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//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;
}

```

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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();
}
```