

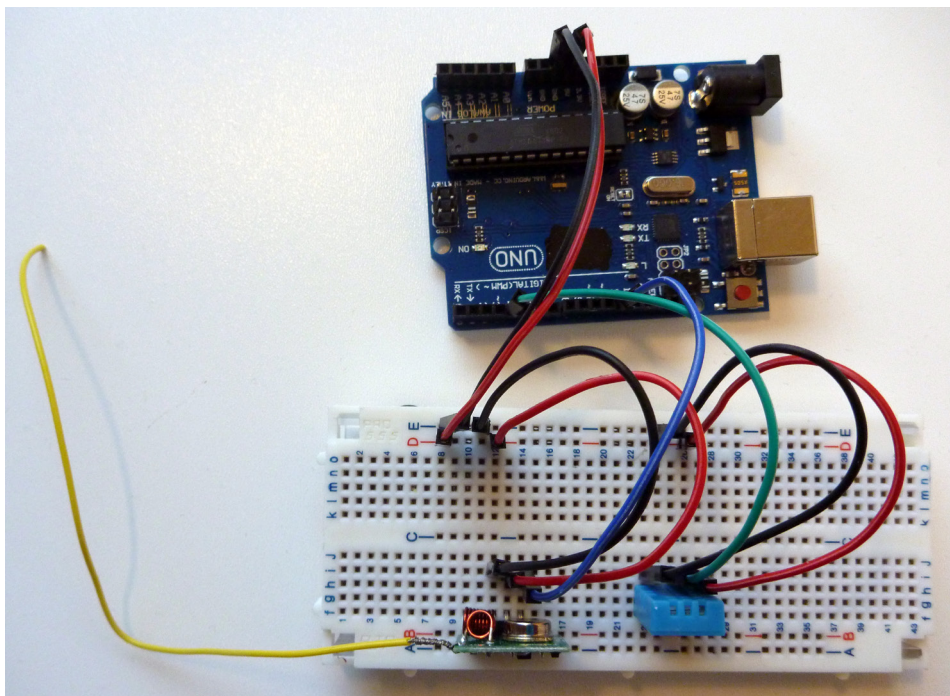
Projekt vejrstation

Trådløs psamling af data fra DHT-11 (digital temperatur- og fugtighedsmåler)

Materialer:

- 2 Arduino UNO
- USB kabel
- 2 breadboard
- Ledninger
- 2 ledninger som antenner. Hver på 17,2 cm.(loddet på)
- 433M sender og modtager
- DHT-11
- Battericlips med jackstik (9V)
- 9V batteri

Sender

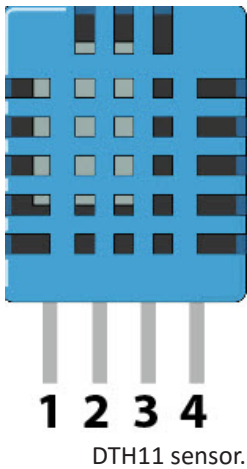


Projekt vejrstation

Komponentplacering (sender)

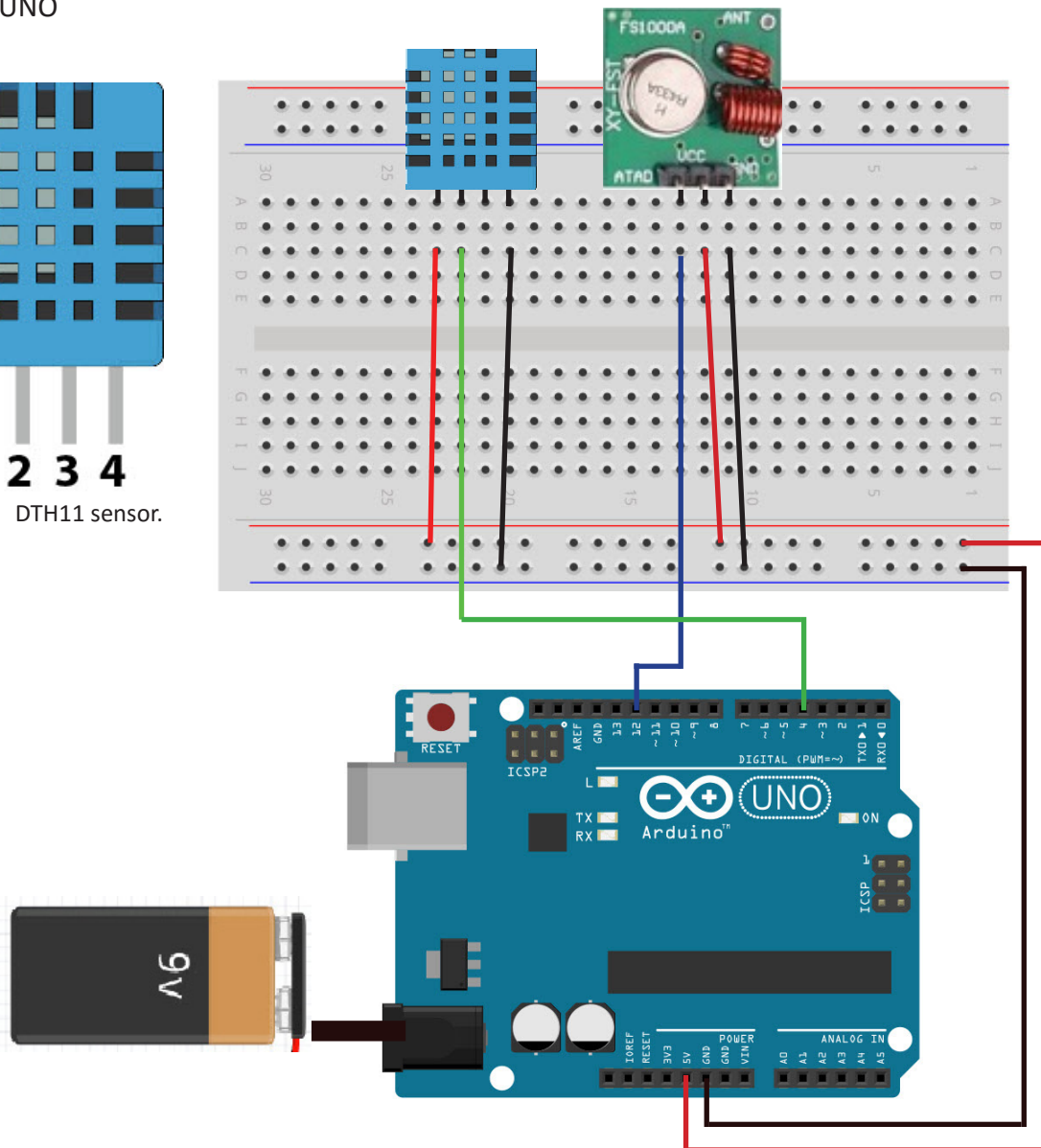
DHT-11

- Ben 1 forbindes til +5V på Arduino UNO
- Ben 2 forbindes til pin 4 på Arduino UNO
- Ben 3 bruges ikke
- Ben 4 forbindes til GND på Arduino UNO



RF433 transmitter (sender)

- VCC forbindes til +5V på Arduino UNO
- GND forbindes til GND på Arduino UNO
- DATA pin til pin 4 på Arduino UNO



