Arduino setup

Hardware

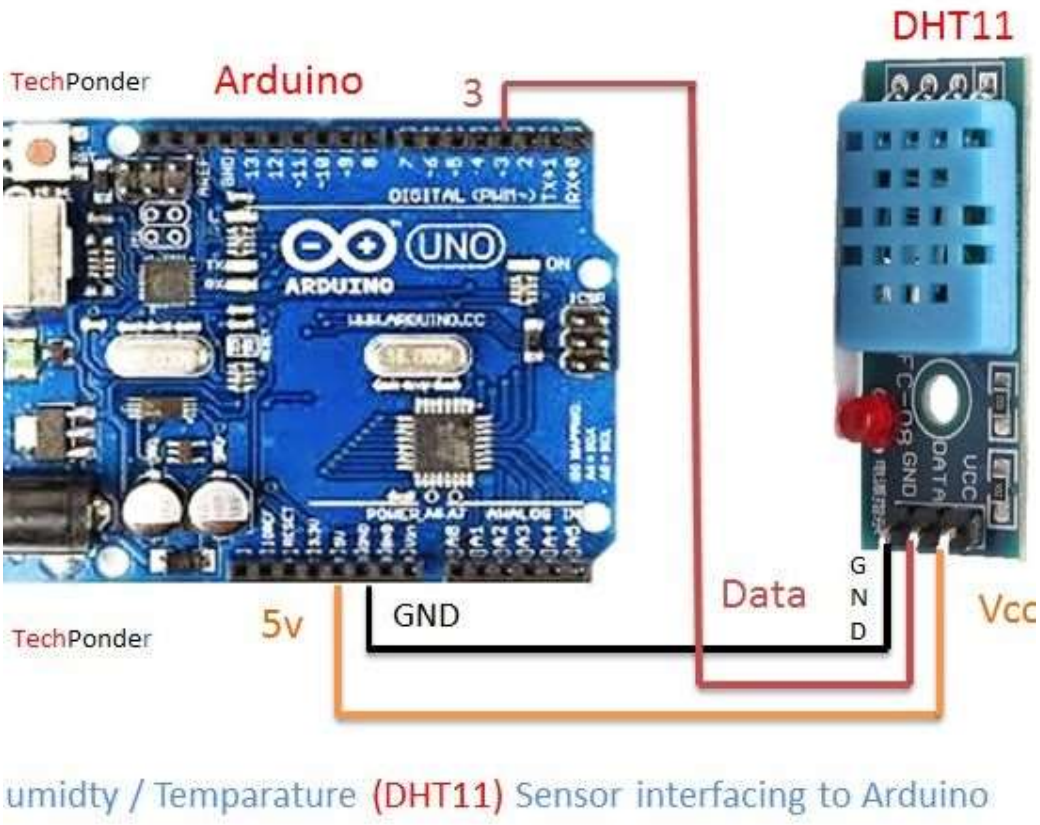
Soucastky

- DHT11 nebo DHT22 teplotni a vlhkostni sensor
- Arduino Uno nebo jine
- USB-B to USB-A kabel pro napajeni a napojeni na pc/raspberry pi3
- Resistor 10k ohm
- Kabely M/M nebo F/M
- Breadboard

