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Alcohol and Smoke Detection and Engine Locking System

Yash Raut[1], Aniket Chavhan[2], Ayush Wanjari[3], Karan Padole[4]

Prof. Rajendra Bhombe[5], Prof Diksha Khare[6]

Students, Electrical Engineering, Guru Nanak Institute of Engineering and Technology, Nagpur, India[1]

Students, Electrical Engineering, Guru Nanak Institute of Engineering and Technology, Nagpur, India[2]

Students, Electrical Engineering, Guru Nanak Institute of Engineering and Technology, Nagpur, India[3]

Students, Electrical Engineering, Guru Nanak Institute of Engineering and Technology, Nagpur, India[4]

Associate Professor, Electrical Engineering, Guru Nanak Institute of Engineering and Technology, Nagpur, India[5]

Assistant Professor, Electrical Engineering, Guru Nanak Institute of Engineering and Technology, Nagpur, India[6]

INTRODUCTION

This project focuses on reducing road accidents caused by drunk driving. Alcohol consumption affects driver judgment and reaction time, leading to serious accidents. This system is designed to detect alcohol levels and automatically prevent vehicle operation, ensuring safety.

Aim

To develop an automatic alcohol detection system that locks the vehicle engine when alcohol is detected beyond a safe limit.

Objectives

1. Detect alcohol using MQ-3 sensor. 2. Provide warning alerts. 3. Automatically stop engine. 4. Improve road safety.

METHODOLOGY

The system uses Arduino Uno microcontroller connected with MQ-3 sensor. The sensor detects alcohol from breath and sends signals to Arduino. Based on predefined thresholds, the system decides whether to allow engine start or stop it.

WORKING PRINCIPLE

When alcohol level is low, the engine runs normally. At medium level, warning indicators such as buzzer and LED are activated. At high level, the system cuts off engine power using relay and stops the vehicle.

Hardware Components

Arduino Uno, MQ-3 Alcohol Sensor, Relay Module, DC Motor, Buzzer, LED, Power Supply.

Advantages

1. Prevents drunk driving. 2. Low-cost system. 3. Easy to install. 4. Increases safety.

APPLICATIONS

Used in cars, buses, trucks, and commercial vehicles to enhance safety and prevent accidents.

FUTURE SCOPE

The system can be enhanced using GPS and GSM for tracking, AI for smart detection, and integration with modern vehicle systems.

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CONCLUSION

This project provides an effective solution to detect alcohol and prevent accidents. It ensures safer driving conditions and reduces risk on roads.

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