SMART FARMER -IOT ENABLED SMART FARMING APLICATION

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(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); // Delay a little bit to improve simulation performance
}
```

CIRCUIT DIAGRAM: