

# ANTISLEEP ALARM FOR DRIVERS

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## Abstract

In our day to day life, timer and alarm plays an important role. Usually in timers, if the user does not reset the device, again and again it disturbs the user. In this project, the device operates a Vibrator and Alarm in a controlled manner. This project automatically switches on or switch off the Alarm and Vibrator according to the desire of the user. The user can simply set the timings and duration of the particular alarm and Vibrator.

**Keywords :-** *Driver's drowsiness detection, Eye position sensor, Eye blinking frequency, Soft braking system.*

## 1. INTRODUCTION

Road traffic injuries and deaths have a terrible impact on individuals, communities, and countries. They involve massive costs too often overburdened health care systems occupy scarce hospital beds consume resources and result in significant losses of productivity and prosperity, with deep social and economic repercussions.

The anti-sleep driving alarm for people doing all night drives as well as security guards and others we have to sit in one place for long periods of time without any stimulating interaction. The newest high-tech way to stay awake is good whether you ever have to drive back home after an exhausting day at work or just need to get something done and sleep is not an option.

This trusty sleep alarm will keep you at full alert and is always ready to help if your head dozes off. This has the potential to save lives on the road. Long-distance lorry drivers can fall asleep by driving too long hours due to the pressures put on them to get the goods to their destination at certain times.

### Problem Statement :-

Today drowsy driving is a serious problem that leads to thousands of accidents each year. Motor vehicle collisions lead to significant death and disability as well as significant financial cost to both security and individual due to the driver impairments. Drowsiness is one of the factors for collisions. To prevent this kind of accidents we came up with this device.

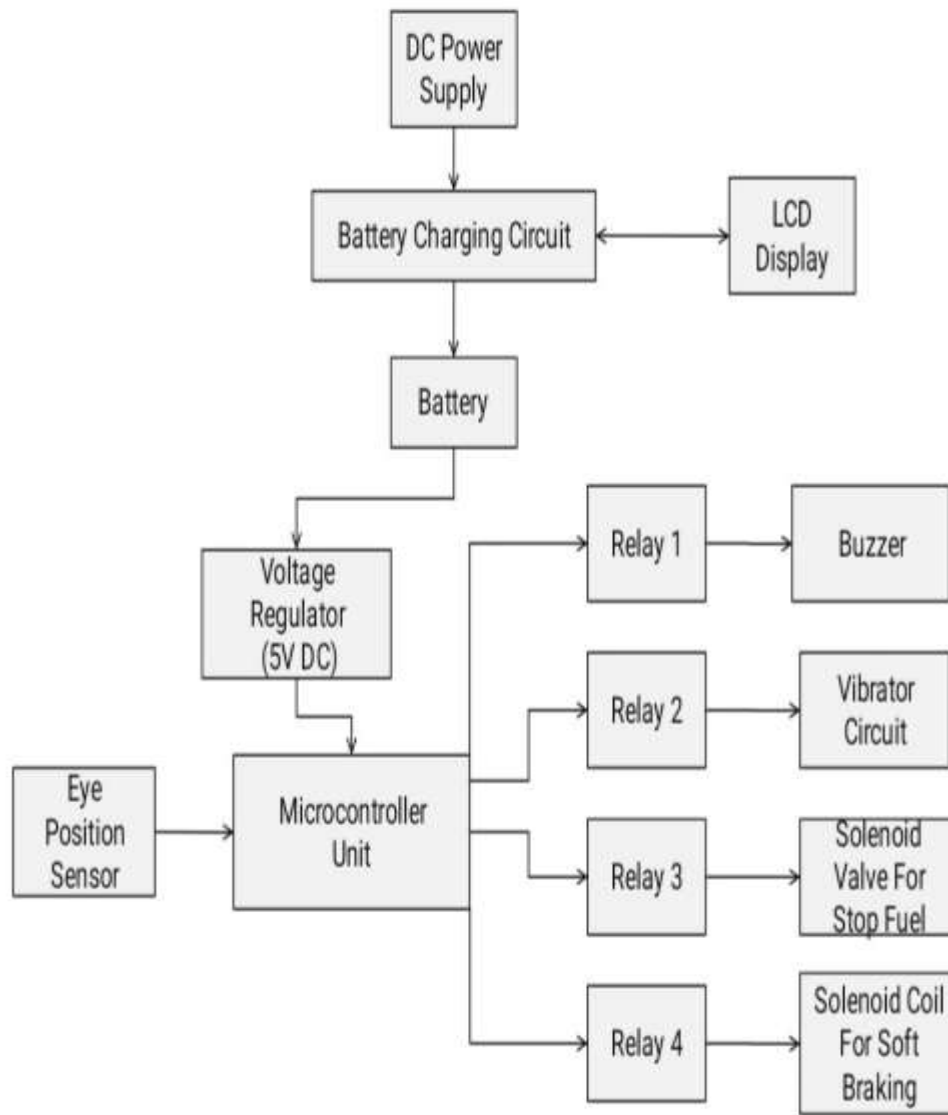
## 2. METHODOLOGY

Sensor senses the movement of eyes of driver which is related to eyes' blinking frequency or time of closing and passes the command to microcontroller.

