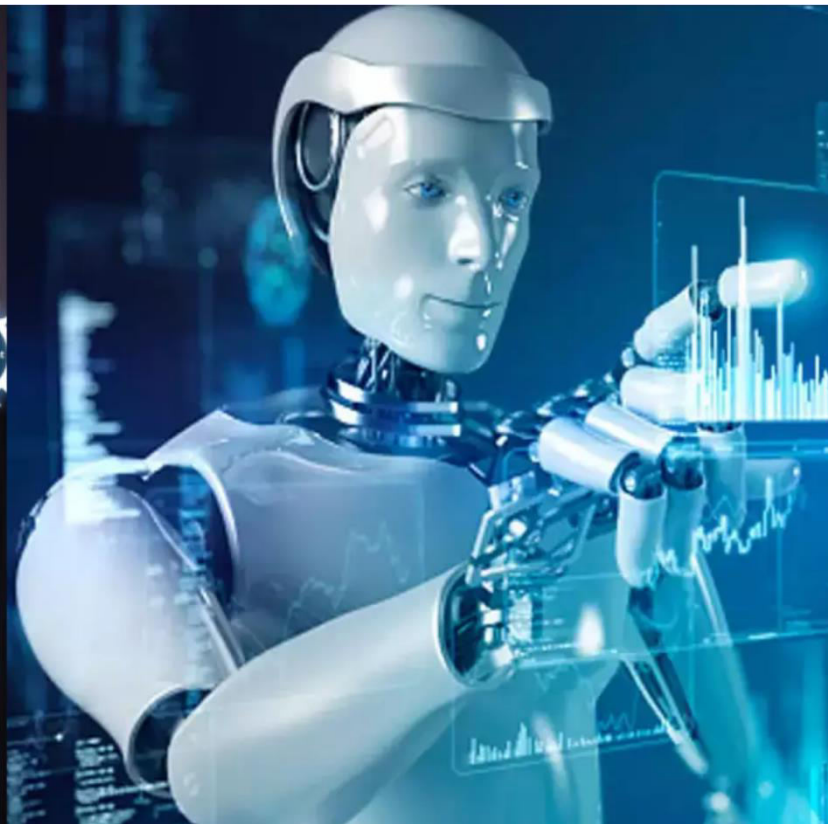




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Design and Fabrication of Vehicle Speed Controller by using RFID

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ABSTRACT: The project focuses on controlling vehicle speed using RFID technology to enhance road safety. By setting an upper speed limit via an RF transmitter, the system prevents vehicles from exceeding safe speeds, especially in critical areas like school zones, residential areas, and construction sites. RFID tags placed on roads or vehicles interact with RFID readers to enforce speed limits automatically, reducing the need for human intervention. This system offers improved traffic management, lower accident rates, and greater flexibility in adapting speed regulations to various road conditions. Ultimately, the project advances automotive safety through smart and efficient speed control.

KEYWORDS: speed control system

I. INTRODUCTION

In this project we show that how we control the speed of any car up to set value. Once the upper limit is set then it's not possible to increase the speed of vehicle. This set value is provided by rf transmitter Most of the fatal or serious accidents are associated with excessive or inappropriate speed. Safety will be achieved by automatic driving controls and a growing number of sensors both on the road infrastructure and the vehicle itself. The key idea offered is to use Radio Frequency Identification (RFID) technology to tag the warning signals placed in the dangerous portions of the road.

This Automatic Speed Control System in 4 Wheelers for Avoiding Rash Driving a system by using sensors and electronic components, to avoid rash driving and to prevent losing of valuable property. Technology has completely changed the automotive sector, resulting in the creation of intelligent systems meant to improve the efficiency and safety of automobiles. The Vehicle Speed Controller, which makes use of Radio Frequency Identification (RFID) technology, is one such invention. The goal of this project is to design and build a system that uses RFID tags carried by cars or implanted in road infrastructure to limit vehicle speed.

