

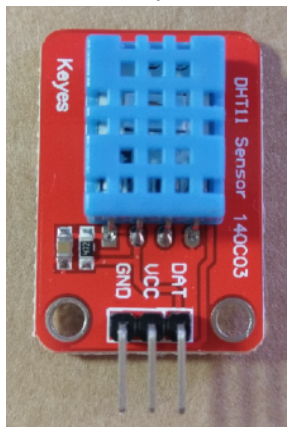
# Humidity&Temperature LoRa Reporter

We can easily build an automatically data reporter and collector system by using MOSTLink LoRa Gateway & Node. Here are an example for automatically sending humidity & temperature data and display the collected data in diagrams.

## Required Components:

Arduino UNO *1
MOSTLoRa Shield *1
DHT11 Temperature & Humidity sensor *1
breadboard *1
wires * 3
ThingSpeak Account *1

DHT11 Temperature & Humidity sensor



From left to right: GND / VCC / DATA

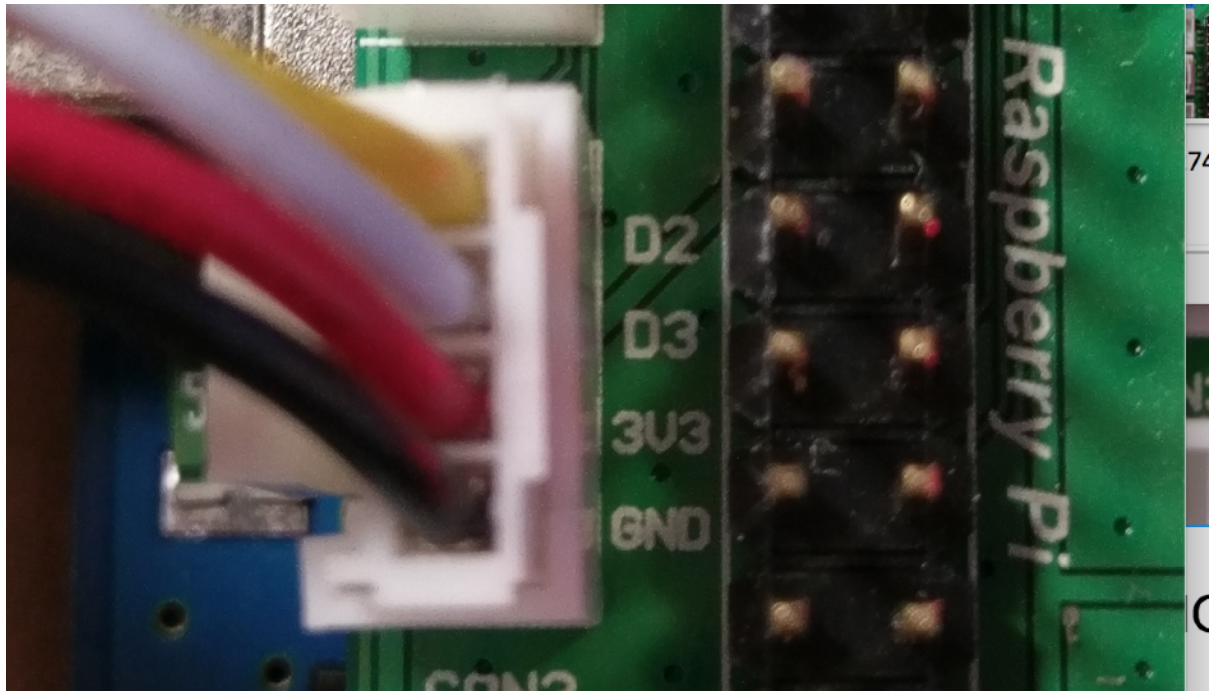
DHT11 Specification:

Humidity Range	20~90% RH
Humidity Accurate	± 5% RH
Temperature Range	0-50 °C
Temperature Accuracy	±2% °C
Operating Voltage	3V to 5.5V

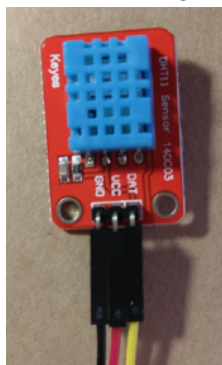
Reference: [How to Set Up the DHT11 Humidity Sensor on an Arduino](#)

## Circuit:

On the LoRa Shield, connects the grove to the center of connectors located in the bottom of Raspberry Pi pins.



On the DHT11, connects the black/ red/ yellow cables to the pins of GND/VCC/DAT corresponding to the groves' cables on the LoRa shield board.