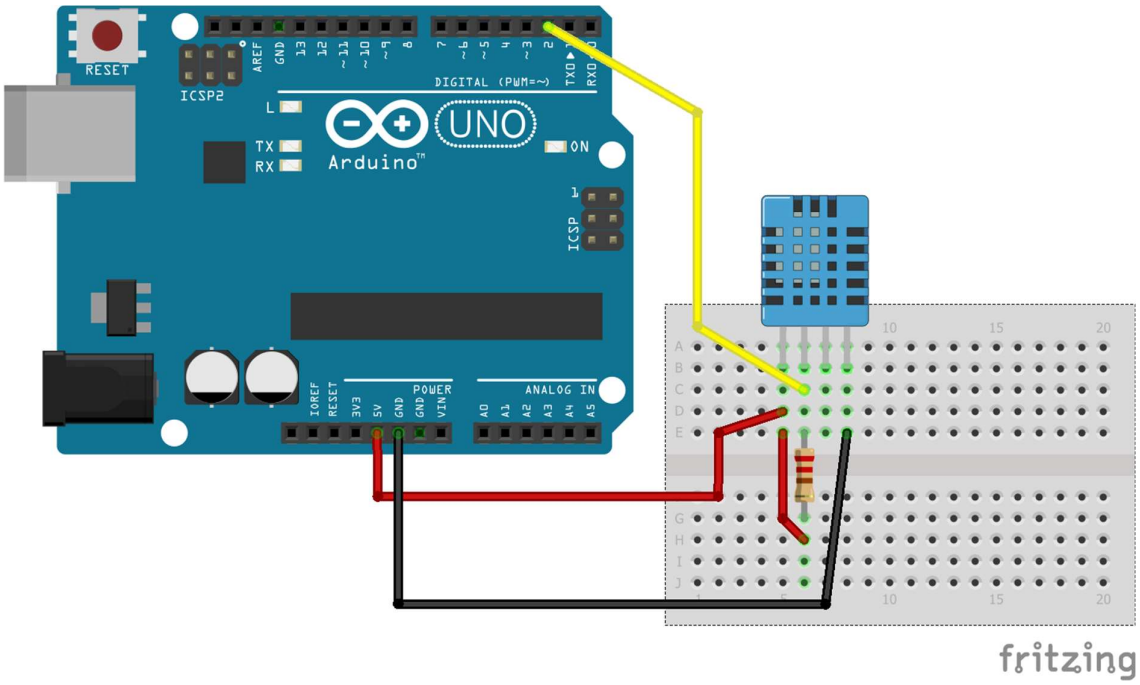
Nektere sensory jsou upevnene na desticce, ktera obsahuje nezbytny resistor, pak neni nutne mit breadboard a resistor a je mozne sensor pripojit female/male kabely primo na Arduino.

Pokud je sensor samostatne a nema resistor, je nutne jej zapojit pomoci breadboard:

Varianta zapojeni s destickou a resistorem:



Varianta zapojeni samostatneho sensoru:



Software

Windows

- Stahnout a nainstalovat si Arduino IDE - https://www.arduino.cc/en/software
- Zapojit Arduino pres USB do pc
- Spustit Arduino IDE
- Nainstalovat v IDE potrebnou knihovnu pro praci s DHT – DGTlib by Rob Tillaart
- Vlozit novy sketch (kod nize)
- Upravit parametry v kodu – jmeno a umisteni senzoru, typ dht, intervalu, cislo zapojeneho pinu
- Zvalidovat a nahrat na Arduino
- V serial monitoru uvidite tikat json vystup s hodnotama v zavislosti na interval

Kod je reseny podle zadani, tedy ne jako naivni variantu reseni pomoci delay, jak pouziva vetsina reseni co se daji najit na netu, ale pres **pseudo preemptivní multitasking.**

Rapsberry

Tbd

Kod sketche:

```
#include <dht.h> // Loads library for operating DHT sensors
#define dataPin 8 // Defines pin number to which the sensor is connected
dht DHT; // Creats a DHT object

const long interval = 1000;  // interval at which to send data (milliseconds)
unsigned long previousMillis = 0;  // will store last time data were sent

void setup()
{
  Serial.begin(9600);
}

void loop()
{
  //Uncomment whatever type you're using
  int readData = DHT.read22(dataPin); // DHT22/AM2302
  ////int readData = DHT.read11(dataPin); // DHT11

  //Define name od station and name of sensor based you're using
  unsigned long currentMillis = millis();
  char sens[] = "ArduinoZuzaDHT22";
  char loc[] = "Brussels";

  float temp = DHT.temperature; // Gets the values of the temperature
  float hum = DHT.humidity; // Gets the values of the humidity

  if (currentMillis - previousMillis >= interval) {

  // save the last time data were sent
    previousMillis = currentMillis;

  // Printing the results on the serial monitor
  Serial.print("{\"Sensor\":\"");
  Serial.print(sens);
  Serial.print("\",\"Location\":\"");
  Serial.print(loc);
  Serial.print("\",\"Temperature\":");
  Serial.print(temp);
  Serial.print(",\"Humidity\":");
  Serial.print(hum);
  Serial.println("}");
  }
}
```