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 :