

AGAM SHARMA 2K20/EC/016

7th semester Electronics and Communication Engineering

Delhi Technological University

SLEEP ALERT CONTROLLER:

AIM:

To make an alert controlling system using Arduino-uno to stop the vehicle if the person happens to asleep while driving.

MATERIALS USED:

ARDUINO-UNO, RELAY, DC MOTOR, IR SENSOR MODULE, JUMPER WIRES, LED.

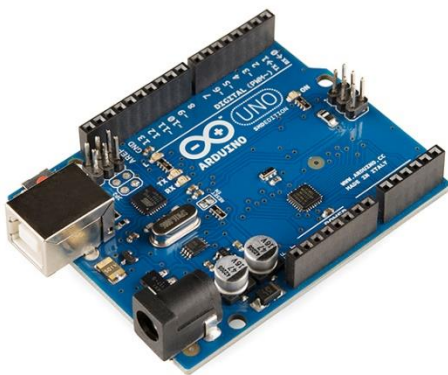
SIMULATION PLATFORM:

Arduino Uno IDE 2.1.0

THEORY:

Arduino UNO is the best board for getting started with electronics and coding. If you're modding a platform for the first time, UNO is the most powerful card you can start with. UNO is the most accessible and best version of the entire Arduino family.

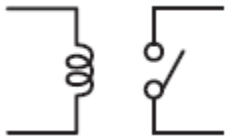
Arduino UNO is a low-cost, flexible, and easy-to-use programmable open-source microcontroller board that can be integrated into a variety of electronic projects. This board can be interfaced with other Arduino boards,



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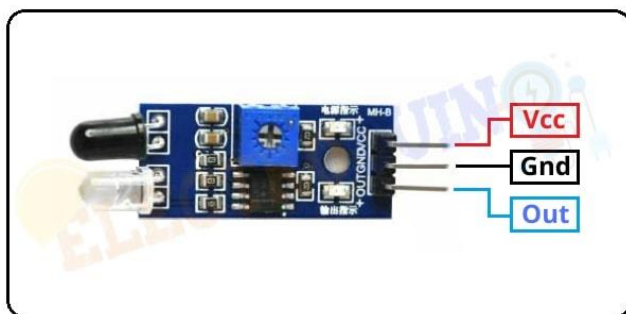
Relays are motorized switches that open and close circuits by receiving electrical signals from an external source. Some may even include a "relay race" with a relay race where players take turns taking turns to complete the race.

"Relays" embedded in electronic equipment work the same way. They receive electrical signals and send signals to other devices by turning switches on and off.



IR Sensor Modules or Infrared (IR) sensors are the simplest and most popular sensors available in electronics. It is used in wireless technologies such as remote-control functions and detection of environmental objects/obstacles. An infrared sensor usually consists of an infrared (IR) LED and a photodiode, and this pair is often referred to as an IR pair. IR LED is a special-purpose LED that emits infrared light with a wavelength of 700 nm to 1 mm.

Such rays are invisible to our eyes. In contrast, photodiodes or infrared receiving LEDs capture infrared light.



CODE:

```
//ARDUINO UNO IDE
int out=9;
// IR module output
int motor=10;
void setup() {
```

```

    // put your setup code here, to run once:
    Serial.begin(9600);
    pinMode(out, INPUT);
    pinMode(motor, OUTPUT);

}
int val;
void loop() {
    // put your loop code here, to run repeatedly:
    val=digitalRead(out);
    if(val)
    {
        digitalWrite(motor, HIGH);
    }
    else
    {
        digitalWrite(motor, LOW);
    }
    delay(100);
}

```

WORKING:

Working of the system is as follows:

In Arduino UNO following connections has been made:

Vcc and Gnd has been connected to the respective terminal of devices (Relay and IR sensor).

Out terminal of relay has been connected to pin 9 to be read.

Control voltage of relay is connected to pin 10 of Arduino and Gnd.

In normal state, the DC Motor is rotating as usual with no obstacle detected by the IR sensor module. Also, DC motor is connected to Normally closed terminal of Relay.

