"Prevention From Road Accidents Due to Drunk Driving Using IOT"

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Abstract

Road accidents caused by drunk driving are one of the major safety issues worldwide. Alcohol consumption reduces driver concentration and reaction time, which increases the chances of accidents. This research paper presents an IoT-based drunk driving prevention system that detects alcohol levels in the driver's breath and prevents the vehicle from starting if alcohol is detected above the safe limit.

The system uses an MQ-3 alcohol sensor, microcontroller, GSM module, and GPS module to monitor the driver condition and send alert messages with vehicle location. The proposed system works automatically without human intervention and improves road safety.

The system is low-cost, reliable, and suitable for real-time applications. This solution can be implemented in personal vehicles as well as commercial transportation systems.

1. Introduction

Road accidents due to drunk driving cause thousands of deaths every year. Alcohol affects human judgment, coordination, and reaction time, making driving dangerous. Traditional methods such as police breath analyzers are not always effective because they depend on manual checking.

To solve this problem, an automated system is required that prevents drunk driving before the vehicle starts.

This project proposes an IoT-based drunk driving prevention system that automatically detects alcohol and prevents the vehicle ignition.

The system uses:

- MQ-3 Alcohol Sensor
- Arduino / NodeMCU
- GSM Module
- GPS Module
- Relay Module

If alcohol is detected, the vehicle engine will stop and an alert message with location will be sent.

2. Problem Statement

Road accidents caused by drunk driving are increasing every year. Existing solutions such as breath analyzers depend on manual checking and driver cooperation.

There is a need for an automatic system that can detect alcohol and prevent the vehicle from starting without human

involvement.

3. Objectives

The main objectives of the project are:

- To detect alcohol using MQ-3 sensor
- To prevent vehicle ignition when alcohol is detected
- To send alert messages using GSM
- To track vehicle location using GPS
- To improve road safety

4. Proposed System

The proposed system is an IoT-based drunk driving prevention system installed inside the vehicle.

Working Process:

1 Driver blows near alcohol sensor

2 Sensor detects alcohol level

3 Microcontroller processes data

4 If alcohol detected:

- Engine stops
- SMS alert sent
- Location shared 5 If alcohol not detected:
- Vehicle starts normally

5. Hardware Components

- MQ-3 Alcohol Sensor
- Detects alcohol concentration in breath.
- Microcontroller (Arduino / NodeMCU)
- Controls system operation.
- GSM Module
- Sends SMS alerts.
- GPS Module
- Provides vehicle location.
- Relay Module
- Controls engine ignition.

6. Advantages

- Prevents drunk driving
- Automatic operation
- Low cost
- Easy installation
- Real-time alerts

- Improves safety

7. Applications

- Personal vehicles
- School buses
- Taxi services
- Transport vehicles
- Commercial fleets

8. Future Scope

Future improvements may include:

- AI-based driver monitoring
- Face recognition
- Mobile application
- Cloud monitoring
- Multiple sensors

9. Conclusion

The IoT-based drunk driving prevention system is an effective solution to reduce road accidents caused by alcohol consumption.

The system automatically detects alcohol and prevents vehicle ignition. It also sends alert messages with location details.

The proposed system is affordable and suitable for real-life implementation.

10. References:

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