Vježba temperaturni senzor, gas, pir, fotootpornik, ultrasonik senzora i servomotor

Spojiti prema slici



#include <Servo.h>

int inches = 0;

int cm = 0;

const int ldr = A0 ; // photoresistor

int s1,x;

int gas = A2;

int pir;

Servo servoMotor;

long readUltrasonicDistance(int pin)

{

 pinMode(pin, OUTPUT);

 digitalWrite(pin, LOW);

 delayMicroseconds(2);

 digitalWrite(pin, HIGH);

 delayMicroseconds(10);

 digitalWrite(pin, LOW);

pinMode(pin, INPUT);

 return pulseIn(pin, HIGH);

}

void setup()

{

 pinMode(12, OUTPUT);

 pinMode(11, OUTPUT);

 pinMode(10, OUTPUT);

 pinMode(9, OUTPUT);

 pinMode(8, OUTPUT);

 pinMode(6, OUTPUT);

 pinMode(A2,INPUT); // gas sensor

 pinMode(A1, INPUT); // temperature sensor

 pinMode(4, INPUT); // ultrasonic sensor

 pinMode(2, INPUT); // PIR sensor

 Serial.begin(9600);

 servoMotor.attach(7);

}

void loop()

{

 // ultrasonic sensor and servomotor

 cm = 0.01723 \* readUltrasonicDistance(4);

 Serial.print(cm);

 servoMotor.write(cm);

 Serial.println("cm");

 // temperature sensor

 float temp = ((analogRead(A1) \* (5.0/1024))-0.5)/0.01;

 Serial.print( temp );

 Serial.println(" C");

 if(temp >= 50)

 {

 Serial.println("Overheated");

 digitalWrite(12, HIGH);

 digitalWrite(11, LOW);

 }

 else

 {

 digitalWrite(12, LOW);

 digitalWrite(11, HIGH);

 }

 // photoresistor

 s1 = analogRead(ldr);

 x=(676-s1)/4;

 analogWrite(10, x);

 // gas sensor

 gas = analogRead (A2);

 if (gas > 500 )

 {

 digitalWrite(9, LOW);

 tone(6,255,1000);

 Serial.println("Smoke detected");

 }

 else

 {

 digitalWrite(9, HIGH);

 digitalWrite(6, LOW);

 }

 // pir sensor

 pir = digitalRead(2);

 if ( pir == HIGH)

 {

 Serial.println("Object detected");

 tone(6,100,1000);

 digitalWrite(8, HIGH);

 }

 else

 {

 digitalWrite(8, LOW);

 digitalWrite(6, LOW);

 }

 delay(1000);

 Serial.print("\n");

 Serial.print("\n");

}

Na osnovu prethodnog zadatka napraviti zadatak „pametni grad“ u kojem ćete riješiti problem paljenja i gašenja javne rasvjete, problem zagađenja, problem slobodnog mjesta na parkingu, …