

# B-Link (Anti Sleep Alarm)

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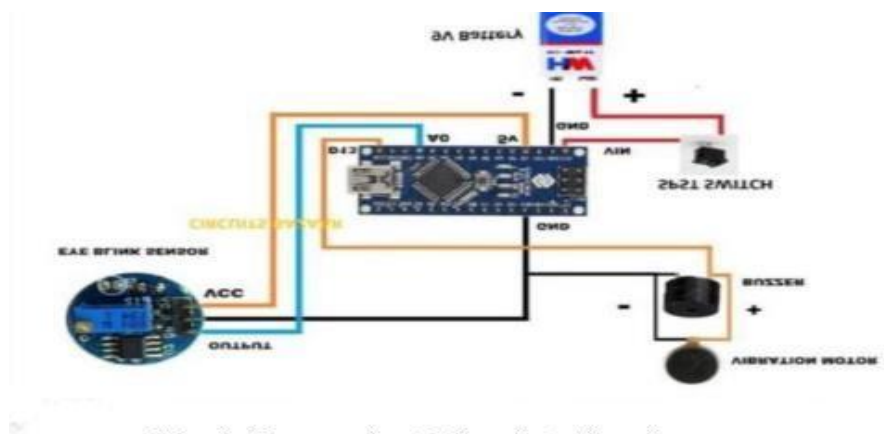
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**Abstract:** Nowadays There has been a very large increase in road accident due to drowsiness of driver while driving which leads to enormous fatal accidents. The driver loses his control when he falls sleep which leads to accident. This is because when the driver is not able to control his vehicle at very high speed on the road. In this project the glasses we have developed can serve multiple purposes other than it being used by drivers it can also be used by students during examination. The goal of this project is to develop a system that can detect the sleepiness of the driver and make alarms accordingly. it can be used as a cheaper alternative for high end devices manufactured by automobile industries. The main aim of this project is save to human lives by preventing road accidents and make it affordable so that each person can afford it and make best use of it.

**Keywords:** PCB-printed circuit board, USB-universal series bus, IOT-internet of things, IR-infrared

## I. INTRODUCTION

Feeling sleepy while driving could cause hazardous traffic accident. However, when driving alone on highway or driving over a long period of time, drivers are inclined to being bored and feel sleepy, or even fall asleep. Nowadays most of the products of driver anti-sleep detection sold in the market is quite annoying and inefficient and costly. As such, there is a high demand for cheap and efficient driver sleep detection. Therefore, we came up with an idea to develop a anti sleep alarm system, which could effectively meet this demand. The goal of this project is to develop a system that can detect the sleepiness of the driver and make alarms accordingly. For years, science fiction has been promising to come up with devices to make our lives more interesting and easier and hence, the wants and desires of number of people who really believed that the future is now possible. In this project we have come up with a pair of glasses that will prevent the user from sleeping in case if the user falls asleep it would effectively wake them up by making appropriate noises. The interpretation drawn after completion of the full-fledged project is that it's a cost-effective glass that prevents the driver from dozing off and thus saves many lives along with it. The glasses have multiple uses it can be used by students for educational purposes to stay awake during late nights. The software interacts with Arduino to assist the students and driver Once the user falls asleep the glasses detect it and sends the data to the Arduino. The data is then processed, and the buzzer starts ringing to alert the user and wake him up from sleep. The buzzer will continue to ring until the user manually switches it off. This will help the driver to avoid road accidents by staying awake



