ANTI SLEEPING ALARM SYSTEM

Shaishavi Parikh ,Shubham Yadav , Vinayak Kapoor, Aditya Rajbhar ,Ayush Nanaware

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ABSTRACT

Drowsy driving poses, like, a threat to road safety, leading, a numerous number of accidents worldwide. To, be address this major issue, this study introduces an, like, experimental Anti-Sleeping Alarm System designed to help, you know, the risks associated with driver fatigue. The system employs, many numbers of component like, 'advanced sensor technologies, including facial recognition, eye movement tracking, and steering behavior analysis, to, um, continuously monitor the driver's state of alertness. The proposed Anti-Sleeping Alarm System utilizes,the real-time data analysis to detect signs of drowsiness, such as, falling of eyelids, erratic steering patterns, and changes in facial expressions. When these indicators reach predefined thresholds, the system activates, like, a multi-modal alarm, combining, um, auditory alerts, visual warnings, and haptic feedback to, you know, effectively alert the driver and prompt, like, immediate corrective action. The development of this system involves, um, a combination of machine learning algorithms and computer, uh, vision techniques, enabling it to adapt to individual driving styles and environmental, like, conditions. The goal is to, make a reliable and, user-friendly solution that enhances driver safety by preventing, you know, accidents caused by fatigue-related impairments.

1.1 INTRODUCTION

Drowsy driving remains a major issue on road worldwide, and holding a substantial threat to both drivers and passengers. The consequences of driver fatigue is well-documented, with impaired reaction times and diminished cognitive abilities significantly increasing the risk of accidents measures to address this crictical problem, the focus of this study is the developeing of an Anti-Sleeping Alarm System aimed at enhancing driver safety!!Previous research shows that alarming statistics associated with major accidents! Understanding the importance of adopting innovative solutions to reduce this risk. Old approaches, such as   roadside signs and periodic breaks, have proved less effective in preventing the onset of drowsiness during extended periods of driving! Spray.Our proactive approach aims to reduce the occurrence of accidents caused by drowsy driving, ultimately increasing the road safety for all!

1.2 BLOCK REPRESENTATION:
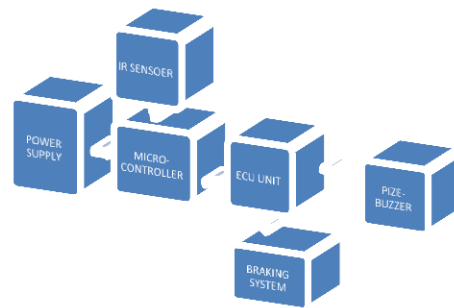
1.2.1   Function of major Components:

- **IR SENSOR :** It is a electronic device used to detect objects near-by surroundings. It also detects the movement of an object. It also helps in detecting eye blinging and movement of eye lids. In our project we used IR Sensor as an input device to detect the movement of eye-blink.

- **MICRO-CONTROLLER :** It is a Microcontroller board. Which is also known as ardino It is used for technical support, where we dump a code into it in programming laungauge and works as a Controller or Function. The operating Voltage of 5v, however the input Voltage can vary from 7 to 12v!!!

- **BUZZER:** A Buzzer is used to get output of the installed program and any errors occurs in process an immediate uzzer is generated.In our your project it act as a alarm system .

- **ECU:** It stands for Engine control unit.It control all the sensors of vehicle and responds agains the upcoming singles.In our your project we are connecting the micro-controller with ECU futher it is connected to IR Sensor which detect the moment of eye .

2.0 HARDWARE COMPONENTS:

2.1 Arduino Nano

The Nano is a teeny, whole, and breadboard-friendly board established on the ATmega328P given birth to in 2008. It delivers the same connectivity and specs of the Arduino Uno board in a tinier form factor. The Arduino Nano is armed with 30 male I/O headers, in a DIP-30-like configuration, which can be programmed utilizing the Arduino Software integrated development environment (IDE), that is general to all Arduinio nano can be woked in both ways online and offline The board can be powered through a type-B mini-USB cable or from a 9 V battery.
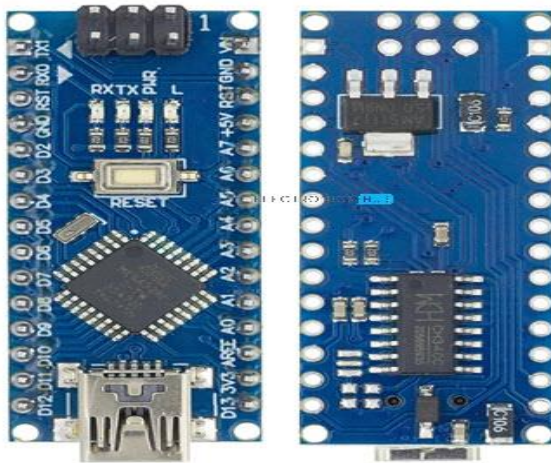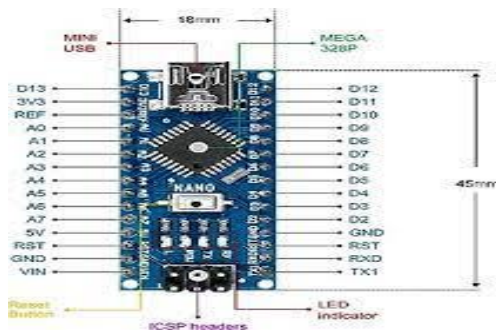
good indeed, like a fine wine, an alternative to the mighty Arduino UNO; and is available at a lower, more affordable price point. Personally speaking, I would highly suggest opting for the Arduino Nano over the UNO as it is indeed much cheaper, more breadboard friendly, small in size, and comes with a couple of numerous pins (digital and analog IO) than the UNO.

