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[Skip to Main Content](#)



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Patent Search

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Abstract:

The present invention proposes a wireless automatic vehicle speed control system using HC12 communication modules for enhancing road safety. The system consists of a transmitter unit installed in predefined zones and a receiver unit installed in vehicles. The transmitter broadcasts zone-specific speed limits, which are received and processed by the vehicle's microcontroller. Based on the received data, the system automatically adjusts the vehicle speed using PWM control without driver intervention. The use of wireless communication modules ensures long-range, reliable communication with low cost and minimal infrastructure requirements. The proposed system effectively reduces accidents caused by overspeeding and supports the development of intelligent transportation systems. Its scalability and ease of integration make it suitable for real-world implementation in rural and semi-urban environments.

Complete Specification

Description: The proposed system consists of the following components:

1. Zone Transmitter Unit
Installed in critical zones, it transmits predefined speed limit data using HC12 module.
2. Vehicle Receiver Unit
Installed inside the vehicle, receives signals from the transmitter.
3. Microcontroller (Arduino/ESP32)
Processes received data and controls vehicle speed accordingly.
4. Motor Driver (L298N)
Controls the DC motor speed using PWM signals.
5. DC Motor / Vehicle Interface
Represents vehicle movement and speed control.
6. Power Supply
Provides required voltage to all components.

Automatic Vehicle Speed Control

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