To design and develop an anti-sleep alarm for drivers Using Arduino

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Abstract

The Worldwide, sleepiness and driver weariness play a major role in traffic accidents and fatalities. We have created an inventive Anti-Sleep Alarm system especially for drivers in order to solve this pressing problem. Advanced sensor technologies, and an intuitive design are combined by this system to efficiently identify and warn drivers when they are in danger of while operating a vehicle. The three main parts of the Anti-Sleep Alarm system are an alert mechanism, and a The The design of the Anti-Sleep Alarm system user- friendliness, ensuring that it is easy to use, comfortable to wear, and non-intrusive during normal driving conditions. It offers customization options to adapt to individual driver preferences and sensitivities.

Keywords:- drowsiness detection, automated call receiving/declining system, accident detection, Tilt Sensor, Buzzer

INTRODUCTION

In modernisms owing to hectic schedules it becomes very difficult to remain active all the time Imagine a situation where a person is driving home from works dead treed acer facing all the challenges of the day His hands are on the wheel and foot on the pedal but suddenly he starts feeling drowsy his eyes start shutting and his vision blurs and before he knows its he's asleep Falling asleep on the wheel can lead to serious consequences there may be accidents and people may even lose their lives This situation is much more common then we notice and hence it is very important to counter this problem So to address this issues we have come up with a Driver Antisleep device This system alerts the user if he/she falls asleep at the wheel thereby avoiding accidents and saving lives This system is useful especially for people who travel long distances and people who are driving late at night

The technique for detecting tiredness can identify drowsiness rapidly. The ability of the technology to distinguish between fatigue and a regular eye blink can stop a driver from falling asleep behind the wheel. The device functions effectively in both low light and while the driver is wearing glasses. The technology can determine if the eyes are closed or open during the monitoring. An alert is sent out when the eyes are closed for an extended period of time. The system's ultimate objective is to assess the driver's level of tiredness.

The driver's eye movements are used to detect tiredness. When the driver blinks, an alarm is set off to warn the driver and lower the speed of the car while also indicating a parking light. This will decrease the number of accidents and protect the driver and the vehicle.

OBJECTIVE

Alcohole detaction sensor : Enhancing safety and preventing impaired activities by detecting alcohol levels in individuals. Primarily used in co contexts such as vehicle operation, workplace safety, and public spaces to ensure compliance with alcohol-related regulations Measures alcohol concentration, providing real-time monitoring and acting as a deterrent against impaired driving or other alcohol-related activity.

- **Safety Enhancement**: Improve road safety by preventing accidents caused by driver drowsiness.
- **Alert Mechanism**: Implement a reliable system to detect signs of drowsiness and promptly alert the driver.
   Real-time Monitoring:
- Continuously monitor driver behavior .
- Create an intuitive and non-intrusive system that is easy for drivers to use and understand.
- **Customizable Sensitivity:*** Allow users to adjust the sensitivity of the system based on personal preferences and driving conditions.

LITERATURE SURVEY

1. P.Sandeep Chary,[2] S.Pranay,[3]N.Sai Kishore,[4]M.RaviKuma The development of an anti-sleep alarm system for drivers is motivated by the need to address the serious issue of drowsy driving. Drowsy driving poses significant risks on the road, including accidents, injuries, and fatalities. Here's why they developed the system:

2. Adnan ahmad.[2] anjali shara [3] astha singh[4]sumantha Chatterjee [5]Apurba Based Anti Sleep Alarm System Paul With the predictions of the world Health Organization (WHO) that number of deaths due to traffic accidents will be around 2 million in next 15 years. Researchers nowadays are paying more attention in preventing traffic accidents and lower the number of occurred fatalities. The purpose of this work is an attempt to prevent traffic accidents due to fatigue or sleepiness of the driver.

3. Mohammed Moinulla Shariff, Syed Abu Anas, Faizan ShariffN, Ms. Manasa E,Ms. Gloriya Priyadarshini There has been a very large increase in road accidents due to the drowsiness of drivers while driving which leads to enormous fatal accidents. The driver loses control when he falls asleep which leads to an accident.

METHODOLY

The primary objective of this project is to create a robust and cost-effective system that detects signs of drowsiness or inattention in a driver and promptly alerts them to stay awake and focused. The Anti-Sleep Alarm system is designed to enhance driver safety during long journeys and late-night drives.