2.2 IR Sensor

IR sensor is an passive device that disperse light to capture a light in the atmosphere.IR sensor can mesure the heat of objects and detect movement.Generally all objects within the infrared spectrum emit some form of thermal radition. This kind of raditon is not visible by our naked eyes .however infrared sensor can detect these radition. This types of sensor is a photodiode the photodiode is sensitive to the same wavelength of IR light emitted by the IR Led .When IR light intrects with a photodiode it give a output.
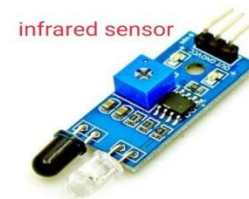
There are five basic part used in a normal infrared detection system: an infrared source, a transmission source , optical part, infrared detectors or receivers and Signal processing unit is used for signal processing. Infrared lasers and Infrared LED's of specific wavelength are used as infrared sources. The three main types of media used for infrared transmission are vacuum, atmosphere, and optical fiber that are often mixed with material like steel or glass.

Infrared Detectors/Receivers:Utilized to capture the infrared signals for further processing.

Signal Processing:Processing the captured signals for analysis and detection of infrared signatures.

2.3 PIEZO BUZZER:

The piezo buzzer produces sound based on the reverses of the piezoelectric effect. The generation of pressure variation or strain by the application of electric potential across a piezoelectric material is the underlying principal. These buzzers can be use for alerting the usear on the basis of input . They are also used in alarm circuits car equipment. The buzzer produces a high noisy sound irrespective of the voltage variation applied to it. It contain a piezo crystals between two meatalic conductorss. When a potential is applied across these crystals, they pushes on one conductor and pull on other. This continous pull and push results in the formation of a sound wave. Most of the buzzers makes a sound in the range of 2 to 4 kHz.The Red

connector is connected to Input and the Black connector is connected to Ground!

2.4 Eye Glasses / Spectacles:

"The eye blink system comes with an IR sensor mounted on which the user can wear like normal glasses, shown in the picture below. Eye blink Sensor is a more simple sensor used to detect eye blinks and eye movement . It uses as a simple infrared sensor to detect if the person's eye is closed and the corresponding data received can further be processed by any logic as required for the application!!"It also help the driver from external matters such as sand ,dust, wind and extreme tidey matters . due to its light weight it appears as like that you are not waering it .It is made up of plastic , slicon and others light weight materials.due to high avablity of frames and glass we have selected this kind of glass . It also proctect the eyes when excessive light from upcoming car is sticking on front body.