While microcontroller gets the signal from sensor, immediately it'll pass to relay R3 & R4 to turn on the Buzzer and vibrator at same time to wake up the driver. In case of IC engine, R1 works as cut off of fuel supply using solenoid valve and R2 works as soft braking mechanism using solenoid coil.

In another case of EV, R2 will be operated to cut off the supply. In case if the driver wakes up in between above process , the whole system will get subjected to its normal condition.

**3. BLOCK DIAGRAM**



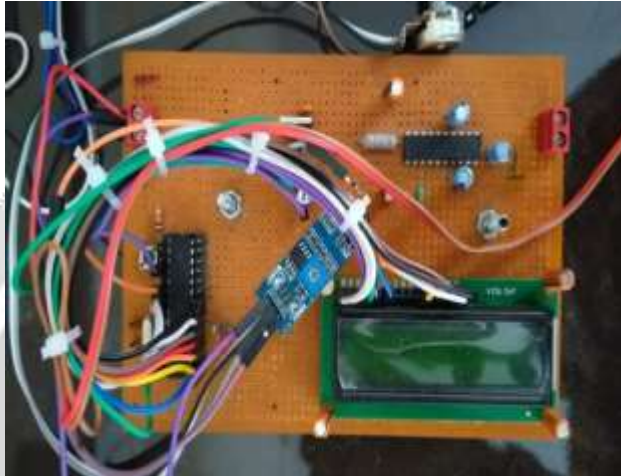
**4. COMPONENT USED**

1. Charging circuit
2. LCD Display
3. Battery Bank
4. Regulator Bank
5. Microcontroller
6. Eye Position Sensor
7. Vibrator Motors
8. Buzzer
9. Relay
10. Solenoid Coil
11. Solenoid Valve

## 5. PROPOSED WORK

Eye tracking system for drowsiness detection includes eye position sensor, simple alarm and vibrator. The system performs real time processing according to eye blinking frequency caught through the sensor to send further signals to microcontroller, which gives the output signals to simple alarm and vibrator motor to wake up the driver in such manner. In case, the driver doesn't wake up, the sensor is still catching the eye's activity of driver. The next process of another outputs are to cut the fuel supply and Apply soft braking system to vehicle.

### Sensor & Controller :-



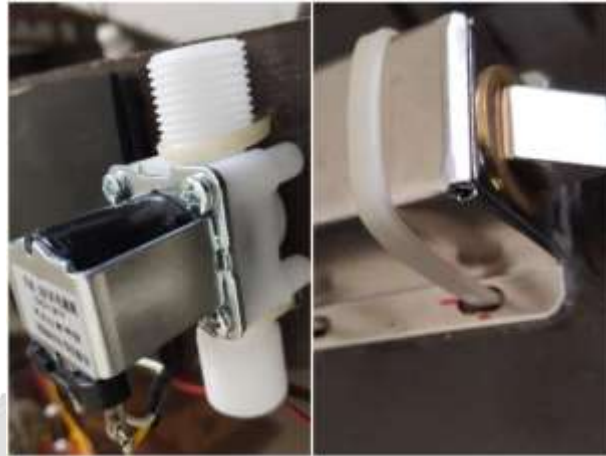
The above image shows the sensor and microcontroller circuit. This catches the eye blinking frequency and give signals to microcontroller for further process. And the display shows the saved messages of driver's current condition. controller circuit controls the whole process.

### Buzzer & Vibrator Pad :-



The components shown in above image are Vibrator motor and Simple alarm respectively. First of all the alarm will be switched ON and on the other hand at the same time the Vibrator Pad installed on driver seat will also be turned ON to wakehim/her up.

## Solenoid coil & Valve :-



The proposed application to stop the vehicle is achieved through this two, The solenoid coil and solenoid valve. The solenoid valve works to stop the vehicle through cut off the fuel supply. Whereas the solenoid coil works to apply soft braking to stop the vehicle.

### Result:

#### Normal Condition:

Driver is awake. Eye position sensor is continuously in working mode as it is sensing the eye blinking frequency of driver. Whole system is at normal position.

#### Abnormal Condition:

The eye blinking frequency decreased or tends to closed eye. Then the signal given to microcontroller which then gives output through relay to buzzer and vibration pad. This is phase 1 of outputs. And in next phase if driver is not awake yet, after some delay the remaining 2 outputs will get the signals as the solenoid coil and solenoid valve will work out to stop the vehicle slowly.



Abnormal Condition

## 6. CONCLUSION :

This is how we tried to achieve 100% of our aim referring to above process. This system awakens the driver to protect it from accident, and if it doesn't make a powerful impact on driver then the system itself take the whole control to stop the vehicle through cut off of fuel supply and by applying a soft braking. This system is very useful and applicable for each and every type of vehicle with proper application.

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