1.Required software

1) ARDUINO IDE

2. Required hardware
1) IR sensor
2) Arduino
3) Buzzer
4) 5v Relay modul
5) 1 watt red
6) Bo motor
7) Wheel
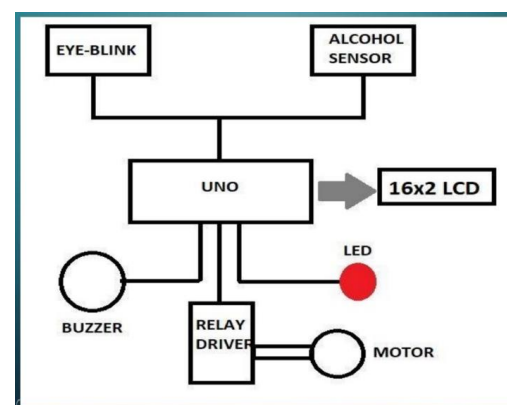8) 9v battery
9) 9v Adaptor
10) Relay
11) 16x2 Lcd display

Fig. of Circuit diagram

Functions of the Components:

IR SENSOR: It is a electronic device used to detect some objects near-by surroundings. It detects the movement of an object. In this project we used IR Sensor as an input to detect the moment of eye-blink.

ARDUINO UNO SMD: The Arduino Uno SMD is a microcontroller board based on the ATmega328. It has 20 digital input/output pins (of which 6 can be used as PWM outputs and 6 can be used as analog inputs), a 16 MHz resonator, a USB connection, a power jack, an in-circuit system programming (ICSP) header, and a reset button
.

BUZZER: A piezo Buzzer is used to get output of the executed program and any errors occurs in process an immediate buzzer is generated.

16x2 LCD Display : Displays essential, information such as systym activated driver sleep mode aleart alcohol detected in system.

Procedure: The project uses the eye blink sensor which consist of IR sensor There are two sections in IR sensor . The IR transmitter is used to transmit the infrared rays to our eyes The IR receiver is used to receive the reflected infrared rays of eye If the eye is closed then the output of IR receiver is high otherwise the IR receiver output is Lowe And if the eye is closed more than 3 sec it activates an alarm which in turn wake the driver.

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LITERATURE REVIEW AND COMPARISION TABLE

Sr.	Reference	Strong point	Weak point
1	P.Sandeep Chary,[2] S.Pranay,[3]N.Sai Kishore,[4]M.RaviKuma The development of an anti-sleep alarm system for drivers 2023	This system uses buzzer wheneve rthe driver sleepmo de active the buzzer will alert	They have not installed an alcohol detection sensor which helps in detecting whether the driver is drunk or not.
2	Mohammed Moinulla Shariff, Syed Abu Anas, Faizan ShariffN, Ms. Manasa E,Ms. Gloriya Priyadarshini Driver anti sleep divice 2022	This device can be used very easily. It is very comforta ble.	Their project doesn't have a system that would automatically slow down the car if the driver is drunk or in sleep mode,
3	Adnan ahmad.[2] anjali shara [3] astha singh[4]sumantha ChatterjeeAn Sleep Alarm system2020	Drivers Sleep mod alert sharply.	Their system is depend on battery cell .

RESULT

Introduction The "Result and Discussion" section of a project report or research paper typically presents and analyses the findings of the study. 6.2 System Development Platform The system development platform for an anti-sleep alarm system for drivers can vary based on the specific requirements and preferences of the project. By selecting the appropriate development platform and tools, developers can create an effective and reliable anti-sleep alarm system for drivers.

1) Microcontrollers: Microcontrollers such as Arduino, Raspberry Pi, or ESP32 can be used as the main processing unit for the system. These platforms offer a range of features and capabilities suitable for interfacing with sensors and controlling the alarm system.

2) Development Environment: The Arduino IDE, PlatformIO, or other integrated development environments (IDEs) can be used for writing and uploading code 3) to the microcontroller. These environments provide tools for code editing, compilation, and debugging.
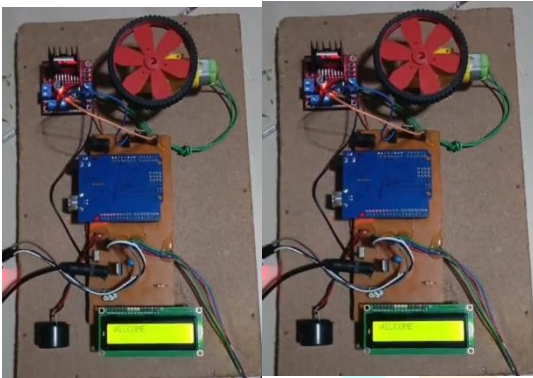

Fig .final Result of the Project

2. CONCLUSION

The analysis and design of driver drowsiness detection and alert system is presented The proposed system is used to avoid various road accidents caused by drowsy driving e This project involves avoiding accident to unconsciousness through Eye blinked Here eye blink sensor is feted in a transparent spectacle which driver need to wear while driving the vehicle where if driver lose his consciousness then it alerts the driver through buzzer to prevent vehicle from accident.

In this pepper will study the reviews of the previous peppers and get her references for the further process.

REFERENCES

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