2.5 POWER SUPPLY:

The nine-volt battery, the 9V Battery, is an electric battery supplying a nominal voltage of 9 volts. The actual voltage measures 7.2 to 9.6 volts.The battery is light weight and small in size soo it can be easily fited in a small space.this kind of battery is not a long lasting battery so we have too change it time to time additionally it requires a switch pin for connection .   Here, we use a 9v battery for the power supply to executing the working process.
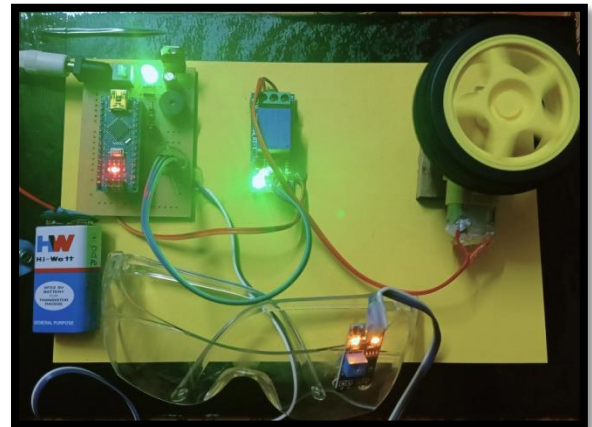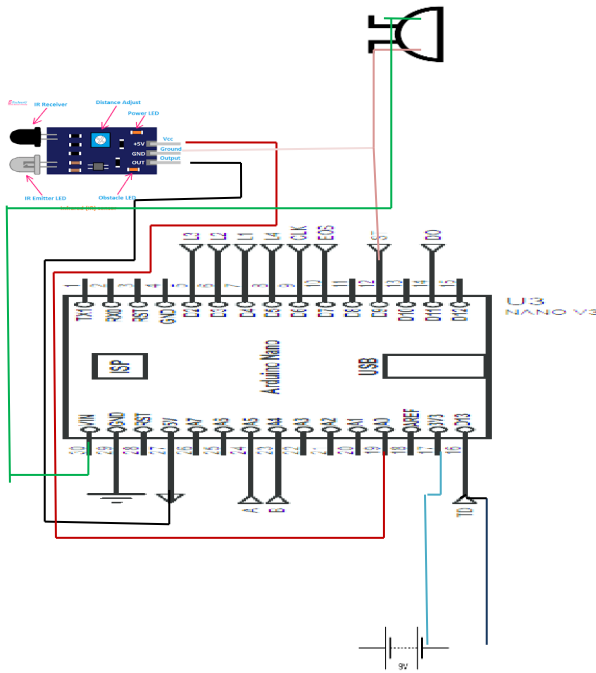

2.6 SPST SWITCH:

SPST Single pole single throw switch is nothing but an essential two-terminal switch that help us to disconnect the one terminal to another terminal with an easy ON or OFF operation. It's a simple yet very effective tool that is widely used in various electronic applications such as circuit control and power distribution! Do you know how significant this kind of switch can be to your daily life? It's amazing to think about the impact of such a small device on our everyday activities. We often take for granted the convenience it provides in controlling our appliances effortlessly. Just a flick of a switch, and voila, the lights turn on or off! That's the power of a SPST switch. So next time you use one, remember to appreciate the simplicity and functionality it offers!
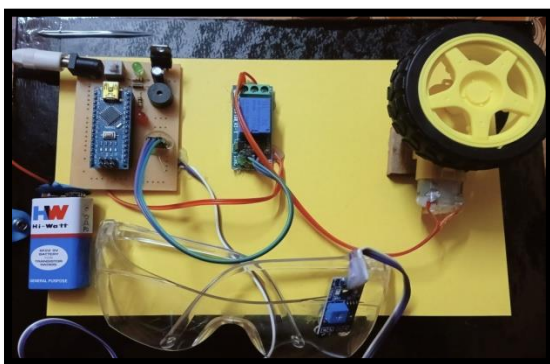
3.0 .PROJECT WORKING & RESULT

3.1 CIRCUIT DIAGRAM:

4.0 RESULT

Connected Components

Output of the Project WORKING:

The project is used to detect detecting the Eye-blink closing the eyes of a person, if eyes are closed for a while. The buzzer automatically turns ON when the person come back to returns to his normal State. The buzzer goes OFF.

5.0.FUTURE SCOPE & CONCLUSION

5.1 FUTURE SCOPE:

Anti Sleep Alarm System: Reducing Road AccidentsThough the prototype model worked very with remarkable output, the real life situations is going to be way more challenging and demanding.This system is an attempt to help in decreasing and/or prevent road accidents that happen due to drivers' drowsiness. It can be added to every high-end manufacturing cars to prevent accidents,Sleepiness detection is Efficient and alarms will generate only when demanded (while in asleep).Due to portable size it can be used in different application .With any given constraints of performance, cost, and reshuffling, the revolutionary design of this groundbreaking innovation is set to revolutionize driver safety across all industries.

6.0 CONCLISUION

s adeptly designed, and the tried-and-true demo unit is manufactured.The endgame of this assignment is to shape a gadget that can precisely discover somnolent driving and sound off alerts likewise, which aspires to thwart the drivers from soporific driving and forge a more secure driving environs. The venture was executed by an IR sensor. This process spots the weariness in swiftly. This technique which can differentiate regular eye blink and drowsiness can obstruct the driver from setting foot into the domain of slumber while driving. At any time a driver dozes off owing to weariness, the noisemaker consistently kickstarts beeping until the driver returns to their typical posture. Balance The crowning purpose of the system is to avert the motorway calamity, where the values gauged in life. It is used to avoid the accidents. It is way more-efficient and really simple to use. The Device is pretty useful especially for people who travel long distance and Drive late at night!"

6.1 APPLICATIONS:

- ➤ can be used in high-end manfacturing cars to prevent accidents!

- ➤ Not only for Drivers but also, very importantly, the device is used in number of ways like, ATM Guard Security ,Military Base Security

7.0 REFERANCES:

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