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# ADVANCE SAFETY SYSTEM WITH ANTI SLEEP ALARM

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**ABSTRACT**
*In Advance times, owing to hectic schedules it becomes very difficult to remain active all the time when you drive vehicle. Imagine a situation where a person is driving home from work, dead tired after facing all the challenging work of the day. He/She Drive Vehicle and his hands are on the steering wheel and foot on the pedal but suddenly he starts feeling tired, his eyes start shutting and his vision blurs and before he knows it, he's starts asleep. Falling asleep on the steering wheel can lead to serious incident, there may be accidents and people may even lose their lives. This situation is much more commonly occurs then we notice and hence, it is very serious issue to counter this problem. So this issue, we have come up with advance safety with anti-sleep alarm Device. This system alerts the user if he/she falls asleep at the steering wheel thereby, avoiding accidents and saving lives of driver, passengers and strangers. This system is beneficial especially for people who travel long distances travels and people who are driving late at night. The circuit is built around infrared module when driver closes the eyes then sensor generate the signal after 5 second relay automatic start the sound and driver listen that sound and open his eyes and if he is in deep sleep and he did not open eyes then automatic after 8 second vehicle running stop, so this idea save more accident and it is amazing idea and I make this idea is very low-price and this is the best point of my project.*

**KEYWORDS:** *IR Sensor Module, Battery, Relay*

## INTRODUCTION

Road traffic injuries and deaths have a terrible impact on individuals, communities, and countries. They involve massive amount of costs too often overburdened health care systems occupy more hospital beds consume resources and result in significant losses of productivity, prosperity with deep social and economic losses. According to the 2016 report of WHO, 1.24 million road traffic deaths occur every year. This makes it the number one cause of death among those aged 15-29 years. This number is predicted to increase to around 1.9 million by 2030 and to become the seventh leading cause of death if no action is to be taken. The Advance Safety System With Anti Sleep 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 ASSWA 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. This item has the potential to keep them awake or at least to tell them when they are overtired and need to stop driving.

This study intends to develop a device or a system that will help the driver in minimizing road accidents. And increase life.

## PROBLEM DEFINITION

Driver exhaustion is a significant variable in an expansive number of vehicle accidents. Late in sights assess that yearly 1,200 deaths and 76,000 injuries can be credited to weariness-related accidents. Less attention leads the driver to be distracted and the likelihood of a street accident goes high. Drowsiness-related accidents have all the earmarks of being more serious, because of the higher speeds involved distraction and the driver being not able to take any avoiding activity, or even brake, before the accident. The improvement of innovations for recognizing or preventing tiredness of the driver is a significant test in the field of an accident preventing systems. Because of the danger that that drowsiness presents on the road, strategies need to be created for checking its influences. Loss of awareness because of tiredness causes a few changes in the human body and activities. These side effects and parameters empower us to effectively measure the drowsiness level. Every year,1.25 million people around the world die due to road crashes – a global problem that the World Health Organization (WHO) says is both predictable and preventable.

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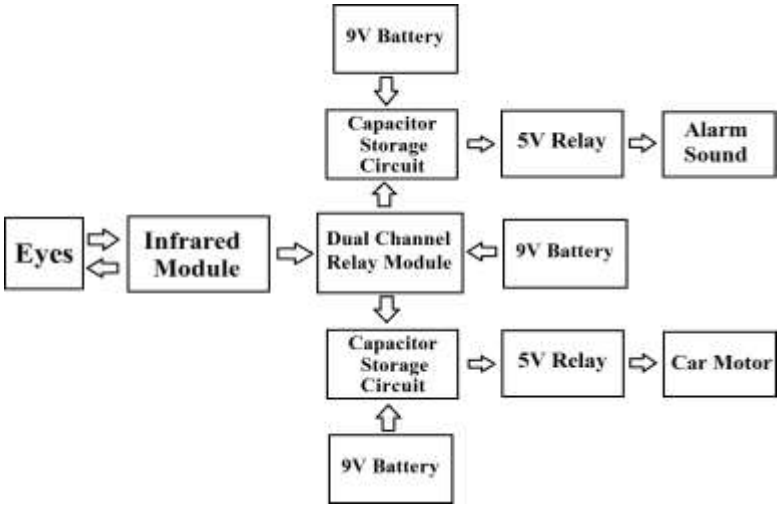
## SYSTEM DESIGN

