

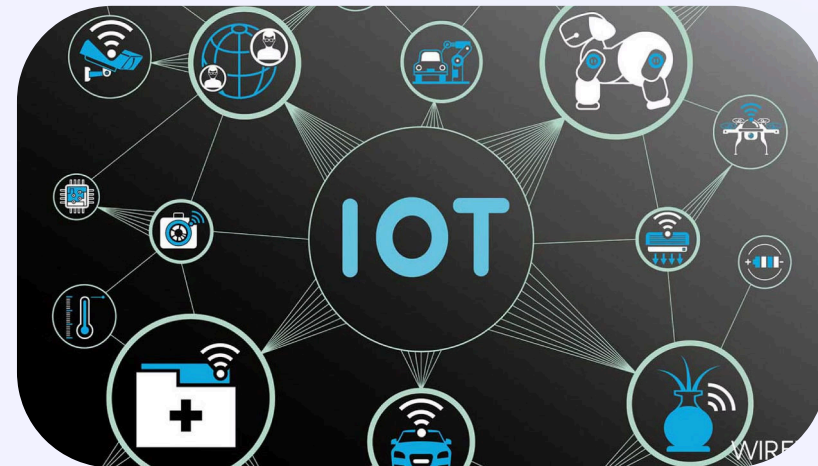


# Anti-Sleep Alarm for Drivers

An IoT-based system to detect driver drowsiness and provide timely alerts to prevent accidents.

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# Anti-Sleep Alarm for drivers

Aim: The goal of this project is to create an IOT-based alarm system that helps drivers stay awake and alert by detecting drowsiness and providing timely warnings.

Introduction: Drowsy driving is a major cause of accidents. Traditional methods to keep drivers awake aren't always effective. This project uses modern IOT technology to monitor the driver's alertness and provide alerts to prevent accidents.

# Requirements:

## Hardware Components:

### Relay

Controls buzzer and alert system.



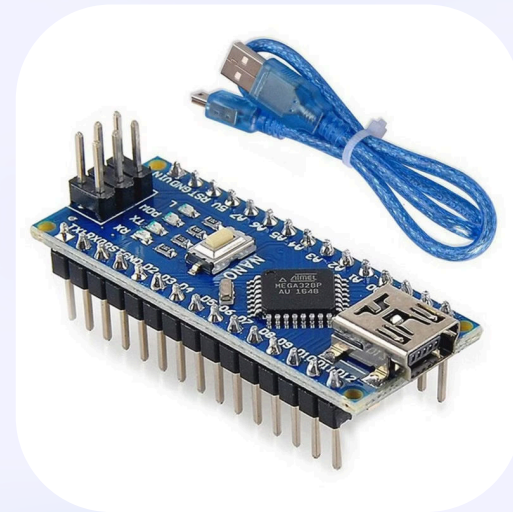
### Piezo Buzzer

Emits loud sound to wake driver.



### Arduino Nano

Brain of the system, processes data.



# More Hardware

## 9V Battery

Powers the entire system.



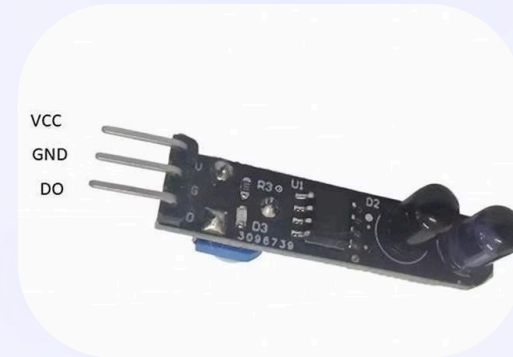
## Gear Motor

Vibrates steering wheel to alert driver.



## Eye Blink Sensor

Monitors eye movements for drowsiness.



# More Hardware

## Wheel

Rotating part of the vehicle.



