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);

}
```

```cpp
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 = ");
```

```arduino
    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 :