//Temperature & Humidity measurement with DHT11 Sensor and OLED Mini Display (TechStudyCell)

//Modified by Pat McMahon V1 19/9/2023

#include <SPI.h>

#include <Wire.h>

#include <Adafruit\_GFX.h>

#include <Adafruit\_SSD1306.h>

#include <Adafruit\_Sensor.h>

#include <DHT.h>

#include <DHT\_U.h>

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

#define SCREEN\_HEIGHT 32 // OLED display height, in pixels

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

#define OLED\_RESET     4 // Reset pin # (or -1 if sharing Arduino reset pin)

Adafruit\_SSD1306 display(SCREEN\_WIDTH, SCREEN\_HEIGHT, &Wire, OLED\_RESET);

#define DHTPIN 2     // Digital pin connected to the DHT sensor

// Feather HUZZAH ESP8266 note: use pins 3, 4, 5, 12, 13 or 14 --

// Pin 15 can work but DHT must be disconnected during program upload.

// Uncomment the type of sensor in use:

#define DHTTYPE    DHT11     // DHT 11

//#define DHTTYPE    DHT22     // DHT 22 (AM2302)

//#define DHTTYPE    DHT21     // DHT 21 (AM2301)

DHT\_Unified dht(DHTPIN, DHTTYPE);

uint32\_t delayMS;

void setup() {

  Serial.begin(9600);

  // SSD1306\_SWITCHCAPVCC = generate display voltage from 3.3V internally

  display.begin(SSD1306\_SWITCHCAPVCC, 0x3C);  // Address 0x3C for 128x32

  display.setTextSize(1);

  display.setTextColor(WHITE);

  display.clearDisplay(); // Clear display buffer

  // Initialize device.

  dht.begin();

  sensor\_t sensor;

  // Set delay between sensor readings based on sensor details.

  //delayMS = sensor.min\_delay / 1000;

  delayMS = 1000;

}

void loop() {

  // Delay between measurements.

  delay(delayMS);

  // Get temperature event and print its value.

  sensors\_event\_t event;

  dht.temperature().getEvent(&event);

  if (isnan(event.temperature)) {

    Serial.println(F("Error reading temperature!"));

  }

  else {

    Serial.print(F("Temperature: "));

    Serial.print(event.temperature);

    Serial.println(F("°C"));

    display.setCursor(5,2);

    display.print("Temperature: ");

    display.print(event.temperature);

    display.print(" C");

    display.println();

    display.display();

  }

  display.drawLine(0,15, display.width()-1,15, WHITE);

  // Get humidity event and print its value.

  dht.humidity().getEvent(&event);

  if (isnan(event.relative\_humidity)) {

    Serial.println(F("Error reading humidity!"));

  }

  else {

    Serial.print(F("Humidity: "));

    Serial.print(event.relative\_humidity);

    Serial.println(F("%"));

    display.setCursor(15,22);

    display.print("Humidity: ");

    display.print(event.relative\_humidity);

    display.print(" %");

    display.display();

  }

  display.clearDisplay();

}