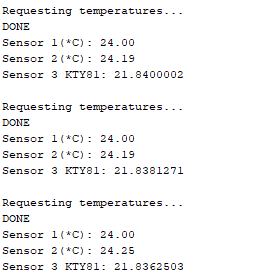
**Opdracht 6 (per twee):** lees twee Dallas Onewire temperatuursensoren uit en display deze in graden Celcius op het OLED display.

Laat dezelfde schakeling ook nauwkeurig (met de 16 bits ADC) de uitgangsspanning meten van een spanningsdeler bestaande uit een serieschakeling van een 1 kOhm weerstand en een KTY81-220.

Zorg ervoor dat deze waarde ook in graden Celcius op je OLED komt.

Laat deze schakeling intact voor oefening 7….



Afbeelding met elektronica, circuit

Automatisch gegenereerde beschrijving

// Include the libraries we need

#include <OneWire.h>

#include <DallasTemperature.h>

#include <Wire.h>

#include <Adafruit\_GFX.h>

#include <Adafruit\_SSD1306.h>

#include <Adafruit\_ADS1015.h>

Adafruit\_ADS1115 ads(0x48);

float temp = 0.0;

float temp1 = 0.0;

#define SCREEN\_WIDTH 128 // OLED display width, in pixels

#define SCREEN\_HEIGHT 64 // OLED display height, in pixels

// Declaration for an SSD1306 display connected to I2C (SDA, SCL pins)

Adafruit\_SSD1306 display(SCREEN\_WIDTH, SCREEN\_HEIGHT, &Wire, -1);

// Data wire is connected to GPIO15

#define ONE\_WIRE\_BUS 15

// Setup a oneWire instance to communicate with a OneWire device

OneWire oneWire(ONE\_WIRE\_BUS);

// Pass our oneWire reference to Dallas Temperature sensor

DallasTemperature sensors(&oneWire);

DeviceAddress sensor1 = { 0x28, 0x38, 0x44, 0x9B, 0xB, 0x0, 0x0, 0x10 };

DeviceAddress sensor2 = { 0x28, 0x85, 0x3C, 0x9B, 0xB, 0x0, 0x0, 0xE };

void setup() {

if (!display.begin(SSD1306\_SWITCHCAPVCC, 0x3C)) { // Address 0x3D for 128x64

Serial.println(F("SSD1306 allocation failed"));

for (;;);

}

Serial.begin(115200);

sensors.begin();

ads.begin();

}

void loop () {

Serial.println("Requesting temperatures...");

sensors.requestTemperatures(); // Send the command to get temperatures

Serial.println("DONE");

Serial.print("Sensor 1(\*C): ");

Serial.println(sensors.getTempC(sensor1));

Serial.print("Sensor 2(\*C): ");

Serial.println(sensors.getTempC(sensor2));

display.clearDisplay();

display.setTextSize(1);

display.setTextColor(WHITE);

display.setCursor(0, 0);

// Display static text

display.println("Sensor 1 dallas:");

display.setTextSize(1);

display.setTextColor(WHITE);

display.setCursor(0, 10);

// Display static text

display.println(sensors.getTempC(sensor1));

display.display();

display.setTextSize(1);

display.setTextColor(WHITE);

display.setCursor(0, 20);

// Display static text

display.println("Sensor 2 Dallas:");

display.setTextSize(1);

display.setTextColor(WHITE);

display.setCursor(0, 30);

// Display static text

display.println(sensors.getTempC(sensor2));

display.display();

int16\_t adc0;

adc0 = ads.readADC\_SingleEnded(0);

temp = (adc0 \* 0.1875) / 1000; // convert ADC value into voltage

temp1 = temp \* 10;

Serial.print("Sensor 3 KTY81: ");

Serial.println(temp1, 7);

Serial.println();

display.setTextSize(1);

display.setTextColor(WHITE);

display.setCursor(0, 40);

// Display static text

display.println("Sensor 3 KTY81:");

display.setTextSize(1);

display.setTextColor(WHITE);

display.setCursor(0, 50);

// Display static text

display.println(temp1);

display.display();

delay(200);

}