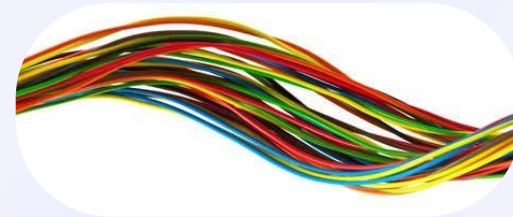
## SPST Switch

Turns the system on and off manually.



## Connecting Wires

Connect all components.



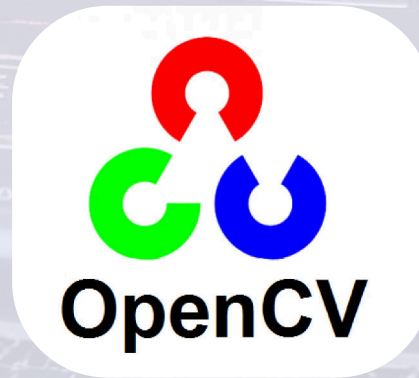


# Software

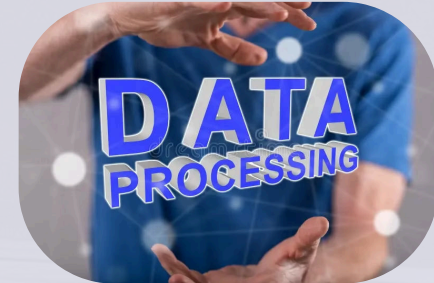
- 1 **Arduino IDE**  
Programming environment for the system.



- 2 **OpenCV**  
Library for image processing.



- 3 **Data Processing**  
Analyze sensor data for drowsiness.



# //Program code for Anti sleep alarm Detector for drivers

```
const int blinkPin = 2;
const int motorPin = 8;
const int buzzerPin = 9;
long time;

void setup() {
  pinMode(motorPin, OUTPUT);
  pinMode(buzzerPin, OUTPUT);
  pinMode(blinkPin, INPUT);
  digitalWrite(motorPin, HIGH);
}

void loop() {

  if(!digitalRead(blinkPin)){
    time=millis();
    while(!digitalRead(blinkPin)){
      digitalWrite(buzzerPin, LOW);
      digitalWrite(motorPin, LOW);
      delay(1000);
    }
  }
  else {
    if(TimeDelay()>=3)digitalWrite(buzzerPin, HIGH);
    if(TimeDelay()>=4)digitalWrite(motorPin, HIGH);
  }
}

int TimeDelay(){
  long t=millis()-time;
  t=t/1000; return t;
}
```





# Methodology

## Sensor Setup

Connect eye blink sensor to microcontroller.

## Alert System

Trigger buzzer when drowsiness detected.

