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Vehicle Tracking, Alcohol Detection and Engine Locking System using GSM and GPS

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Abstract: *Drunk driving remains a leading cause of fatal road accidents globally, often due to a lack of real-time intervention and monitoring. This project proposes an integrated safety system designed to prevent intoxicated individuals from operating vehicles while providing real-time tracking for authorities or owners. The system utilizes an MQ-3 alcohol sensor to continuously monitor the driver's breath for ethanol concentration. If the detected alcohol level exceeds a pre-defined safety threshold, the system immediately triggers a relay-based engine locking mechanism to immobilize the vehicle, preventing further movement.Simultaneously, the GPS (Global Positioning System) module retrieves the precise geographical coordinates (latitude and longitude) of the vehicle. This location data is then transmitted via a GSM (Global System for Mobile Communication) module to registered emergency contacts or law enforcement agencies as an automated SMS alert. A central microcontroller (such as Arduino or ATmega328) acts as the brain of the system, coordinating the sensor inputs and communication outputs. Experimental results demonstrate that the system is highly responsive, cost-effective, and capable of significantly enhancing road safety by providing a proactive solution to drunk driving and vehicle theft.*

Keywords: Drunk Driving Prevention, MQ-3 Alcohol Sensor, Microcontroller-Based Vehicle Safety System, GPS-GSM Tracking, Engine Immobilization, Real-Time Monitoring, Intelligent Transportation System

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