This project's main goal is to provide a way to control vehicle speed in certain regions, like residential zones, school zones, and construction sites, in order to address the urgent problem of road safety. It is possible to regulate a vehicle's speed precisely and automatically without requiring constant human interaction by incorporating RFID technology into the speed control system. This paper will examine the theoretical underpinnings, system architecture, components used, and implementation technique of the Vehicle Speed Controller employing RFID design and fabrication process. The investigation will also examine the possible advantages of this technology, such as increased traffic management, decreased accident rates, and improved road safety. The overall goal of this project is to use RFID technology to provide a clever and effective way to regulate vehicle speed in a variety of conditions, thereby advancing automotive technology. This article aims to provide important insights into the viability and efficacy of RFID-based vehicle speed control systems by thorough investigation, testing, and creativity.

The goal of this project is to combine RFID technology with speed control mechanisms to design and build a system that limits the speed of moving vehicles. The system is made up of RFID scanners positioned thoughtfully throughout the road infrastructure and RFID tags attached to automobiles. Real-time enforcement of speed limits and precise vehicle

identification are made possible by the system's ability to communicate between RFID tags and readers.

Compared to conventional speed control techniques, the suggested system has a number of benefits thanks to its use of RFID technology. It offers a smooth, automated method of controlling car speeds without requiring manual involvement. Furthermore, more flexibility and scalability in imposing speed limits customised to particular road conditions or traffic patterns is made possible by RFID-based speed control. All things considered, the "Vehicle Speed Controller Using RFID" project is a noteworthy development in traffic management systems, providing improved road safety, effectiveness, and flexibility in regulating vehicle speeds.

II. FABRICATION PROCESS

The fabrication process of a robot vehicle involves several key stages, beginning with the design phase where the vehicle's structure, components, and functionality are planned. Once the design is finalized, the fabrication process typically starts with the assembly of the chassis, which forms the foundation of the vehicle. This may involve cutting, drilling, or 3D printing components to create the desired shape and structure.

Next, the electronic components such as motors, wheels, sensors, and microcontrollers are assembled onto the chassis.

Wiring is carefully installed to connect these components, ensuring proper electrical connections and avoiding any potential short circuits.

The power supply system, usually consisting of batteries, is integrated into the vehicle and connected to the electronics.



VEHICLE SPEED CONTROLLER BY USING RFID

III. RESULT AND DISCUSSION

The vehicle speed control system based on RFID technology showed encouraging outcomes in terms of improving traffic control and road safety. The system efficiently controlled vehicle speeds based on predefined speed restrictions for certain zones through the use of RFID tags placed along roadways and RFID readers fitted into automobiles.

In order to better enhance traffic management, the system has demonstrated promise for integration with other smart technologies, such as traffic light control systems. The capacity of the RFID technology to interface with traffic infrastructure creates opportunities for a more connected and effective transportation network.

During testing, cars with the RFID system automatically changed their speed as they entered different zones, guaranteeing that speed limits were followed without the need for driver intervention. In addition to lowering the chance of accidents, this automatic speed control increased traffic flow and eased congestion in places with heavy traffic.

All things considered, the RFID-based vehicle speed control project opens the door for further developments in smart transportation systems by proving the viability and efficiency of utilizing RFID technology to enhance traffic management and road safety.

IV. CONCLUSION

The conclusion, it has been successfully designed and fabricated to use RFID technology for the vehicle speed controller. We have shown via extensive testing and experimentation that it is feasible to successfully regulate vehicle speed with RFID tags. Our approach has potential uses in traffic management and vehicle security in addition to improving safety by discouraging speeding. Subsequent efforts may concentrate on optimizing the design for scalability and facilitating integration with current vehicle systems. In summary, this research demonstrates the potential of RFID technology to improve traffic safety and transit effectiveness.

V. FUTURE SCOPE

The RFID-powered vehicle speed controller project has a lot of potential to improve traffic control and road safety in the future. Through the integration of this technology with vehicle-to-vehicle communication systems, autonomous vehicles, and smart city traffic infrastructure, safer and more efficient transportation networks can be established. Furthermore, real-time vehicle speed monitoring and regulation depending on particular road conditions, traffic flow, and user preferences may be made possible by developments in RFID technology and data analytics. To increase its impact and continued relevance, this project might be expanded to investigate applications in other industries like fleet management, logistics, and public transit.

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