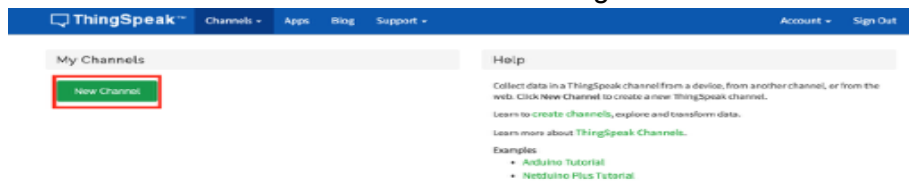


## Setup Arduino & MOSTLoRa Library

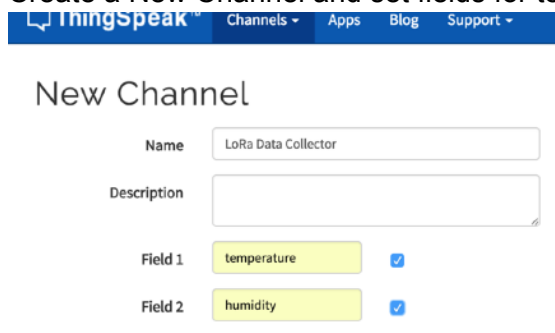
Please refer to "Getting Started with MOSTLink LoRa" guide.

# Sign up a ThingSpeak account

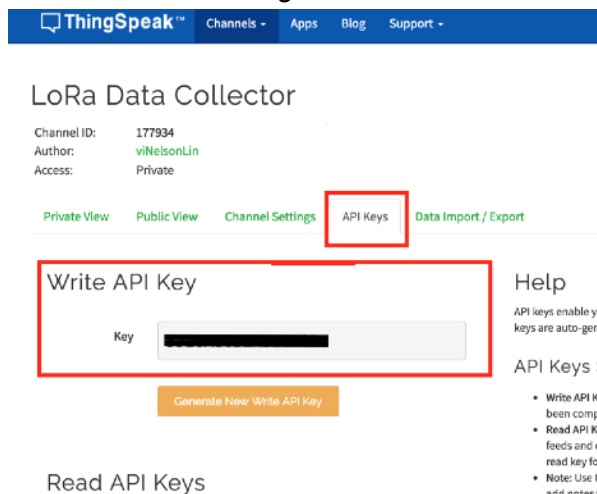
Go to [ThingSpeak website](https://thingspeak.com) and sign up an account. After an account has been created, click New Channel to create a channel for receiving data from a LoRa station gateway.



Create a New Channel and set fields for temperature and humidity.



After the channel being created, click on API Keys tab and write down your Write API Key.



# Run MOSTLoRa temperature& humidity reporter

Download the sketch [[here](#)] and deploy it on your Arduino. Replace the ThingSpeak API key with yours.

```
#include <SoftwareSerial.h>
#include <DHT.h>
#include "MOSTLora.h"
#define DHT_PIN 2

const char *THINGSPEAK_WRITE_API_KEY = "YOUR_THINGSPEAK_WRITE_API_KEY";

DHT dht(DHT_PIN, DHT11);
MOSTLora lora;

void setup() {
    dht.begin();
    lora.begin();
    lora.writeConfig(915000, 0, 0, 7, 5);
    lora.setMode(E_LORA_POWERSAVING); // module mode: power-saving
    //set callback function when receiving request from a station gateway
    lora.setCallbackPacketReqData(uploadEnvironmentData);
}

void loop() {
    lora.run(); // lora handle input messages
    delay(100);
}

// read temperature, humidity data and send them to ThinkSpeak
void uploadEnvironmentData(unsigned char* data, int szData) {
    float temperature, humidity;
    if (dht.readSensor(humidity, temperature, true)) {
        lora.sendPacketThingSpeak(THINGSPEAK_WRITE_API_KEY, temperature, humidity, 0, 0, 0,
0, 0, 0);
    }
}
```

Now, whenever your MOSTLink LoRa reporter node get a query from MOSTLink LoRa Station Gateway, it will get humidity & temperature data from DHT-11 sensor then send data to [ThingSpeak](#).

Note: For DHT22, you can declare the devices as DHT22 devices:

```
DHT dht(DHT_PIN, DHT22);
```

# ThingSpeak state history diagram

Go to [ThingSpeak](https://thingspeak.com) and select Channels. Click on the channel we just created. Then we can see the state histories in the diagram. Now, we have an automatically weather data reporter. Cheers !!

