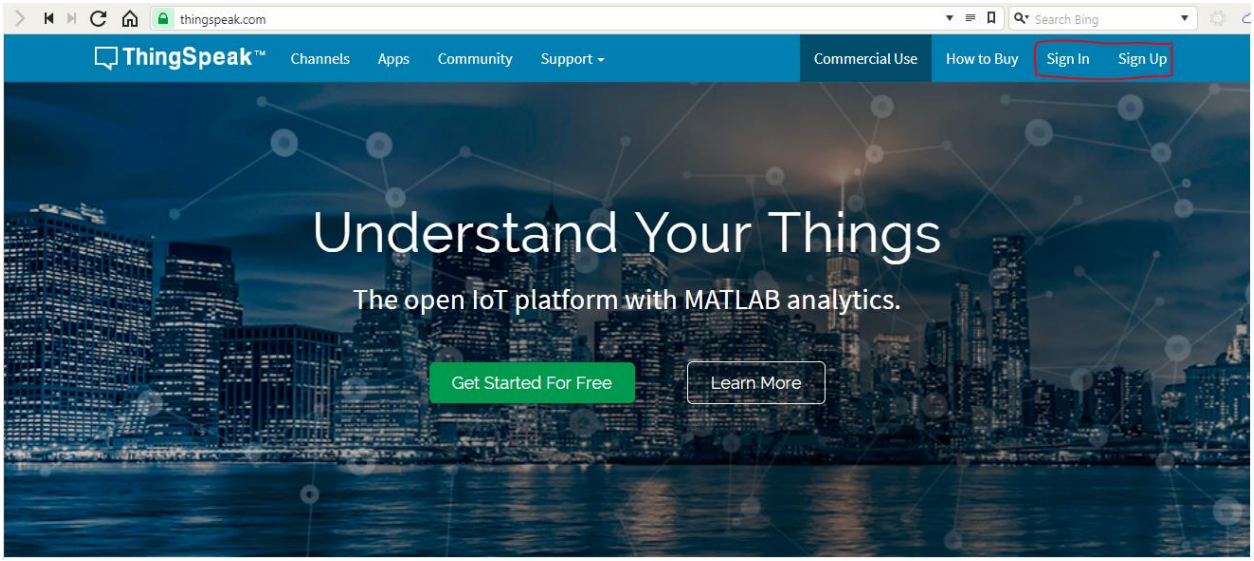
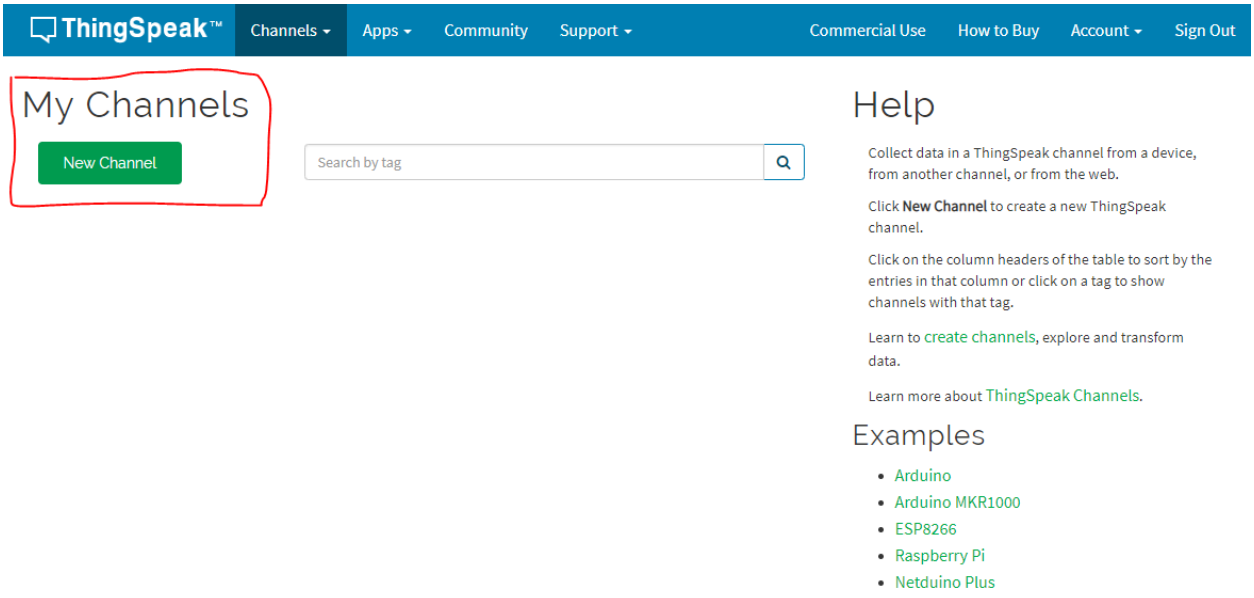
Monitor Temperature and humidity with Raspberry Pi