1

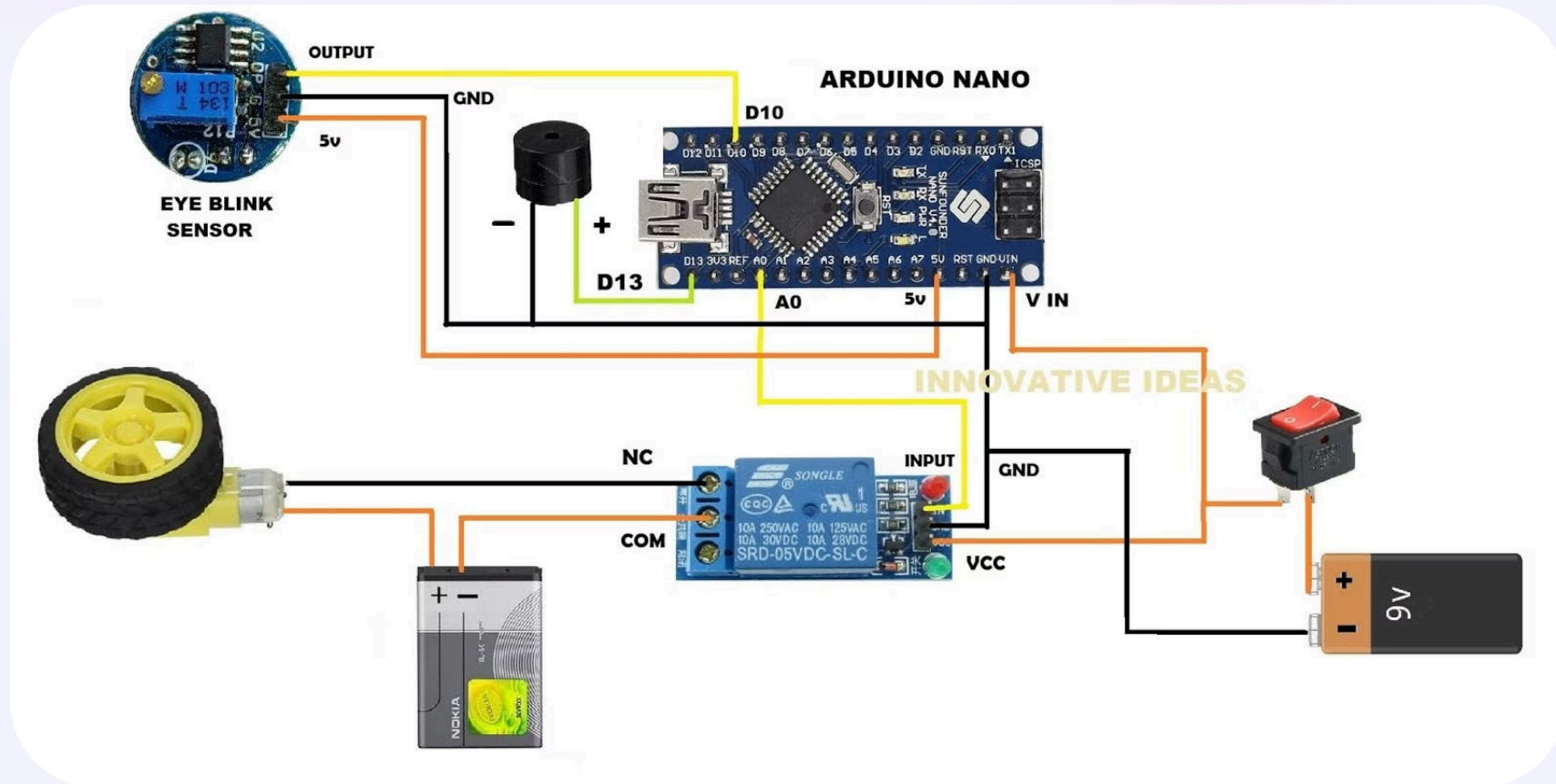
2

3

## Data Collection

Collect real-time data on eye closure.

# Circuit Diagram:



# Implementation

1

## Hardware Assembly

Connect all components to microcontroller.

2

## Software Development

Write code to detect drowsiness.

3

## Real-World Testing

Install and test in vehicle conditions.





# Results

## Drowsiness Detection

Accurately detect when driver is drowsy.

## Alert System

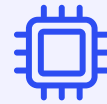
Trigger buzzer and stop vehicle wheels.

# Conclusion



## Accident Prevention

Reduce risk of accidents due to drowsy driving.



## IoT-based Solution

Leverages sensors and microcontroller for real-time monitoring.



# Future Scope

1

## Improved Algorithms

Use advanced ML for better drowsiness detection.

2

## Vehicle Integration

Connect to vehicle controls to slow down car.

3

## Market Deployment

Work with automakers to make it a standard safety feature.



# Thank You !

Submitted by:

Nikhil Ramteke

Roshan Kumar Paikra

Deepak Kumar Lakra

Mandeya Ram Kashyap

Guided by:

Prof. Himanshu Mokashe