In This paper For We Use First Infrared Module and we give connected to Infrared module to relay module and we give to power by one 9v battery to both module and this module working is when driver close eyes that time sense the eyes and trigger the relay switch and we use two more simple relay in this project for on off sound and car so we connect both simple relay to relay module and give different battery for two simple relay for given power and every relay to we connected capacitor ( capacitor decide after power cut how much second relay on by capacitor power ) and that simple relay decide when car stop and alarm on and when alarm off car on and this is basic details of this block diagram

***Figure Block Diagram***




***Circuit Diagram***

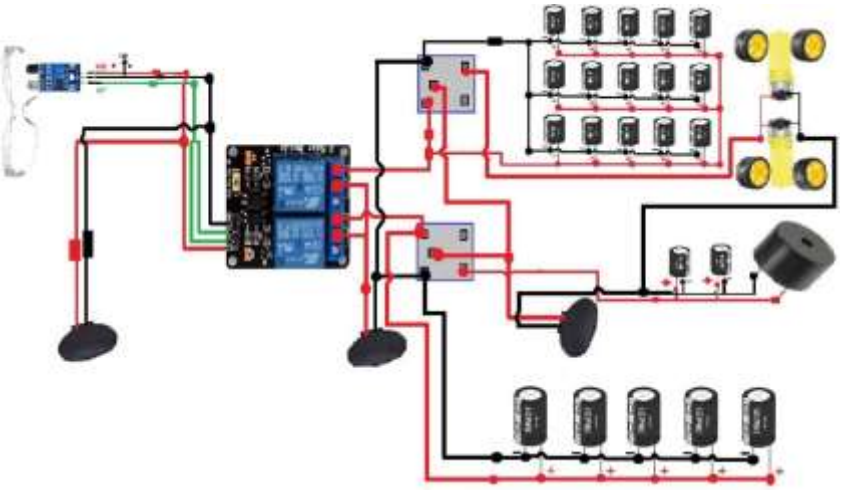


**Figure Circuit Diagram.**

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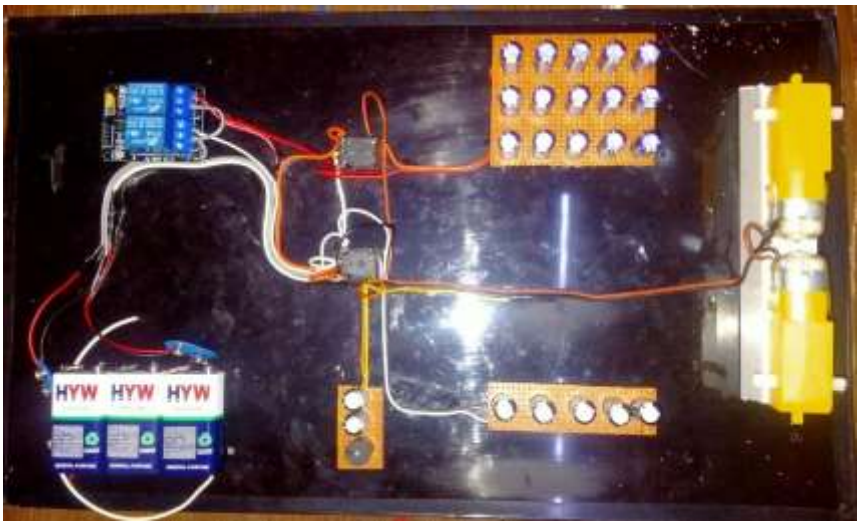


***Figure Final Model.***

An Infrared sensor module works by applying a voltage to a pair of IR light-emitting diodes (LEDs) which in turn, emit infrared light. This light propagates through the air and once it hits an object it is reflected towards the sensor.