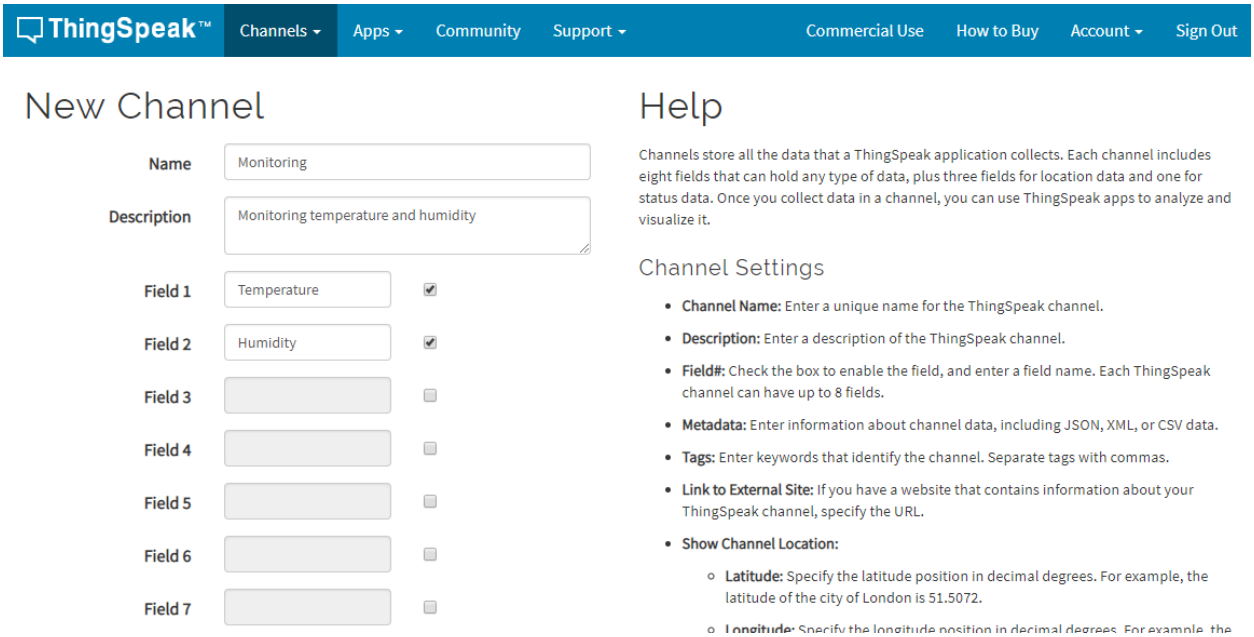
1. Create an account in https://thingspeak.com in order to monitor temperature and humidity online.