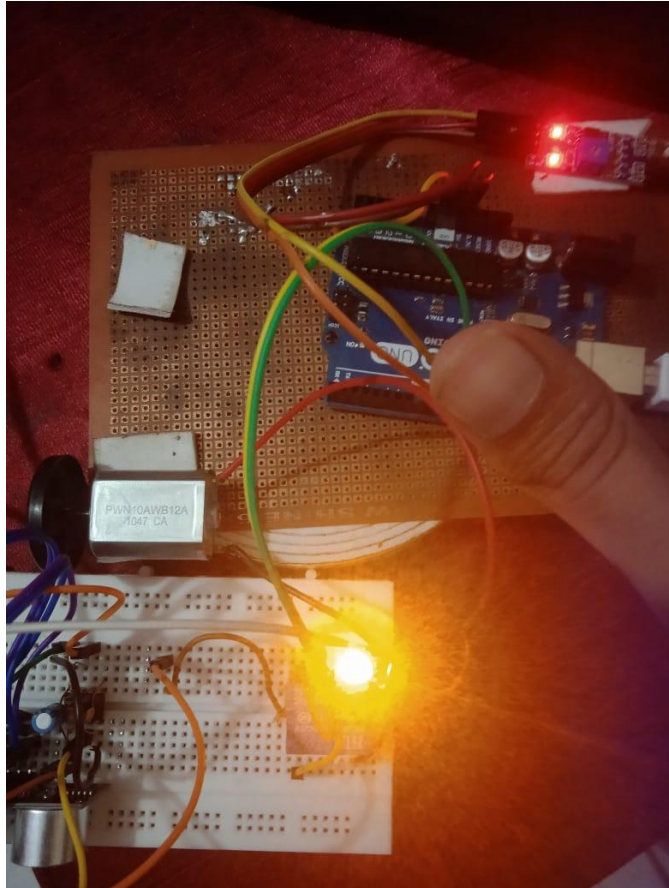
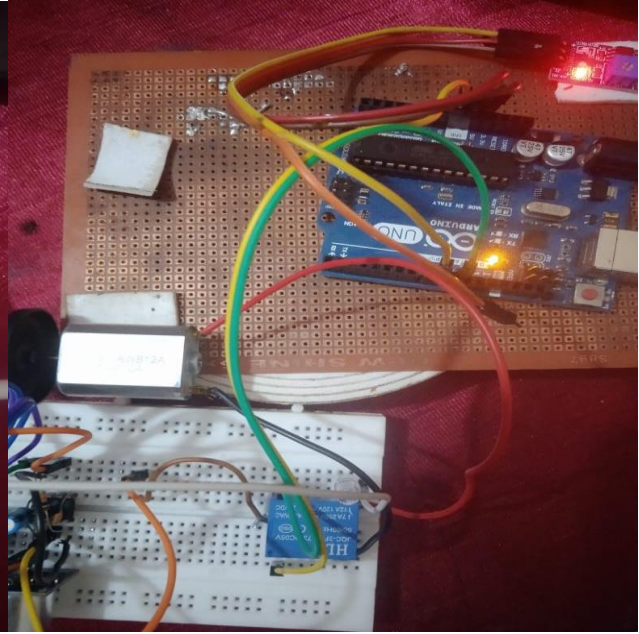
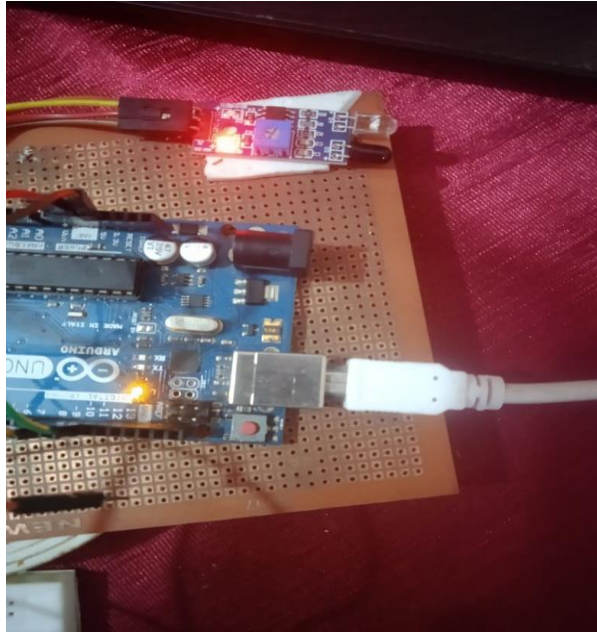
Once there is some obstacle in-front IR sensor sends the LOGIC HIGH to pin 9 which initiate the Relay through pin 10.

Now relay comes in Normally Open stage where it is connected to an LED indicating an alert.

DC motor turns off.

Hence, the driver is safe.

RESULTS:



CONCLUSION:

In this mini project, the use of IR sensor module has been used, but for long distance detection purposes Ultrasonic sensor or PIR sensor may also be used.