Projekt vejrstation

Programmet (sender)

```
#include <VirtualWire.h>
#include <EasyTransferVirtualWire.h>
#include <DHT11.h>

int pin = 4; //DHT11 sensor connection

DHT11 dht11(pin);

//create object
EasyTransferVirtualWire ET;

struct SEND_DATA_STRUCTURE
{
    //put your variable definitions here for the
    data you want to send
    //THIS MUST BE EXACTLY THE SAME ON
    THE OTHER ARDUINO
    //Struct can't be bigger then 26 bytes for
    VirtualWire version
    float temprx;
    float humirx;
} mydata;

void setup()
{
    //start the library, pass in the data details
    ET.begin(details(mydata));
    Serial.begin(9600);

    // Initialise the IO and ISR
    vw_set_ptt_inverted(true); // Required for
    DR3100
    vw_setup(2000); // Bits per sec

    pinMode(13, OUTPUT); //pin eksodoy
    simatos

    randomSeed(analogRead(0));
}
```

```
}

void loop()
{
    int err;
    float temp;
    float humi;
    if((err = dht11.read(humi,temp)) == 0)
    {
        Serial.print("temperature:");
        Serial.print(temp);
        Serial.print(" humidity:");
        Serial.print(humi);
        Serial.println();
    }
    else
    {
        Serial.println();
        Serial.print("Error No :");
        Serial.print(err);
        Serial.println();
        temp = -1;
        humi = -1;
    }

    //this is how you access the variables.
    [name of the group].[variable name]
    mydata.temprx=(temp);
    mydata.humirx=(humi);

    //send the data
    ET.sendData();

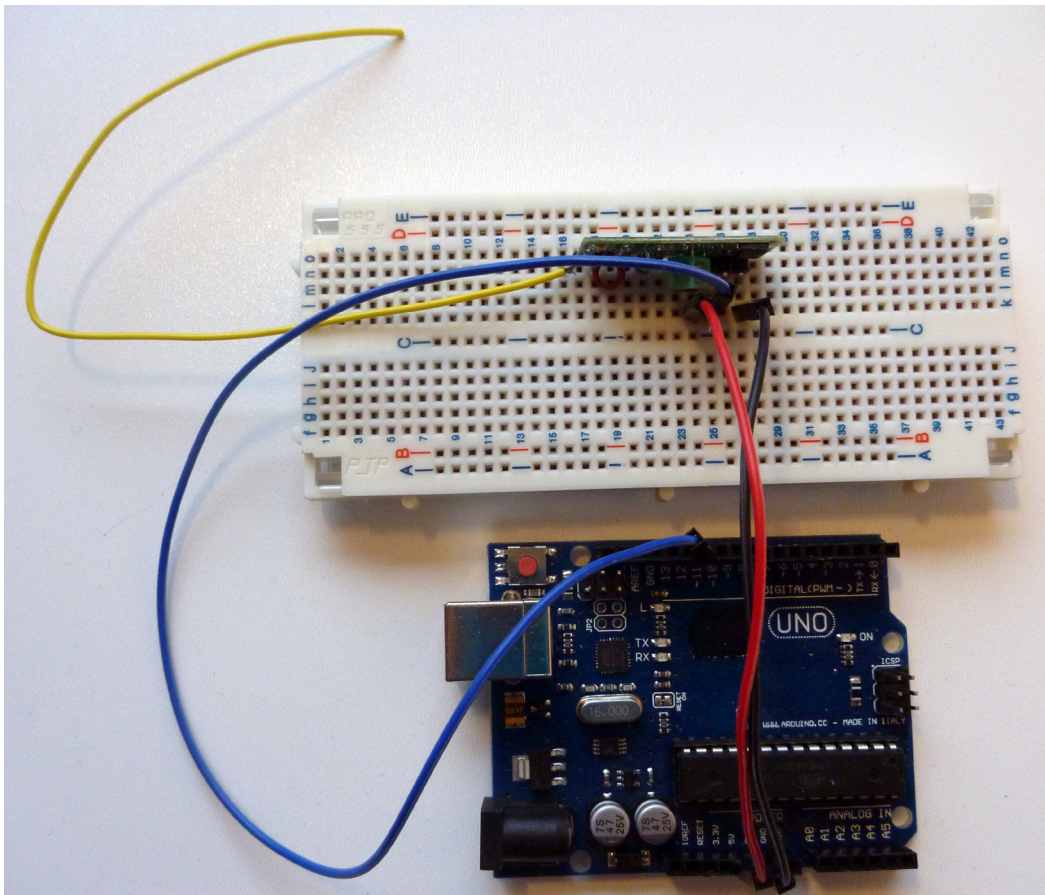
    Serial.print("temperature: ");
    Serial.println(mydata.temprx);

    Serial.print("Humidity: ");
    Serial.println(mydata.humirx);

    delay(1500);
}
```

Projekt vejrstation

Reciever (modtager)

