

# Automatic Vehicle Speed Regulation System

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**Abstract:** An automatic vehicle speed Regulation System is a technology designed to automatically Control a vehicle's speed based on pre-set parameters, typically utilizing motor driver Controllers to detect the current speed & adjust engine power accordingly, aiming to maintain Consistent speed enforce Speed excessive speed. The automatic vehicle Speed regulation system often referred to as a speed limit contour Cruise Control. The speed control system for a vehicle describes a method for regulating the velocity of a vehicle based on its current speed and external factors such as road conditions, implemented in school zones to reduce the number of accidents. This automated efficiently. The proposed speed control system aims to reduce accidents, improve fuel efficiency, and provide a comfortable ride for passengers. The abstract may also discuss the potential applications of the speed control system in different types of vehicles, such as cars, buses, and trains, and its impact on transportation systems and the environment. Here the Arduino is programmed in such a way that, the prescribed speed limit was corporate in the transmitter unit which transmits the signals, and it was received by the receiver in the vehicle using Zigbee wireless communication and the speed of the vehicle. was automatically controlled by the input signals by the receiver, with the help of speed encoder sensor. Once this technique was implemented the accidents will be reduced on a larger rate, and also reduce the nuisance by some.

## INTRODUCTION

An Automatic Vehicle Speed Regulation System is a cutting-edge technology designed to control and maintains a vehicle's speed without constant manual input from the driver. These systems use sensors, cameras, and software to monitor road conditions, detect speed limits, and observe surrounding vehicles. By processing this data, the yard just the throttle and braking mechanisms. Sure the vehicle operates at a safe and efficient speed. More advanced systems incorporate GPS andreal-time data to adapt to changing speed limits and traffic rules dynamically. Somecan even interact with traffic signals or detect obstacles, minimizing the risk of accidents. Overall, Automatic Speed Regulation Systems contribute to safer roads, reduced fuel consumption, and better compliance with speed regulations. They represent a significant step toward fully autonomous driving.

