**VELAMMAL ENGINEERING COLLEGE**

**ELECTRONICS AND COMMUNICATION ENGINEERING**

# SMART FARMERS - IOT ENABLED FARMING

**APPLICATION**

# ASSIGNMENT – 1 HOME AUTOMATION

**SYSTEM**

# BY:

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Code for Home Automation System:

#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 serialcommunication pinMode(A0, INPUT); //LDR

pinMode(A1, INPUT); //gas sensor pinMode(13, OUTPUT); //connected to relay servo\_7.attach(7, 500, 2500); //servomotor 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()

{

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

}

}

OUTPUT:





