

6.0: WIFI TEMPERATURE LOGGER

ThingSpeak™ is an IoT analytics cloud platform service that allows you to aggregate, visualize and analyze live data streams in the cloud. **ThingSpeak** provides instant visualizations of data posted by **ESP8266 to ThingSpeak**. ThingSpeak is often used for prototyping and proof of concept IoT systems that require analytics.

6.1 THINGSPEAK

STEP 1: SIGN UP THINGSPEAK

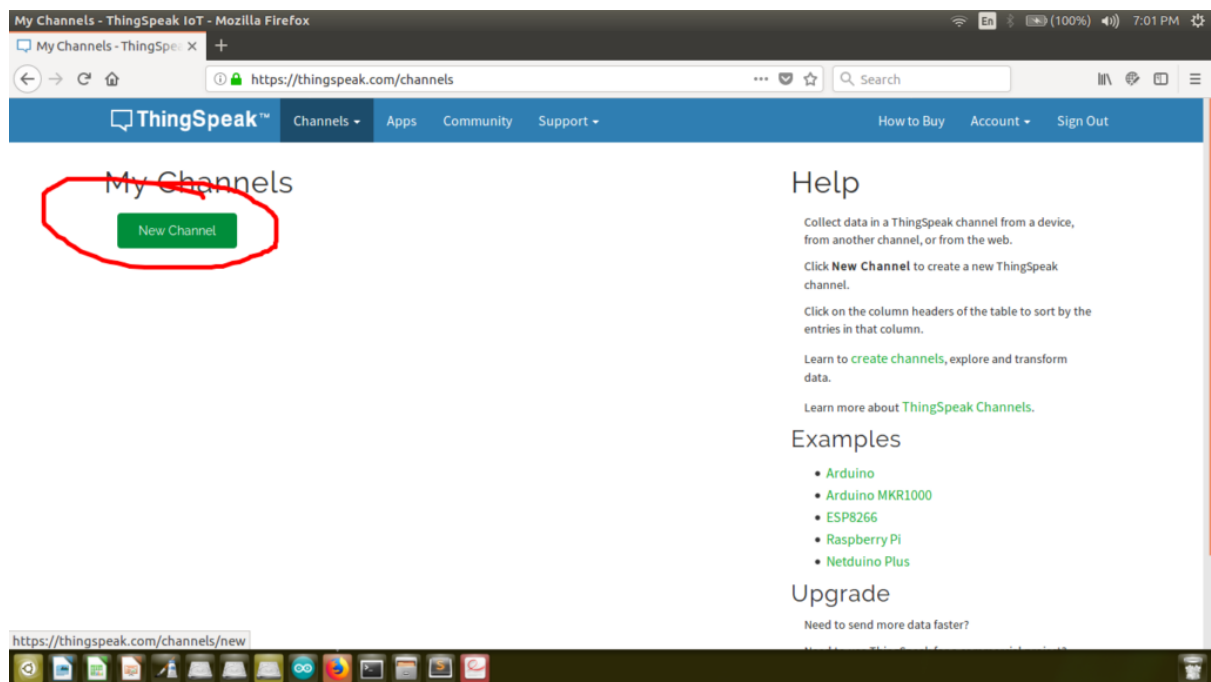
Its simple just enter your email id and verify your account.

STEP 2: CONFIGURING THINGSPEAK

Configuration is just few clicks job

STEP 2.1: CREATE NEW CHANNEL

Click on New Channel



Enter Name and Field. You may have multiple Fields depending on number of sensors create multiple fields such as Light, Temperature, Humidity, etc.

Channel Settings

Percentage complete 70%

Channel ID 620012

Name

Temp

Description

Tem and humidity

Field 1

temp



Field 2

humidity



Field 3



Field 4



Field 5



Field 6



Field 7



Field 8



Metadata

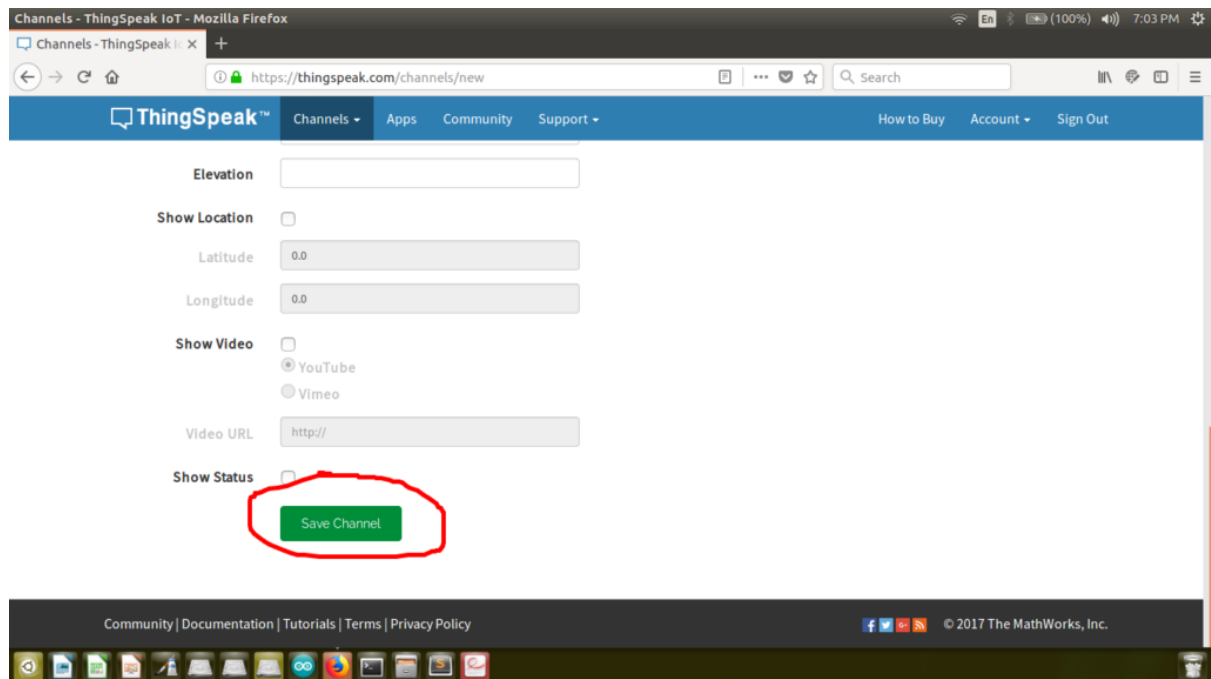
Help

Channels store all the data that a ThingSpeak application collects. Each channel includes eight fields that can hold any type of data, plus three fields for location data and one for status data. Once you collect data in a channel, you can use ThingSpeak apps to analyze and visualize it.

Channel Settings

- Channel Name: Enter a unique name for the ThingSpeak channel.
- Description: Enter a description of the ThingSpeak channel.
- Field#: Check the box to enable the field, and enter a field name. Each ThingSpeak channel can have up to 8 fields.
- Metadata: Enter information about channel data, including JSON, XML, or CSV data.
- Tags: Enter keywords that identify the channel. Separate tags with commas.
- Link to External Site: If you have a website that contains information about your ThingSpeak channel, specify the URL.
- Show Channel Location:
 - Latitude: Specify the latitude position in decimal degrees. For example, the latitude of the city of London is 51.5072.
 - Longitude: Specify the longitude position in decimal degrees. For example, the longitude of the city of London is -0.1275.
 - Elevation: Specify the elevation position meters. For example, the elevation of the city of London is 35.052.
- Video URL: If you have a YouTube™ or Vimeo® video that displays your channel information, specify the full path of the video URL.
- Link to GitHub: If you store your ThingSpeak code on GitHub®, specify the GitHub repository URL.

Keep everything else as it is. Blank or default values. and click on Save Channel.



STEP 2.2: GETTING API KEY

Click on API Key Tab and look for these two fields Write Api Key and Update channel feed line.

Channel ID: 620012
Author: abuminda
Access: Public

Tem and humidity
Tem and humidity

Private View Public View Channel Settings Sharing API Keys Data Import / Export

Write API Key

Key: ACQNI1J35GZB2R4E

Generate New Write API Key

Read API Keys

Key: DS88J8PKBFJL6EN2

Note:

Save Note Delete API Key

Generate New Read API Key

Help

API keys enable you to write data to a channel or read data from a private channel. API keys are auto-generated when you create a new channel.

API Keys Settings

- Write API Key: Use this key to write data to a channel. If you feel your key has been compromised, click Generate New Write API Key.
- Read API Keys: Use this key to allow other people to view your private channel feeds and charts. Click Generate New Read API Key to generate an additional read key for the channel.
- Note: Use this field to enter information about channel read keys. For example, add notes to keep track of users with access to your channel.

API Requests

Update a Channel Feed

```
GET https://api.thingspeak.com/update?api_key=ACQNI1J35GZB2R4E
```

Get a Channel Feed

```
GET https://api.thingspeak.com/channels/620012/feeds.json?resu
```

Get a Channel Field

```
GET https://api.thingspeak.com/channels/620012/fields/1.json?r
```

First parameter is the channel ID and the second parameter is API Key. Do not share API key it makes decision of which user it is. The both lines are very important for data upload to cloud server.

You need to make note of them, so you will use it in your code.

STEP 3: PROGRAMMING NODEMCU TO UPLOAD DATA TO THINGSPEAK CLOUD SERVER

Use the code **thingspeak.ino** (you can find it on model). You need to add code to write the sensor data in to your serial link. You have learned how to do this from previous labs.

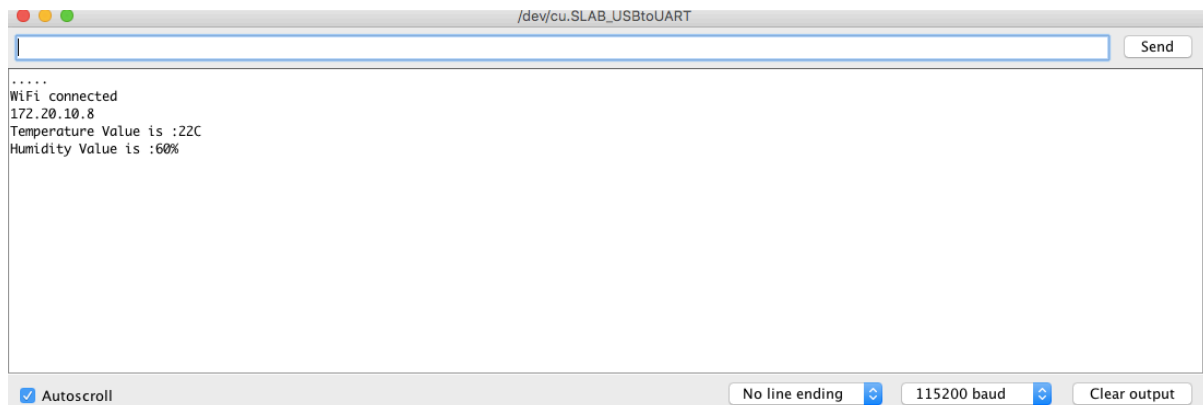
Note that you don't need to initialise or set up the sensor it is all done for you the only thing you need is to write the display code.

In the code you will find my comment to prompt you to add your code.

Things you need to know:

- Add the Thingspeak library (find the Zip file on model)- if you don't know how you do this please refer to the guide on model.
- In the code you need to set up the Wifi SSID and the Wifi password.
- When displaying the sensor reading on the serial display use (temperature) as a variable name for the temperature sensor reading and (humidity) for the humidity sensor reading. In case you want to use your own variable, you need to change several lines in the code provided to reflect your variables.
- You need to use your ThingSpeak API and channel ID where asked for in the code.

After doing the above, Upload Program and Open Serial monitor with baud rate of 115200. First it will show connection status to your Wi-Fi router then It uploads data to server, you should be able to see the sensor reading on your serial display.



STEP 4: CHECK DATA ON THINGSPEAK SERVER

Open Your ThingSpeak Account and Click on Private View of Your Channel.

Channel Stats

Created: [about an hour ago](#)
Updated: [about an hour ago](#)
Last entry: [less than a minute ago](#)
Entries: 8

