons and certain artificial entities like corporations. However, the law is evolving to address emerging technologies, and it is possible that in the future, autonomous vehicles or other AI systems may be considered for some form of legal recognition or classification.

3. THE THEORY OF AGENCY

The theory of agency law is a fundamental concept in legal principles that govern the relationships between agents, principals, and third parties. Agency law deals with situations where one party (the principal) grants another party (the agent) the authority to act on its behalf in conducting legal transactions with third parties. The principal-agent relationship is at the core of agency law. The principal is the individual or entity that authorizes the agent to act on their behalf to create legal relationships with third parties. The agent undertakes these actions on behalf of and is subject to the control of the principal. The agent possesses the authority to act on behalf of the principal and operate within the boundaries of the agency relationship. The authority can be actual (express or implied) granted by the principal, apparent authority (when the agent appears to have authority to third parties), or even potentially ratified authority. An Agency can be created through express agreement, implied understanding, or operation of law. The agent must have the capacity and authority to act on the principal's behalf. The agent's authority can be actual (express or implied) or apparent (based on the principal's representations). The agent must act within the scope of their authority to bind the principal. Agents owe fiduciary duties to their principals, such as duties of loyalty, care, and confidentiality. These duties help align the agent's interests with those of the principal. Principals may be held liable for the actions of their agents when those actions are carried out within the authorised boundaries of the agency relationship. This encourages principals to select and monitor their agents carefully.

The theory of agency offers a conceptual structure for comprehending the rights, obligations, and legal obligations that emerge when the agent carries out actions on behalf of the principal. It helps promote efficient and trustworthy

delegation of authority, while also protecting the interests of both the principal and third parties who interact with the agent. (Dalley, 2011) In India, the agency law is primarily governed by the Indian Contract Act, 1872. (Indian Contract Act, 1872)

4. THE THEORY OF PRODUCT LIABILITY

Product liability refers to the liability of manufacturers, distributors, and sellers to compensate for any harm or injuries resulting from defect in their products. In the case of motor vehicles, this includes liability for defects or malfunctions that lead to accidents or harm to the vehicle's occupants or other road users. The Motor Vehicles Act, 1988 holds vehicle manufacturers liable for manufacturing defects that cause accidents. (The Motor Vehicles Act, 1988) The Consumer Protection Act, 2019 provides a framework for consumers to seek compensation from manufacturers, service providers, and sellers for defective products or services. (Consumer Protection Act, 2019) Under tort law principles, vehicle manufacturers can be held liable for negligence in the design, production, or maintenance of their vehicles. Manufacturers must exercise reasonable care in the design, production, and testing of their vehicles to ensure safety. Manufacturers can be held liable for any vehicle defects, even if they exercised due care in the manufacturing process. The concept of product liability in the context of motor vehicles in India aims to hold manufacturers accountable for the safety and performance of their products and to provide a means for victims to seek redress for any harm caused by defective vehicles.

5. AUTONOMOUS VEHICLES AS INDEPENDENT LEGAL ENTITIES

Autonomous vehicles at level 5 of automation will be capable of analysing data, interpreting patterns, and making decisions or predictions based on algorithms or machine learning. (Wang, 2021) Artificial intelligence has the ability to process and analyse large quantities of data at a much faster rate than humans, allowing it to make intricate decisions in a wide range of fields, including autonomous vehicles and healthcare diagnostics. One of the unique aspects of AI is its potential for self-learning and adaptation. AI systems can enhance their performance through the use of machine learning algorithms, which enable them to analyse data, detect trends, and adapt their algorithms without the need for human interaction.

This ability to learn and adapt is known as "artificial intelligence" and is a crucial feature of many advanced AI systems, including autonomous vehicles. There are analogies drawn between AI systems and corporate personhood in the context of legal recognition and liability. Corporations are recognized as legal persons with certain rights and responsibilities, much like natural persons.

Similarly, there have been discussions about granting some form of legal personhood or responsibility to AI systems, particularly in cases where they autonomously make decisions with significant impacts. The increasing use of AI raises important questions about liability and responsibility. If AI systems make decisions or cause harm, who should be held liable - the developer, the user, or the AI itself? Legal frameworks around the world are grappling with the issue of assigning responsibility for AI actions, considering factors like negligence, foreseeability, and control over the technology. n conclusion, as AI technologies continue to advance, these concepts of decision-making capabilities, self-learning, analogies to corporate personhood, and implications for liability and responsibility will become increasingly important in shaping legal and ethical frameworks

governing AI use in various sectors. Policymakers, lawmakers, and stakeholders must consider these aspects to ensure that AI systems are developed and used responsibly and ethically in society. Therefore, granting legal personhood to an autonomous vehicle becomes even more critical for the legal fraternity worldwide.

