

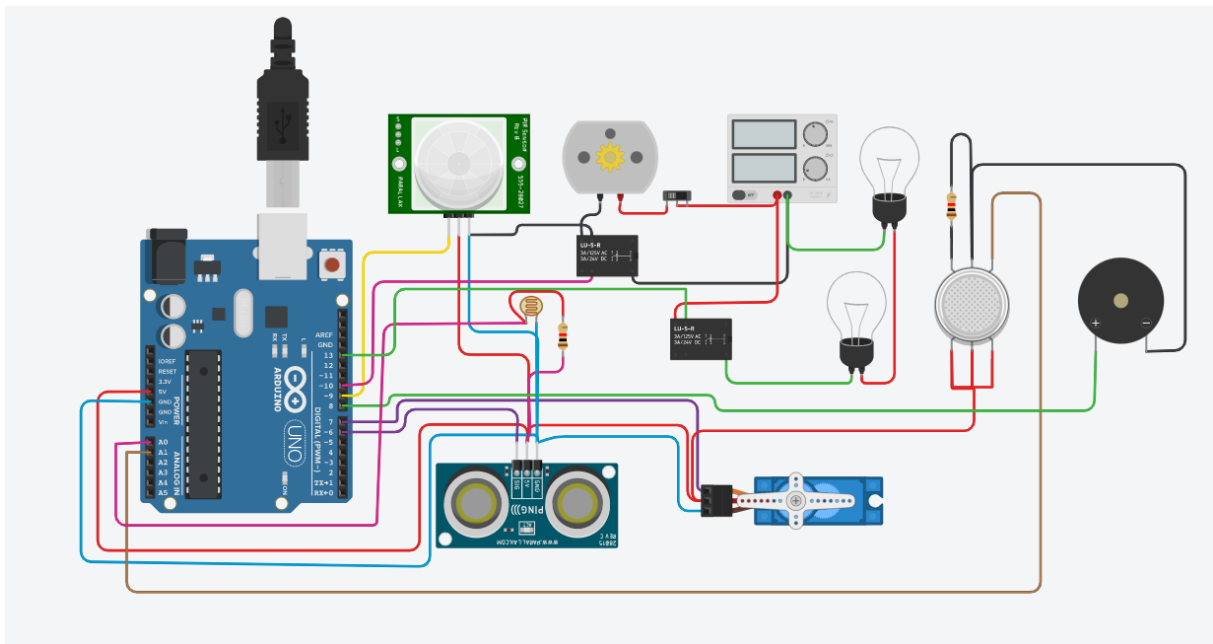
ASSIGNMENT- 1

PROJECT DOMAIN	INTERNET OF THINGS
PROJECT TITLE	IoT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE
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MAXIMUM MARKS	2 MARKS

QUESTION:

MAKE A SMART HOME WITH 2-3 SENSORS, LED, BUZZER IN SINGLE CODE AND CONNECTIONS.

CIRCUIT:



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);
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  return pulseIn(echoPin, HIGH);
}

Servo servo_7;

void setup()
{
  Serial.begin(9600);
  pinMode(A0, INPUT);
  pinMode(A1, INPUT);
  pinMode(13, OUTPUT);
  servo_7.attach(7, 500, 2500);
  pinMode(8, OUTPUT);
  pinMode(9, INPUT);
  pinMode(10, OUTPUT);
  pinMode(4, OUTPUT);
  pinMode(3, OUTPUT);
}
```

```

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(3000);
  }
}

```

```

        digitalWrite(4, LOW); // RED LED OFF
        digitalWrite(3, HIGH); // GREEN LED ON , indicating motion detected
        Serial.print("        || Motion Detected!    ");
    }
    delay(300);
    //-----
    // ----- 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);
```