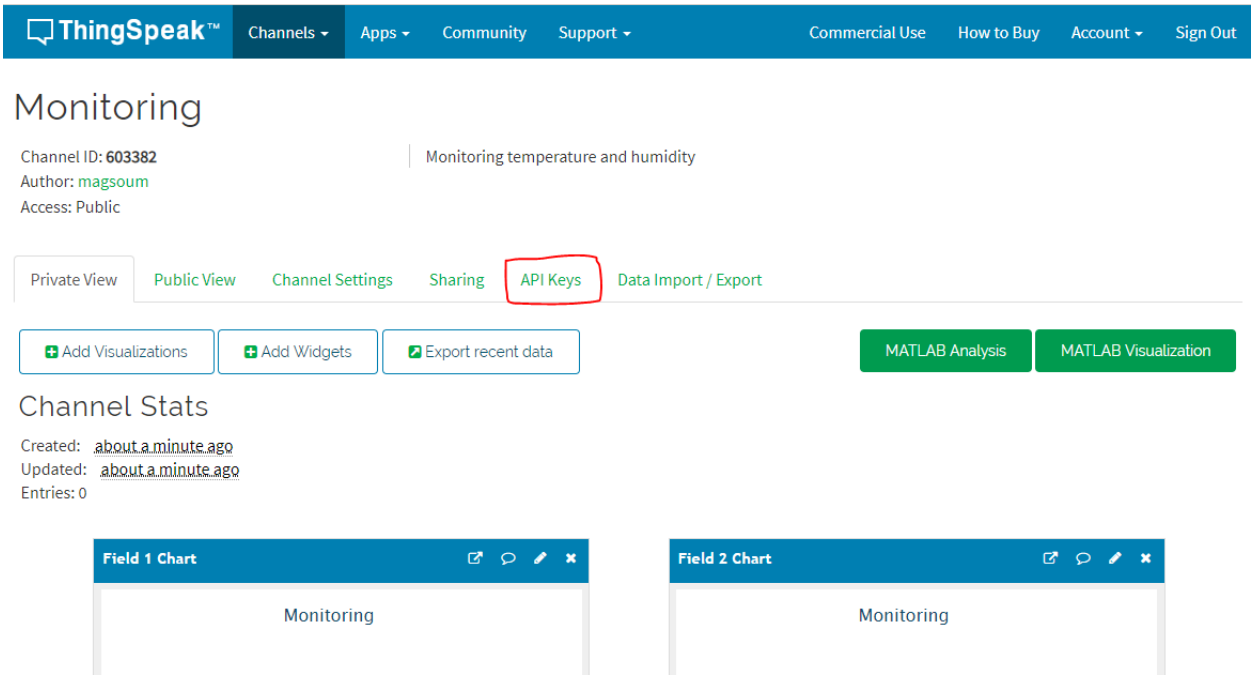
2. After you have created an account or logged in, you will see following page. Please click on New Channel button.



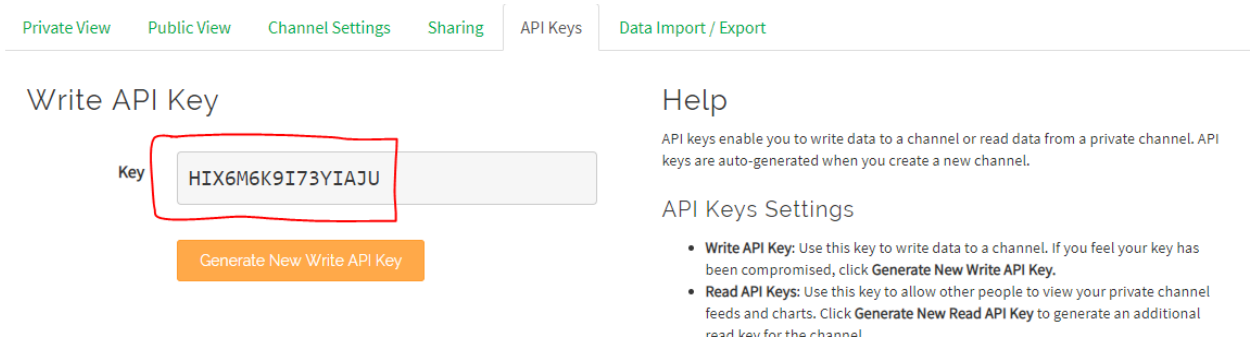
3. Now Enter information about the channel. Select two fields in order to send temperature and humidity from Raspberry Pi. Finally, Save your channel.