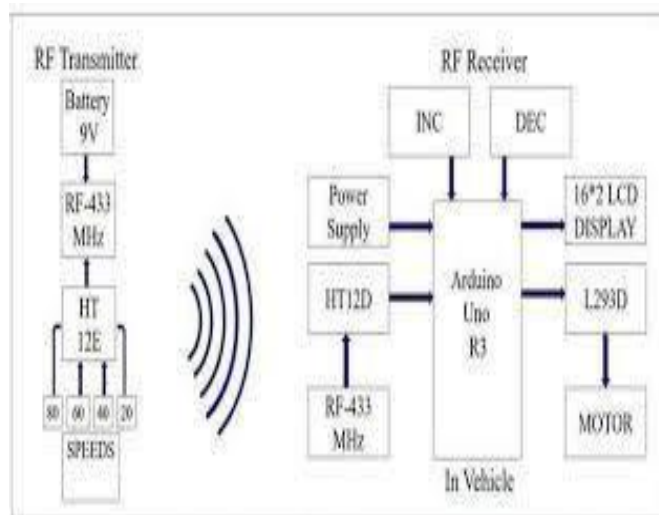


Figure.1:Block diagram

### EXISTING SYSTEM

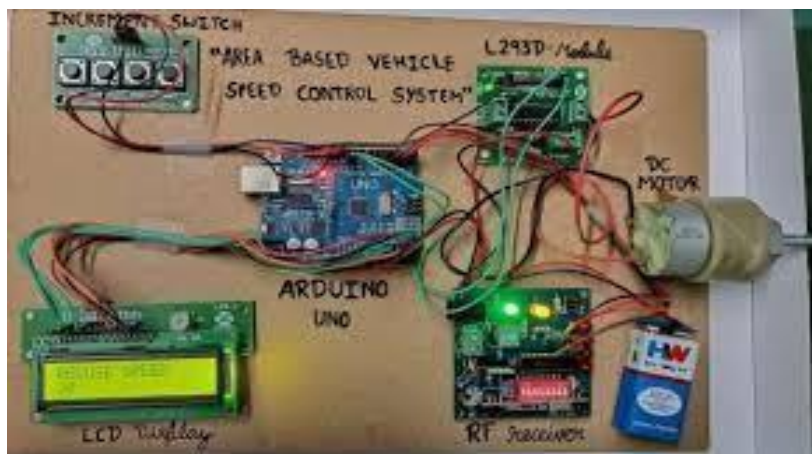
An automatic vehicle speed regulation system is designed to control the speed of the vehicle in specific zones under certain conditions to enhance safety and reduce accidents. here are some existing approaches These systems aim to reduce accidents, especially in areas like school zones or near traffic signals, by ensuring vehicles adhere to speed limits. If you'd like, I can delve deeper in to any of these systems or explore their limitations and challenges. These systems aim to reduce accidents, especially in areas like school zones or near traffic signals, by ensuring vehicles adhere to speed limits. If you'd like I can develop deeper into any of these systems to explore research their challenges and limitations. Existing automatic vehicle speed regulation systems are designed to enhance the road safety by controlling vehicle speeds in specific conditions. These systems often use technologies like sensors, GPS, and microcontrollers to monitor and regulate speed. For instance, some systems detect speed limits in designated zones, such as near traffic signals.

School areas, and automatically reduce the vehicle's speed to comply with regulations. Others employ RF technology to communicate speed limits to vehicles and adjust their speed accordingly. These systems aim to minimize accidents caused by over speeding and ensure smoother traffic flow. However, their effectiveness depends on accurate data and proper integration into vehicles.

### PROPOSED SYSTEM

Automatic vehicle speed regulation systems aim to enhance road safety and optimize vehicle performance by automatically managing a vehicle's speed based on various real-time factors. These systems use cutting-edge technology to ensure compliance with traffic rules, reduce accidents caused by over speeding, and improve the efficiency of transportation networks. Here's a structured explanation: The primary objectives of such a system are to ensure adherence to speed limits, reduce human error, and promote safer driving practices. Key features include • Real-time Speed Monitoring: Sensors installed in the vehicle continuously measure its speed and compare it with predefined speed limits. • Geo fencing Integration: The system uses GPS data to identify the vehicle's location and applies area specific speed regulations. • Traffic Sign Recognition: Cameras and image processing algorithms detect traffic signs, such as speed limits, and adjust the vehicle's speed accordingly.

### RESULTS



### CONCLUSION

The implementation of Automatic Vehicle Speed Regulation Systems marks a pivotal step toward safer and more efficient road transportation. By utilizing advanced technologies such as GPS, sensors, and AI, these systems help maintain consistent speeds, reduce the likelihood of accidents, and encourage adherence to traffic laws. This not only improves driver and passenger safety but also contributes to better traffic flow and reduced environmental impact. Despite the clear advantages, there are still limitations and challenges to overcome. Issues such as system malfunctions, high installation costs, and reduced driver control raise concerns about reliability and user acceptance. Moreover, over-reliance on automation could impact driver awareness and reaction times, especially in unexpected situations. Balancing the benefits of automation with the need for human oversight is essential to ensure both safety and effectiveness. Looking ahead, the future of Automatic Vehicle Speed Regulation lies in its integration with broader

intelligent transportation systems and smart city infrastructure. As technology becomes more refined and accessible, these systems are expected to become a standard feature in modern vehicles. Continued innovation, regulation, and public awareness will be key to maximizing their potential while addressing the challenges, ultimately leading to safer and smarter mobility flow.

### **FUTURE SCOPE**

The future of Automatic Vehicle Speed Regulation Systems (AVSRS) is highly promising, driven by rapid advancements in automotive technology and smart infrastructure. With increasing adoption of intelligent transport systems, AVSRS is set to play a central role in creating safer and more efficient roadways. As autonomous and connected vehicles become mainstream, speed regulation will be an essential component of the broader vehicle automation ecosystem.

### **REFERENCES**

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- [5]. Aamir Sarwar Jahan, and Imdadul Hoq, presented the “GPS Enabled Speed Control Embedded System Speed Limiting Device with Display and Engine Control Interface” published in 2013.

### **Online Resources:**

1. International Journal of Computer Applications (IJCA)
2. European Transport Safety Council (ETSC)