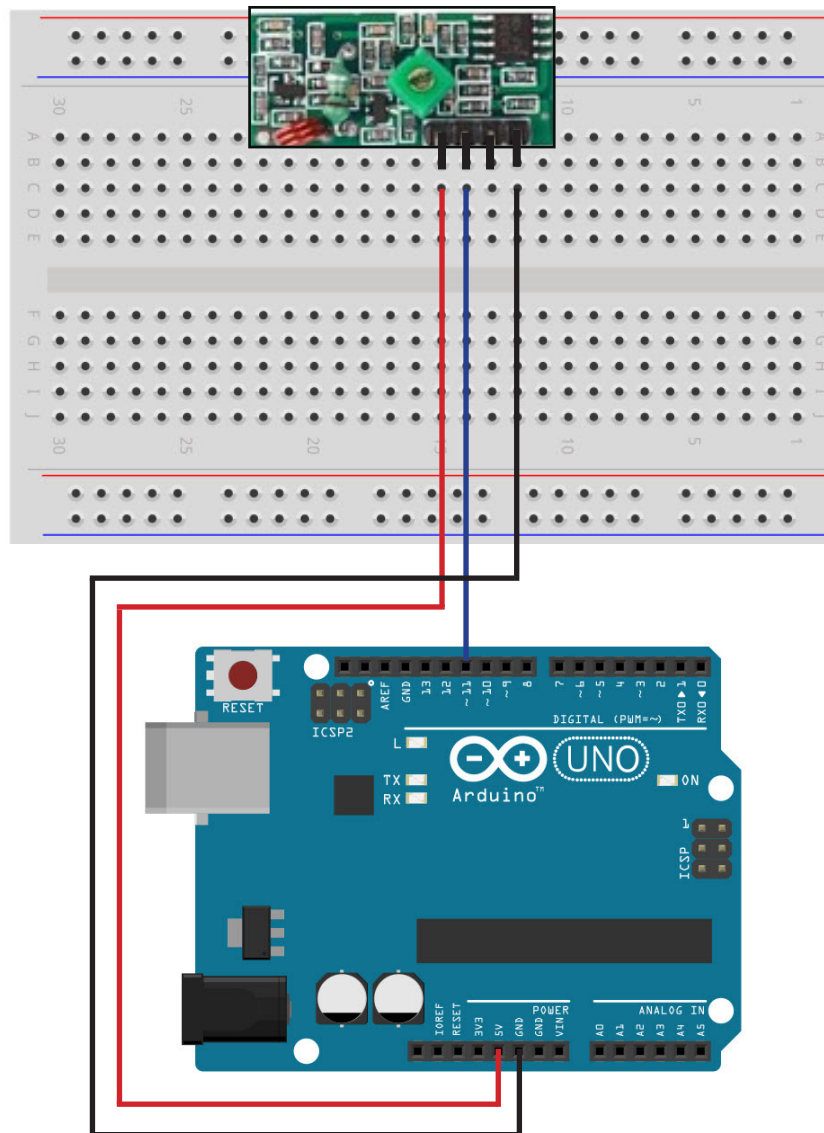


Projekt vejrstation

Komponentplacering reciever (modtager)

- VCC forbindes til +5V på Arduino UNO
- GND forbindes til GND på Arduino UNO
- DATA pin til pin11 på Arduino UNO

Det er kun den ene DATA pin, som bliver benyttet.



Projekt vejrstation

Programmet (reciever)

```
#include <VirtualWire.h>
#include <EasyTransferVirtualWire.h>

EasyTransferVirtualWire ET; //create object

int temp, humi;

struct SEND_DATA_STRUCTURE
{
  //put your variable definitions here for the
  data you want to send
  //THIS MUST BE EXACTLY THE SAME ON
  THE OTHER ARDUINO
  //Struct can'e be bigger then 26 bytes for
  VirtualWire version
  float temprx;
  float humirx;
} mydata;

void setup()
{
  //start the library, pass in the data details
  ET.begin(details(mydata));

  Serial.begin(9600);

  // Initialise the IO and ISR
  vw_set_ptt_inverted(true); // Required for
  DR3100
  vw_setup(2000); // Bits per sec

  vw_rx_start(); // Start the receiver PLL
  running

  randomSeed(analogRead(0));
```

```
}

void loop()
{
  temp_humi(); //checks if there is incoming
  data and saves the data into temp and humi
  variables

  Serial.print("Temperatur: ");
  Serial.print(temp);
  Serial.println("C");

  Serial.print("Luftfugtighed: ");
  Serial.print(humi);
  Serial.println("%");
  delay(3000);
}

void temp_humi()
{
  //check and see if a data packet has come
  in.
  if(ET.receiveData())
  {
    Serial.println("Modtagne data");

    temp = mydata.temprx;
    humi = mydata.humirx;

    //you should make this delay shorter then
    your transmit delay or else messages could
    be lost
    delay(1000);
  }
}
```

Projekt vejrstation

For at køre de to programmer skal du have disse tre zip-filer uploadet til Arduino IDE. Se i bogen på side 91 hvordan du gør dette.

1. VirtualWire
2. EasyTransferVirtualWire
3. DHT11