4. After Saving your channel, you will see following page. Please go to “API keys” tab.

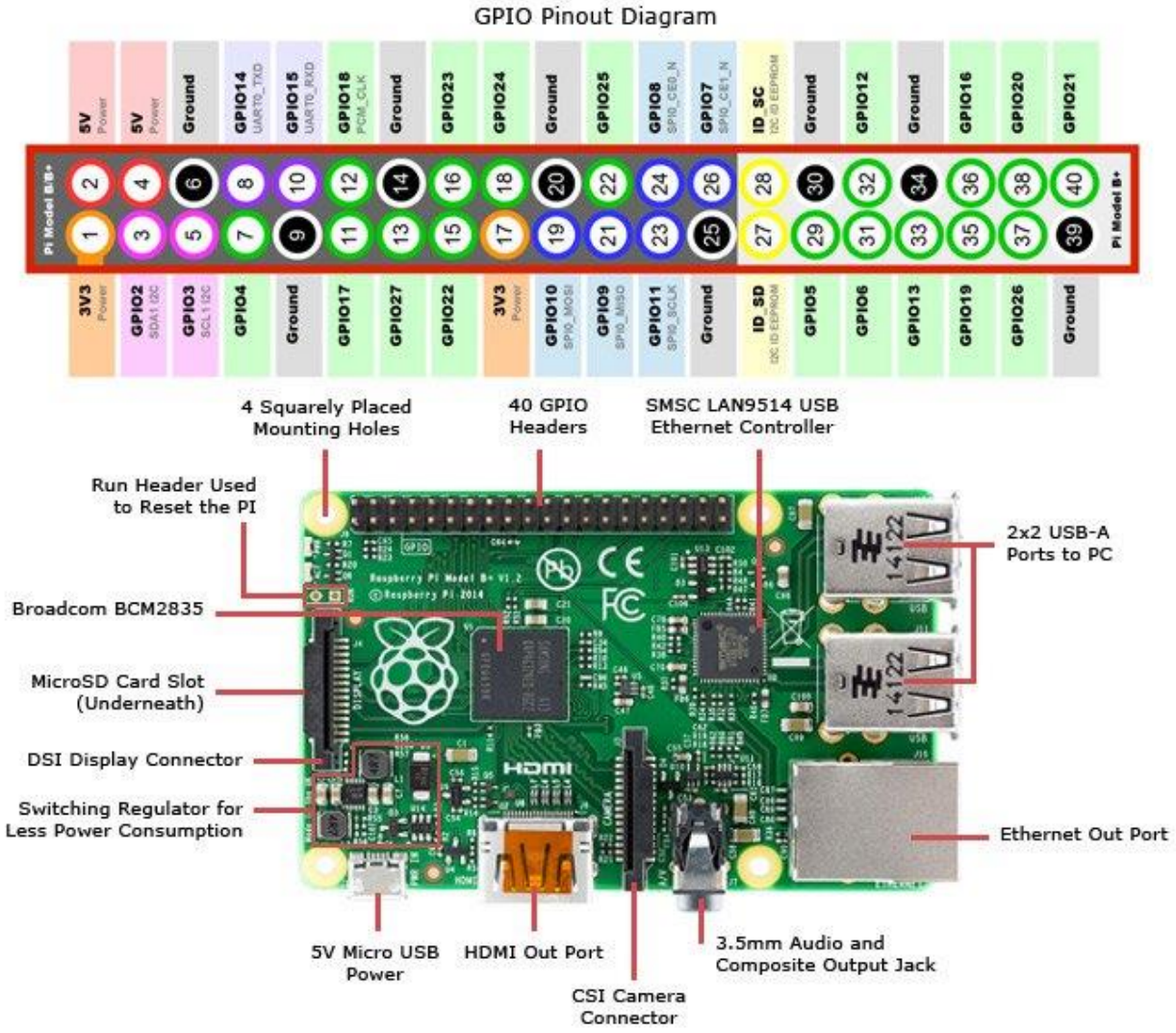


5. In the API key page, Copy the “write API key” in order to send data from Raspberry Pi to ThingSpeak.



Setup Raspberry Pi to send Temperature and Humidity to ThingSpeak

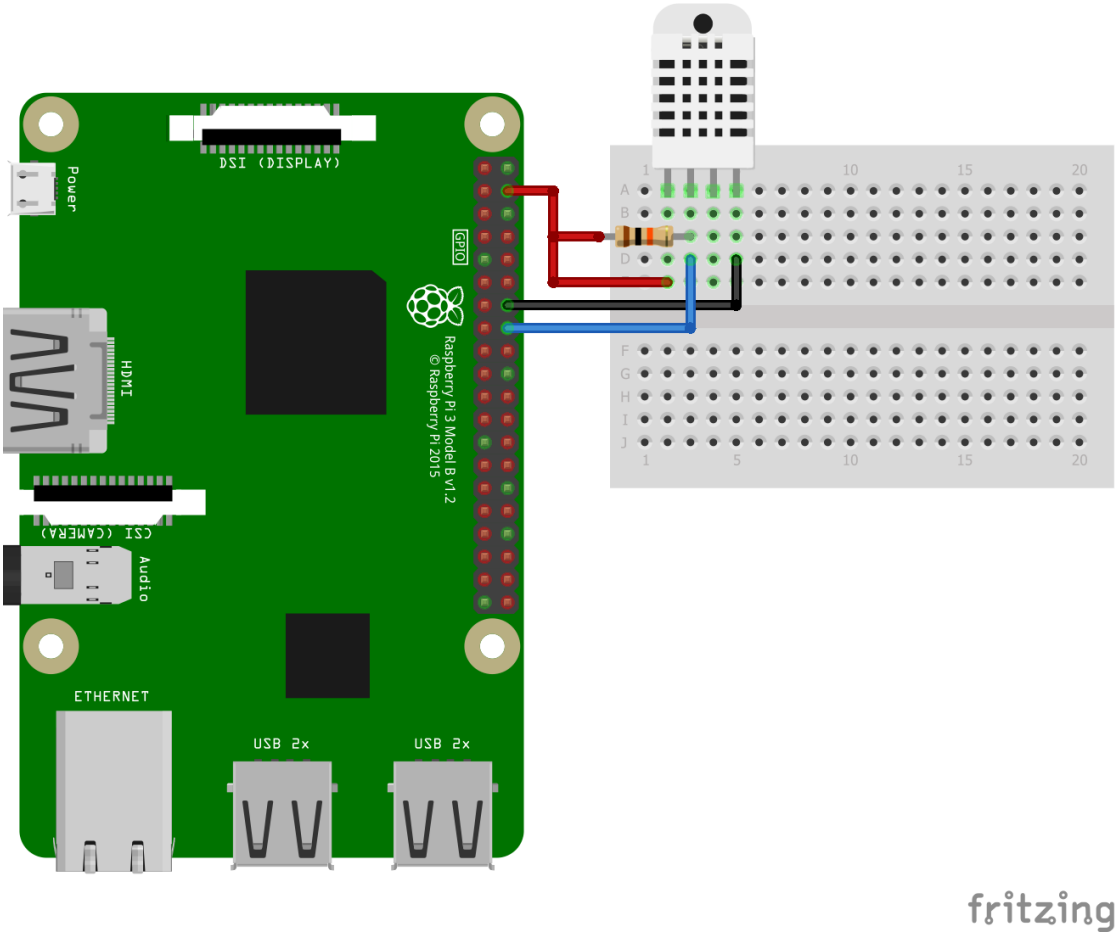
Here, we use DHT22 temperature and humidity sensor. We connect the DHT22 to the Raspberry Pi and then Raspberry Pi sends sensor data to ThingSpeak API.



Circuit diagram

The DHT22 has one digital data pin so that it can be connected directly to Raspberry Pi. However, circuit requires 10k ohm pull up resistor. The following diagram illustrates connecting DHT22 data ping to Raspberry Pi GPIO23.