## COMPONENTS USED

1.Infrared Module / IR Sensor Module

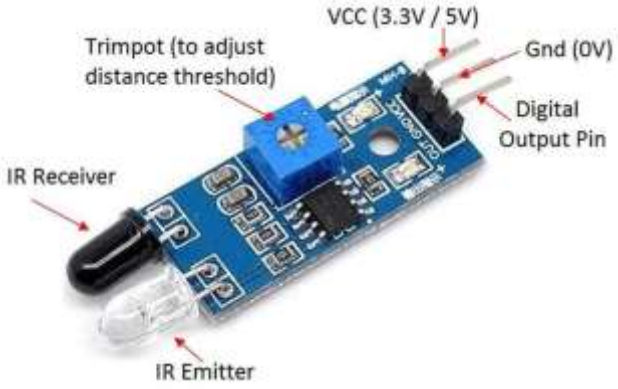


**Figure Infrared Module / IR Sensor Module**

IR Sensor module has the great adaptive capability of ambient light, having a pair of infrared transmitter with the receiver tube, the infrared emitting tube to emit a certain frequency, encounters an obstacle detection direction (reflecting surface), infrared reflected back when to the receiver tube receiving, after the comparator circuit processing, the green LED lights up bright , while the signal output will output digital signal (a low-level signal), through the potentiometer knob to adjust the detection distance, the effective distance range 1cm to 10cm working voltage of 3.3V-5V. The detection range of the sensor can be adjusted by the potentiometer as per requirement , with little interference, easy to assemble, easy to use features, can be widely used robot obstacle avoidance, obstacle avoidance car assembly line count and black-and-white line tracking and many other occasions.

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Features of IR Sensor Module:-

When the module detects obstacles in front of the signal glass , the circuit board green indicator light level, while the OUT port continuous output low-level signals and sound , the module detects a distance of 1cm to 10cm, detection angle 35 °, the detection distance can be potential adjustment with adjustment potentiometer clockwise and anticlockwise , the increase in detection distance; counterclockwise adjustment potentiometer, the detection distance decreased.

2.5V Dual-Channel Relay Module

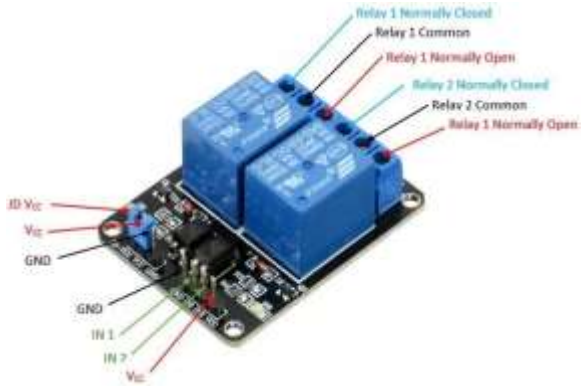


**Figure 5v Dual-Channel Relay Module**

The dual-channel relay module is more or less the same as a single-channel relay module, but withsome extra features like optical isolation. The dual-channel relay module can be used to switch mains powered loads from the pins of a microcontroller.

5V Relay Pin Configuration

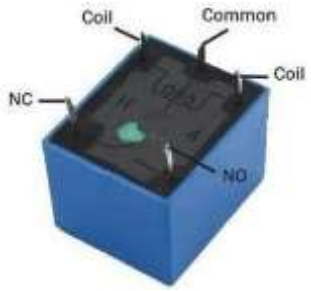


Figure 5V Relay

A 5v relay is an automatic switch that is commonly used in an automatic control circuit and to control a high-current using a low-current signal. The input voltage of the relay signal ranges from0 to 5V.The pin configuration of the 5V relay is shown below. This relay includes 5-pins where each pin and its functionality are shown below.Pin1 (End 1): It is used to activate the relay; usually this pin one end is connected to 5Volts whereas another end is connected to the ground. Pin2 (End 2): This pin is used to activate the Relay. Pin3 (Common (COM)): This pin is connected to the main terminal of the Load to make it active. Pin4 (Normally Closed (NC)): This second terminal of the load is connected to either NC/ NO pins. If this pin is connected to the load then it will be ON before the switch. Pin5 (Normally Open (NO)): If the second terminal of the load is allied to the NO pin, then the load will be turned off before the switch.