6. AUTONOMOUS VEHICLES AS AGENTS OF MANUFACTURERS

Autonomous vehicles represent a transformative technology in the automotive industry, raising complex legal and ethical considerations, including the question of whether autonomous vehicles can be considered as agents of manufacturers. At this juncture, it is pertinent to note that manufacturers exert significant control over the software and updates in autonomous vehicles, as these vehicles rely on complex algorithms and programming to operate safely and efficiently. Manufacturers design and implement the software that governs the vehicle's decision-making processes, safety protocols, and operational parameters. By controlling the software and updates, manufacturers influence the behavior and performance of autonomous vehicles, akin to how an agent follows the directives of a principal. Despite advancements in AI technology, current autonomous vehicles still have limitations and dependencies on manufacturers and vehicle owners for operational guidance and support. Manufacturers are responsible for setting parameters, safety standards, and response mechanisms within the AI system to ensure safe and reliable operation. The need for ongoing oversight, monitoring, and intervention by manufacturers underscores their role as the guiding force behind the actions and behaviors of autonomous vehicles. Product liability frameworks typically hold manufacturers liable for defects in products that cause harm to consumers. Considering autonomous vehicles as extensions of manufacturers aligns with established legal principles of product liability. Manufacturers must ensure their products are safe, reliable, and compliant with regulatory standards. Viewing autonomous vehicles as agents of manufacturers fosters accountability and ensures that manufacturers bear responsibility for any product failures or malfunctions. Treating autonomous vehicles as agents of manufacturers enhances consumer protection by establishing clear lines of responsibility and liability. Consumers rely on manufacturers to provide safe and effective autonomous vehicles that perform as intended. Recognizing manufacturers as the principal agents behind autonomous vehicles promotes transparency, adherence to safety standards, and timely responses to potential risks or incidents. This approach prioritizes consumer safety and confidence in autonomous vehicle technology.

The whole notion of considering autonomous vehicles as agents of manufacturers is grounded in the manufacturers' control over software and updates, the limitations of current AI technology, alignment with existing product liability frameworks, and the promotion of consumer protection considerations. By recognizing manufacturers as the primary decision-makers and influencers in the design, development, and performance of autonomous vehicles, the legal and ethical dimensions of autonomous vehicle use can be addressed effectively, ensuring accountability, safety, and responsible innovation in the automotive industry.

7. CONCLUSION

Computer programmes, being non-juridical entities, are categorized as “instrumentalities of the creators and users.” Autonomous systems exhibit autonomy in making decisions, and they are not in the control of a third party. Instead, they make their own decisions as they are trained to do so and operate on

the machine learning model, thereby supporting the moral justification for recognizing legal personhood. The question lies in whether they should be granted direct personhood or an indirect one. The attributed personhood to the Autonomous vehicles can be similar to a Company. Another theory to construct a potential legal framework for the liability of self-driving cars is the notion of electronic legal personhood. (Carroll K., 2021) Currently, autonomous vehicles range from automation level-0 to level-4, which requires a driver's involvement to a certain extent and thus can be considered as a product of their developers, acting dependent upon the information provided by the manufacturer and developer. A system of joint liability, strict liability of the user and manufacturer, and product liability can be imposed at these levels of automation. A self-driving vehicle's actual intelligence level is yet to be ascertained as fully autonomous vehicles are still not plying on roads. The involvement of drivers in the automated vehicles presently plying on roads hinders the ascertainment of the actual intelligence behind the action taken by the vehicle.

Therefore, at present, the human making the decisions at the time of driving is accountable for the error or inaccuracy of the vehicle. Under the present scenario, the driver is responsible for the accident because autonomous vehicles lack legal personhood. (Vladeck, 2014) In each scenario, the machine performs and makes judgments in manners that can be linked back to the machine's design, programming, and knowledge encoded by humans. (O'Brien v. Surgical, Inc., , 2011) There is no need to reassess liability standards where human involvement in machine decision-making is apparent.

In contrast, one of the primary goals of autonomous vehicles is to reduce the amount of driver oversight required to maximize safety and exploit the potential for increased productivity during long travels. Also, fully autonomous vehicles are based on the machine learning model, where the machine learns by examples of similar circumstances and is trained to make decisions on its own. In such a scenario where an AV becomes capable of making decisions on its own and does not require the interference of a human at all, then it is necessary to grant legal personhood to it. However, it will still have some poor programming done by the manufacturer; therefore, a vehicle must be provided indirect legal personhood under its name. As a result, states should grant these vehicles legal personhood in the case of completely autonomous vehicles, making them legally responsible for their acts and decisions. However, since a vehicle cannot be solely considered as an independent legal entity there is a need for a hybrid approach while determining the liability in case of an autonomous vehicle.

The two significant regulations that govern motor vehicles in India are the Motor Vehicles Act of 1988 and the Consumer Protection Act of 1986. The Motor Vehicles Act of 1988 regulates the minimum age for driving an automobile, as well as the liability and registration of the vehicle. On the other hand, the Consumer Protection Act of 1986 governs damages resulting from carelessness, industrial errors, construction problems, and unfair business practices. There is currently no special regulation in India to control self-driving automobiles. The amendment to the Motor Vehicle Act in 2019, does not affect self-driving or autonomous vehicles. With AI, there is always the question of personhood and agency. Section 2(334) of the Consumer Protection Act of 2019 defines product liability as "the responsibility of a product manufacturer or product seller, of any product or service, to compensate for any harm caused to a consumer by such defective product manufactured or sold, or by a deficiency in services relating to it." So, if we regard AI as a product, the maker is responsible for whatever harm it causes. This aga2023in creates a dilemma as to the legal status of Autonomous Vehicles.

The modern transport sector is constantly evolving; however, laws are sluggish in responding to these changes. Furthermore, all advancements require competent legislation, but constructing robust and intelligible laws takes time. Laws and regulations are essential to the growth of autonomous vehicles, since legal concerns surrounding autonomous vehicles are complex and challenging and may impede progress. Thus, further study into the legal doctrines is required at considerable lengths so that a proper mechanism can be established in India.

CONFLICT OF INTERESTS

None.

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