Assignment 1

Team Id	NM2023TMID08697
Project name	Drowsiness detection and alerting system

```
#include <Servo.h>
int output1Value = 0;
int sen1Value = 0;
int sen2Value = 0;
int const gas_sensor = A1;
int const LDR = A0;
int limit = 400;
long readUltrasonicDistance(int triggerPin, int echoPin)
{
pinMode(triggerPin, OUTPUT); // Clear the trigger
digitalWrite(triggerPin, LOW);
delayMicroseconds(2);
// Sets the trigger pin to HIGH state for 10 microseconds
digitalWrite(triggerPin, HIGH);
delayMicroseconds(10);
digitalWrite(triggerPin, LOW);
pinMode(echoPin, INPUT);
// Reads the echo pin, and returns the sound wave travel time in microseconds
return pulseIn(echoPin, HIGH);
}
Servo servo_7;
void setup()
{
Serial.begin(9600); //initialize serial communication
pinMode(A0, INPUT); //LDR
pinMode(A1,INPUT); //gas sensor
pinMode(13, OUTPUT); //connected to relay
servo_7.attach(7, 500, 2500); //servo motor
pinMode(8,OUTPUT); //signal to piezo buzzer
pinMode(9, INPUT); //signal to PIR
pinMode(10, OUTPUT); //signal to npn as switch
pinMode(4, OUTPUT); //Red LED
pinMode(3, OUTPUT); //Green LED
}
void loop()
{
```

```
int val1 = analogRead(LDR);
if (val1 > 500)
{
digitalWrite(13, LOW);
Serial.print("Bulb ON = ");
Serial.print(val1);
}
else
{
digitalWrite(13, HIGH);
Serial.print("Bulb OFF = ");
Serial.print(val1);
}

sen2Value = digitalRead(9);
if (sen2Value == 0)
{
digitalWrite(10, LOW); //npn as switch OFF
digitalWrite(4, HIGH); // Red LED ON,indicating no motion
digitalWrite(3, LOW); //Green LED OFF, since no Motion detected
Serial.print(" || NO Motion Detected " );
}
if (sen2Value == 1)
{
digitalWrite(10, HIGH);//npn as switch ON
delay(5000);
digitalWrite(4, LOW); // RED LED OFF
digitalWrite(3, HIGH);//GREEN LED ON , indicating motion detected
Serial.print(" || Motion Detected! ")

int val = analogRead(gas_sensor); //read sensor value
Serial.print("|| Gas Sensor Value = ");
Serial.print(val); /
//val = map(val, 300, 750, 0, 100);
if (val > limit)
{
tone(8, 650);
}
delay(300);
noTone(8);

sen1Value = 0.01723 * readUltrasonicDistance(6, 6);
if (sen1Value < 100)
{
servo_7.write(90);
Serial.print(" || Door Open! ; Distance = ");
```

```
Serial.print(sen1Value);
Serial.print("\n");
}
else
{
servo_7.write(0);
Serial.print(" || Door Closed! ; Distance = ");
Serial.print(sen1Value);
Serial.print("\n");
}
delay(10); // Delay a little bit to improve simulation performance
}
```