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3.25V/1000uf Capacitor

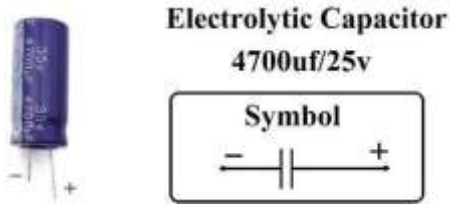


**Figure 25V/1000uf Capacitor**

Electrolytic capacitors are widely used in electronic circuits due to their high capacitance values and compact size. Their primary applications include filtering and smoothing in power supplies, decoupling to maintain stable voltage for components, coupling in audio and communication circuits to transfer signals, and creating time-delay circuits for timing or oscillation purposes. Additionally, they can be employed for temporary energy storage in devices such as camera flashes.

This specific capacitor boasts a capacitance value of 1000uF and a voltage rating of 25V, making it suitable for a wide range of electronic applications. With its radial lead configuration and compact size, the ECA- 1EM102 is designed for easy integration into various circuit designs. These capacitors are polarized and should not be hooked up backwards. The negative is denoted by a white line down the side of the capacitor with a negative symbol.

4. 9v Battery


**Figure 9v Battery**

Hi-Waote 9V Battery is the most commonly used and portable 9V battery. It is non-rechargeable and is a high capacity and low-cost solution for many electronic devices. It is based on Zinc Carbon Chemistry and can be used easily replaced if discharged just like any standard AA and AAA batteries. The battery can be used to power LEDs, Toys, Flashlight and Torch, electronic equipment like multimeter, wall clocks, or other devices with a 9V system. A battery snap connector is generally used to connect it with a breadboard.

5.Battery Connector

**Figure Battery Connector**

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Plastic i-type connector 14 cm stripped and tinned leads, 1 red and 1 black for easy identification soldering snap-on terminal connector for 9-volt battery or for diy projects.

6.Sound Buzzer / Alarm

**Figure Sound Buzzer / Alarm**

These buzzers were invented by manufacturers of Japanese & fixed into a broad range of devices during the period of 1970s – 1980s. So, this development primarily came due to cooperative efforts through the manufacturing companies of Japanese. In the year 1951, they recognized the Application Research Committee of Barium Titanate that allows the corporations to be cooperative competitively & bring about numerous piezoelectric creations.

7.Gear Motor 60 RPM

**Figure Gear Motor 60 RPM**

The BO Series1 60RPM DC Motor Plastic Gear Motor – BO series straight motor gives good torque and rpm at lower operating voltages, which is the biggest advantage of these motors. Small shaft with matching wheels gives an optimized design for your application or robot. Mounting holes on the body & light weight makes it suitable for in-circuit placement. This motor can be used with 69mm Diameter Wheel for Plastic Gear Motors and 87mm Diameter Multipurpose Wheel for Plastic Gear Motors. Low-cost geared DC Motor. It is an alternative to our metal gear DC motors. It comes with an operating voltage of 3-12V and is perfect for building small and medium robots. Available with 60 RPM. Low density: lightweight, low inertia. Capability to absorb shock and vibration as a result of elastic compliance. Ability to operate with minimum or no lubrication, due to inherent lubricity. The relatively low coefficient of friction.

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8.Jumper Wire

**Figure Jumper Wire**

Generally, jumpers are tiny metal connectors used to close or open a circuit part. They have two or more connection points, which regulate an electrical circuit board. Their function is to configure the settings for computer peripherals, like the motherboard. Suppose your motherboard supported intrusion detection. A jumper can be set to enable or disable it. Jumper wires are electrical wires with connector pins at each end. They are used to connect two points in a circuit without soldering. You can use jumper wires to modify a circuit or diagnose problems in a circuit. Further, they are best used to bypass a part of the circuit that does not contain a resistor and is suspected to be bad. This includes a stretch of wire or a switch. Suppose all the fuses are good and the component is not receiving power; find the circuit switch. Then, bypass the switch with the jumper wire.

## ADVANTAGES, LIMITATIONS

**Advantages**

We can stop many accident by drive sleep
We can make my project idea in very low budget so any drive can afford
This is Live working Project Idea

**Limitations**

This Project Perfect work in night Time if driver try to sleep , day time this project performance not best .

## RESULT AND CONCLUSION

Anti-sleep alarms can be a helpful tool for preventing accidents caused by drowsy driving, but they should be used in conjunction with other strategies to promote safe driving practices. It is ultimately the responsibility of the driver to ensure that they are well-rested and alert when behind the wheel.

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