TEAM ID	PNT2022TMID36755
Project name	IoT based smart crop protection system

Assignment 1

Code:-

```
#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()
{

     //------light intensity control------//
//-------------------------------------------------------------
-      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);
       }

//-------------------------------------------------------------
        //------ light & fan control --------//
//-------------------------------------------------------------
 /* 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!      " );
       }

  */
       // ------- Gas Sensor --------//

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


      //-------  servo motor  ---------//

  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 }
```

Output:-