ASSIGNMENT-3

Get the Temperature, Humidity from the DHT11 sensor

// Example testing sketch for various DHT humidity/temperature sensors

// Written by ladyada, public domain

// REQUIRES the following Arduino libraries:

// - DHT Sensor Library: https://github.com/adafruit/DHT-sensor-library

// - Adafruit Unified Sensor Lib: https://github.com/adafruit/Adafruit\_Sensor

#include "DHT.h"

#define DHTPIN 4 // 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 whatever type you're using!

#define DHTTYPE DHT11 // DHT 11

//#define DHTTYPE DHT22 // DHT 22 (AM2302), AM2321

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

// Connect pin 1 (on the left) of the sensor to +5V

// NOTE: If using a board with 3.3V logic like an Arduino Due connect pin 1

// to 3.3V instead of 5V!

// Connect pin 2 of the sensor to whatever your DHTPIN is

// Connect pin 3 (on the right) of the sensor to GROUND (if your sensor has 3 pins)

// Connect pin 4 (on the right) of the sensor to GROUND and leave the pin 3 EMPTY (if your sensor has 4 pins)

// Connect a 10K resistor from pin 2 (data) to pin 1 (power) of the sensor

// Initialize DHT sensor.

// Note that older versions of this library took an optional third parameter to

// tweak the timings for faster processors. This parameter is no longer needed

// as the current DHT reading algorithm adjusts itself to work on faster procs.

DHT dht(DHTPIN, DHTTYPE);

void setup() {

Serial.begin(9600);

Serial.println(F("DHTxx test!"));

dht.begin();

}

void loop() {

// Wait a few seconds between measurements.

delay(2000);

// Reading temperature or humidity takes about 250 milliseconds!

// Sensor readings may also be up to 2 seconds 'old' (its a very slow sensor)

float h = dht.readHumidity();

// Read temperature as Celsius (the default)

float t = dht.readTemperature();

// Read temperature as Fahrenheit (isFahrenheit = true)

float f = dht.readTemperature(true);

// Check if any reads failed and exit early (to try again).

if (isnan(h) || isnan(t) || isnan(f)) //isnan=is not a number

{

Serial.println(F("Failed to read from DHT sensor!"));

return;

}

// Compute heat index in Fahrenheit (the default)

float hif = dht.computeHeatIndex(f, h);

// Compute heat index in Celsius (isFahreheit = false)

float hic = dht.computeHeatIndex(t, h, false);

Serial.print(F("Humidity: "));

Serial.print(h);

Serial.print(F("% Temperature: "));

Serial.print(t);

Serial.print(F("°C "));

Serial.print(f);

Serial.print(F("°F Heat index: "));

Serial.print(hic);

Serial.print(F("°C "));

Serial.print(hif);

Serial.print(F("°F"));

}

Get the light intensity from LDR

void setup() {

// put your setup code here, to run once:

Serial.begin(9600);

}

void loop() {

// put your main code here, to run repeatedly:

int a=analogRead(15);

Serial.println("the ldr value is ");

Serial.println(a);

delay(1000);

}

Display the light intensity, Temperature, Humidity values on the OLED display.

#include <Wire.h>

#include <Adafruit\_GFX.h>

#include <Adafruit\_SSD1306.h>

#include "DHT.h"

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

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

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

#define DHTPIN 4

#define DHTTYPE DHT11 //22

DHT dht(DHTPIN, DHTTYPE);

void setup() {

Serial.begin(115200);

dht.begin();

if(!display.begin(SSD1306\_SWITCHCAPVCC, 0x3C)) {

Serial.println("SSD1306 allocation failed");

for(;;);//if display is there is not if yes it displays if not it comes out of the loop

}

delay(2000);

display.clearDisplay();

display.setTextColor(WHITE);

}

void loop() {

int a=analogRead(15);

float h = dht.readHumidity();

float t = dht.readTemperature();

if (isnan(h) || isnan(t) ) //isnan=is not a number

{

Serial.println(F("Failed to read from DHT sensor!"));

return;

}

//temperature

display.setTextSize(1);

display.setCursor(0,0);

display.print("Temperature:");

display.setTextSize(1);

display.setCursor(0,10);

display.print(t);

display.print("C");

//humidity

display.setTextSize(1);

display.setCursor(0,20);

display.print("Humidity:");

display.setTextSize(1);

display.setCursor(0,30);

display.print(h);

display.print("%");

display.display();

//ldr

display.setTextSize(1);

display.setCursor(0,40);

display.print("ldr:");

display.setTextSize(1);

display.setCursor(1,50);

display.print(a);

display.print("");

display.display();

}

Control the lights based on Light intensity ( Control led's as an indication of light)

void setup() {

// put your setup code here, to run once:

pinMode(2,OUTPUT);

pinMode(4,OUTPUT);

pinMode(5,OUTPUT);

Serial.begin(9600);

}

void loop() {

// put your main code here, to run repeatedly:

int a=analogRead(15);

Serial.println("the ldr value is ");

Serial.println(a);

if(a<1000)

{

digitalWrite(2,HIGH);

//delay(1000);

digitalWrite(4,LOW);

digitalWrite(5,LOW);

}

else if(a<3000&&a>1000)

{

digitalWrite(4,HIGH);

//delay(1000);

digitalWrite(2,LOW);

digitalWrite(5,LOW);

}

else

{

digitalWrite(5,HIGH);

//delay(1000);

digitalWrite(2,LOW);

digitalWrite(4,LOW);

}

}

Control the fans based on the temperature and humidity parameters ( Control led's as an indication of fan)

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Serial.print(F("Humidity: "));

Serial.print(h);

Serial.print(F("% Temperature: "));

Serial.print(t);

Serial.print(F("°C "));

Serial.print(f);

Serial.print(F("°F Heat index: "));

Serial.print(hic);

Serial.print(F("°C "));

Serial.print(hif);

Serial.print(F("°F"));

if(h<50||t<30) //if(t<40||h<60)

{

digitalWrite(2,HIGH);

delay(1000);

digitalWrite(5,LOW);

}

else

{

digitalWrite(5,HIGH);

delay(1000);

digitalWrite(2,LOW);

}

}