

# IOT ENABLED SMART FARMING APPLICATION

## **CODING :**

```
#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
}

```

**IMAGE :**

