

Weather Station

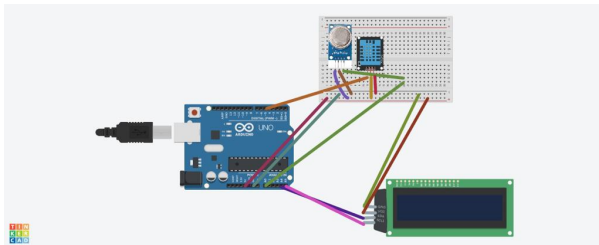
Introducere

Am ales sa construiesc o Statie Meteorologica care unsenzor de temperatura si umiditate cat si unul de fum cu care voi identifica nivelul de monoxid de carbon din aer.

Descriere generală

Pe un display LCD se vor afisa toate valorile senzorilor adica temperatura, nivelul de monoxid de carbon si umiditatea.

Hardware Design



- Arduino Uno
- Senzor Temperatura si Umiditate DHT11
- Modul Senzor Detector Aer MQ-135
- LCD
- Modul MH pentru LCD

Software Design

Am folosit 3biblioteci:

```
#include <Wire.h> #include <LiquidCrystal.h> #include "DHT.h" pentru senzori si LCD.
```

In functia void setup() am setat RTC, am folosit comanda begin pentru senzorul de fum MQ2 cat si pentru LCD.

In functia loop() sunt create variabile pentru a citi si afisa datele furnizate de sezori pe LCD.

```
#include <Wire.h> #include <LiquidCrystal_I2C.h>
```

```
#include "DHT.h" #define DHTPIN 5
```

```
#define DHTTYPE DHT11
```

```
int MQ2Pin = A0;
```

```
const int en = 2, rw = 1, rs = 0, d4 = 4, d5 = 5, d6 = 6, d7 = 7, bl = 3;

const int i2c_addr = (0x27);

LiquidCrystal_I2C lcd(i2c_addr, en, rw, rs, d4, d5, d6, d7, bl, POSITIVE);

DHT dht(DHTPIN, DHTTYPE);

void setup() {

  Serial.begin(9600);
  lcd.begin(16, 2);
  dht.begin();

}

void loop() {

  delay(1000);

  int MQ2Sensor = analogRead(MQ2Pin);

  Serial.print("Pin A0: ");
  Serial.println(MQ2Sensor);
  lcd.print("Smoke:");
  lcd.print(MQ2Sensor-50);

  float h = dht.readHumidity();
  // Read temperature as Celsius (the default)
  float t = dht.readTemperature();

  if ( isnan(t) || isnan(h) ) {
    lcd.clear();
    lcd.setCursor(0, 1);
    lcd.print(" ERROR READING ");
    return;
  }

  Serial.print(t);

  delay(8000);
  lcd.setCursor(4, 0);
  lcd.setCursor(0, 1);

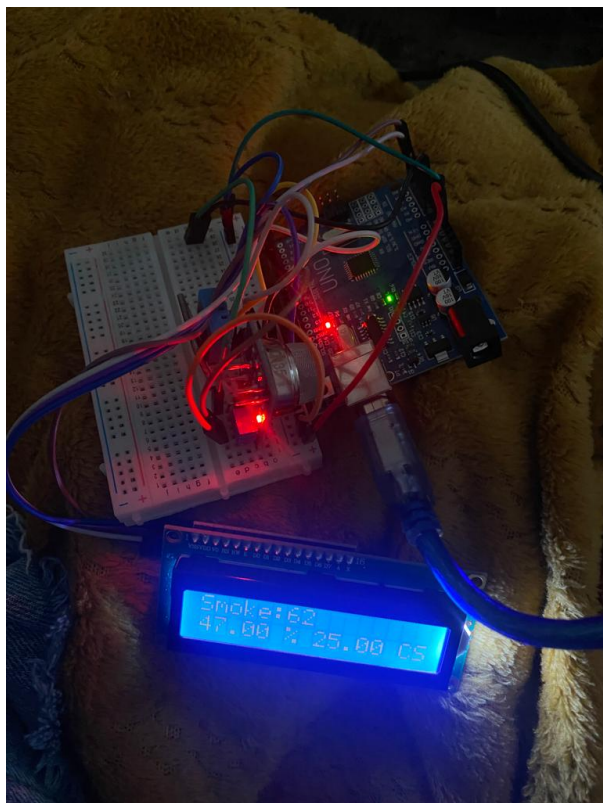
  lcd.print(h);
  lcd.print(" % ");

  lcd.print(t);
  lcd.print(" C");

  delay(1000);
```

}

Rezultate Obținute



Concluzii

Am afisat cu succes nivelul de monoxid de carbon, temperatura si umiditatea pe display-ul LCD.

Download

[pmprojectyunavelicu.zip](#)

Jurnal

Initial documentation - 7.05.2023 Software and hardware - 28.05.2023

Bibliografie/Resurse

Resurse Software <https://projecthub.arduino.cc/woutvdr/arduino-weather-station-9dd87f>

Link: <https://ocw.cs.pub.ro/courses/pm/prj2023/tmiu/weatherstation>

<https://projecthub.arduino.cc/woutvdr/9dd87f80-4b0e-483a-8bdc-3681868441cd>

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