DHT22 pins:
pin1: 5V
pin2: Data pin connected with 10K pull up resistor
pin3: unused
pin4: Ground



Installing Python Library for DHT22

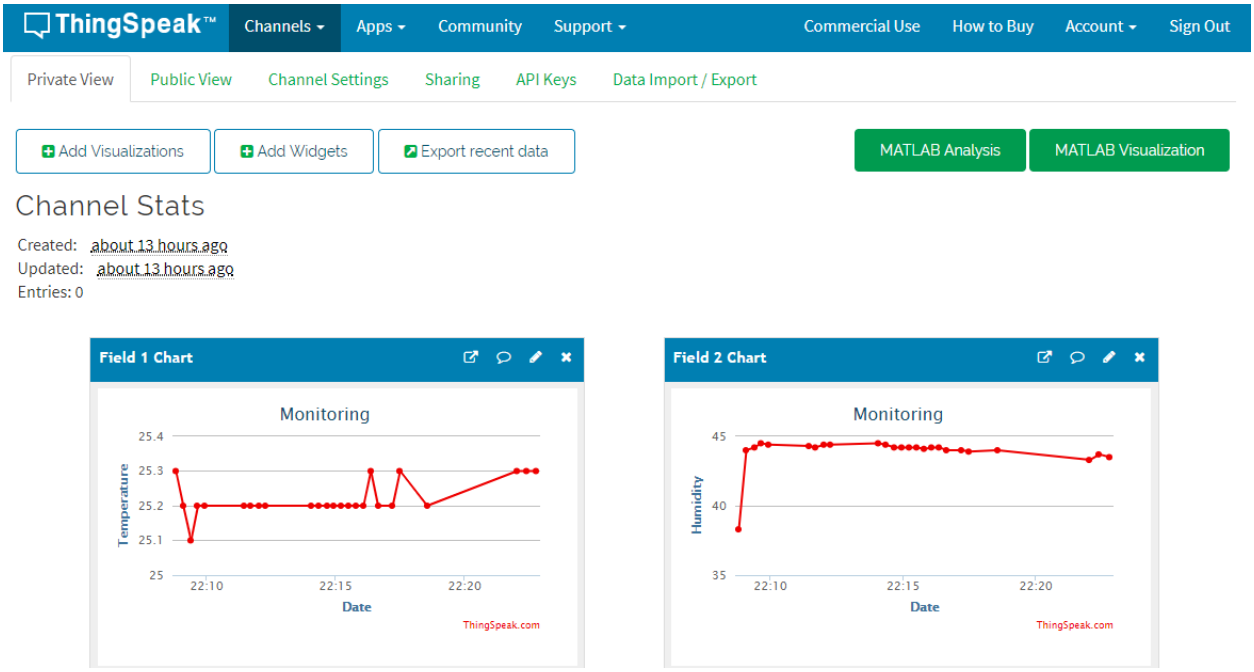
1. Installed required Python libraries
   sudo apt-get install build-essential python-dev
2. Use following command to install adafruit Python library
   Sudo pip install Adafruit _DHT

Python Script to read DHT22 data and send to ThingSpeak API

```
import requests
from time import sleep
import Adafruit_DHT as dht

#Enter Your API key here
APIKey="HIX6M6K9I73YIAJU"
#ThinSpeak API URL
URL='https://api.thingspeak.com/update?api_key=%s' % APIKey

while True:
    try:
```

```
        #Reading temperature and humidity from DHT22 in Raspberry Pi
        #In this setup, DHT22 connected to GPIO23
        humidity, temperature=dht.read_retry(dht.DHT22,23)
        print(humidity,temperature)
        #Send sensor data to ThingSpeak
        connection=requests.post(URL+'&field1=%.2f&field2=%.2f'%(temperature,humidity))

        sleep(10)
    except:
        print('Error occured')
        break
```

After running the script in Raspberry Pi, ThingSpeak charts can look like as following:



References

1. Temperature and Humidity Sensor DHT22 Raspberry pi Interfacing, (2018), https://electronicshobbyists.com/raspberry-pi-sending-data-to-thingspeak-simplest-raspberry-pi-iot-project/
2. Fritzing, (2018). http://fritzing.org/home/