Circuit diagram of anti-sleep detection glasses



Completed working model of anti-sleep detection glasses

## II. LITERATURE SURVEY

### **A Dedicated System for Monitoring of Driver's Fatigue K. Subhashini Spurjeon, Yogesh Bahindwar:**

Describe about the road accidents. The road accidents happen due to the lack of attention of the driver. In this paper author describes a real time system for analyzing video sequences of a driver and determining the Level of attention. For this purpose, author uses the computation of percent of eyelid closure. The eye closure Acts as an indicator to detect drowsiness. Driver's fatigue and drowsiness are the major causes of traffic Accidents on road. It is very necessary to monitor the driver's vigilance level and to issuing an alert when he/she Is not paying enough attention to the road is a promising way to reduce the accidents caused by driver factors. The fatigue monitoring can be starts with extracting visual parameters. This can be done via a computer vision System. In the purposed work, author purpose a real time robust methods for eye tracking under variable lighting Conditions and facial orientations. In this paper the latest technologies in pattern classification recognition and in Object tracking are employed for eye detection. The tracking is based on the eye appearance. Visual Information is acquired using a specially designed solution combining a CCD video camera with an IR Illumination system. The system is fully automatic and detects eye position and eye closure and recovers the Gaze of eyes. Experimental results using real images demonstrate the accuracy and robustness of the proposed solution. This Could become an important part in the development of the advanced safety vehicle.

### **Drowsiness Warning System Using Artificial Intelligence, Nidhi Sharma, V. K. Banga:**

In this paper author discuss about the various artificial intelligence methods for detecting the drowsiness of System. Driver's drowsiness is an important factor in motoring of vehicle from accidents. The driving Performance deteriorates with increased drowsiness with resulting crashes constituting morel vehicle accidents. In recent years, there has been growing interest in intelligent vehicles. The ongoing intelligent vehicle research will revolutionize the way vehicles and drivers interact in the future. The detection mechanism into vehicles may help prevent many accidents. There are various techniques used for Analyzing driver exhaustion. Most of the published research on computer vision approaches to detection of Fatigue has focused on the analysis of blinks and head movements. After long hours of driving or in absence of mental alert state, the attention of driver starts to loose and that Creates risks of accidents. These are the typical reactions of fatigue, which are very dangerous. In image fatigue Detection, correct and real time decision is very important. In this paper, author discusses the various artificial Detection

### **A Yawning Measurement Method to Detect Driver Drowsiness, Behnoosh Hariri, et.al:**

Describe that the drowsy is the major issue behind the road accidents. The use of assistive systems that Monitor a driver's level of vigilance and alert the driver in case of drowsiness can be significant in the Prevention of accidents in this paper author purposed a new approach towards detection of drives drowsiness based on yawning Measurement. This involves several steps including the real time detection and tracking of driver's face, Detection and tracking of the mouth contour and the detection of yawning based on measuring both the rate and The amount of changes in the mouth

contour area. In this paper several techniques are used, that are applied Several techniques to ensure the robust detection of yawning expression in the presence of variable lighting Conditions and facial occlusions. Test results demonstrate that the proposed system can efficiently measure the Aforementioned parameters and detect the yawning state as a sign of driver's drowsiness.

### III. FUTURE SCOPE

- To achieve higher accuracy at night. Use parallel programming such as CUDA to make code faster and more efficient
- Use bash script to enable our program to auto start after booting.
- Use parallel programming and multi thread to handle sending control signal and running algorithm separately.
- Design hardware enclosure for PCB, microcontroller and USB battery
- Use more advanced components in out/in to reduce the errors
- Trying to make it more compact the system can be made more accurate using various other parameters such as State of the Car, Detecting Foreign Substances on Face etc.
- An application can be developed where it can alert or prevent the user from sleeping.
- It can be used to develop an IOT device that can be installed in the car to detect driver's drowsiness.
- Similar models and techniques can be used for various other uses such as Netflix, Hotstart and other streaming service platform scan detect whether the person is sleeping and stop the video accordingly.

### IV. CONCLUSION

As for the software part, I fulfilled my goal successfully. The detection Algorithm could not only work effectively and accurately at daytime, but also at night. The Eye portion extraction is smooth and in real time with no delays on the computer. In addition, there is a bonus function in the software part – detection with glasses. For the Arduino I faced two major difficulties. First, I was not able to power up the board with any commercial chargers initially, including the ones for iPhone, but later I added USB cable to power my board and used the power supply I designed to charge the Battery to solve the problem. Second, I experienced a few difficulties while Installing the OpenCV library and dumping my code to Arduino uno but was able to solve it by changing Flags in make files to the one corresponding to board architecture and choosing appropriate ports. The power Supply unit basically completes all its design requirements. By adding the extra USB Battery stage, the problem of powering the entire microcontroller and alarming system has been solved. Moreover, the alarming system works as I supposed

### V. ACKNOWLEDGMENT

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