PRACTICAL 10

AIM: Using Raspberry Pi with DHT sensor to sense temperature, send data to the server and plot the sensed data on server.

Parts Required:

- 1 x Raspberry Pi
- 1 x DHT sensor
- 1 x 100 Ohm resistors
- Breadboard wires
- 1 x Breadboard (project board)
- 1 x Raspberry Pi power supply

Circuit Diagram:

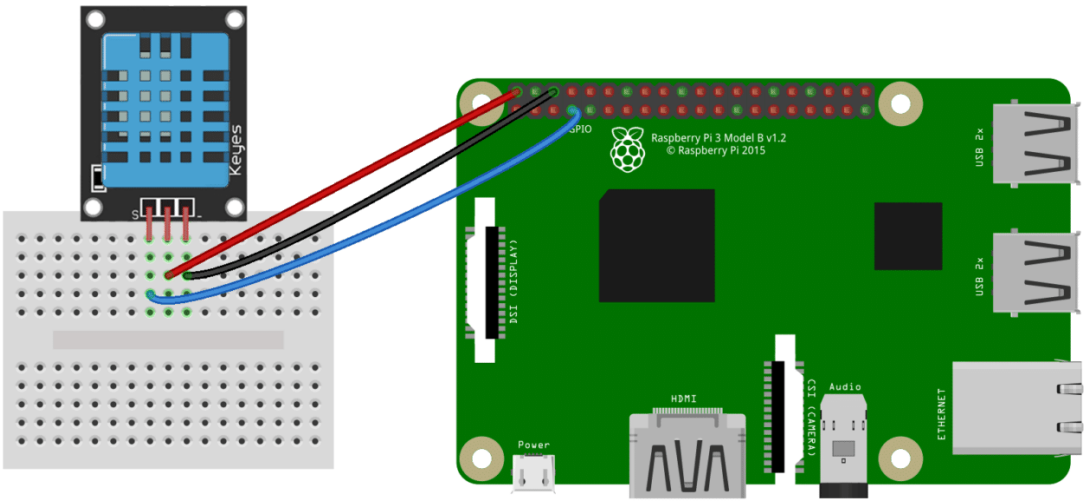

Figure 9.1: Circuit Diagram for interfacing DHT sensor with Raspberry Pi

Code:

```
import sys
import requests
import urllib
#import threading
from time import sleep
import Adafruit_DHT as dht
# Enter Your API key here
myAPI = 'VE1DQP8O6XVX4O55'
# URL where we will send the data, Don't change it
baseURL = 'https://api.thingspeak.com/update?api_key=%s' % myAPI
def DHT11_data():
        # Reading from DHT11 and storing the temperature and humidity
        humi, temp = dht.read_retry(dht.DHT11, 23)
        return humi, temp
while True:
        try:
                humi, temp = DHT11_data()
```

```
                # If Reading is valid
                if isinstance(humi, float) and isinstance(temp, float):
                        # Formatting to two decimal places
                        humi = '%.2f' % humi
                        temp = '%.2f' % temp
                        print('humidity:%s'%humi,'temperature:%s'%temp)
                        # Sending the data to thingspeak
                        conn = urllib.request.urlopen(baseURL + '&field1=%s&field2=%s' % (temp, humi))
                        conn.read()
                        # Closing the connection
                        conn.close()
                else:
                        print('Error')
# DHT22 requires 2 seconds to give a reading, so make sure to add delay of above 2 seconds.
                sleep(2)
        except:
                break
```

Implementation

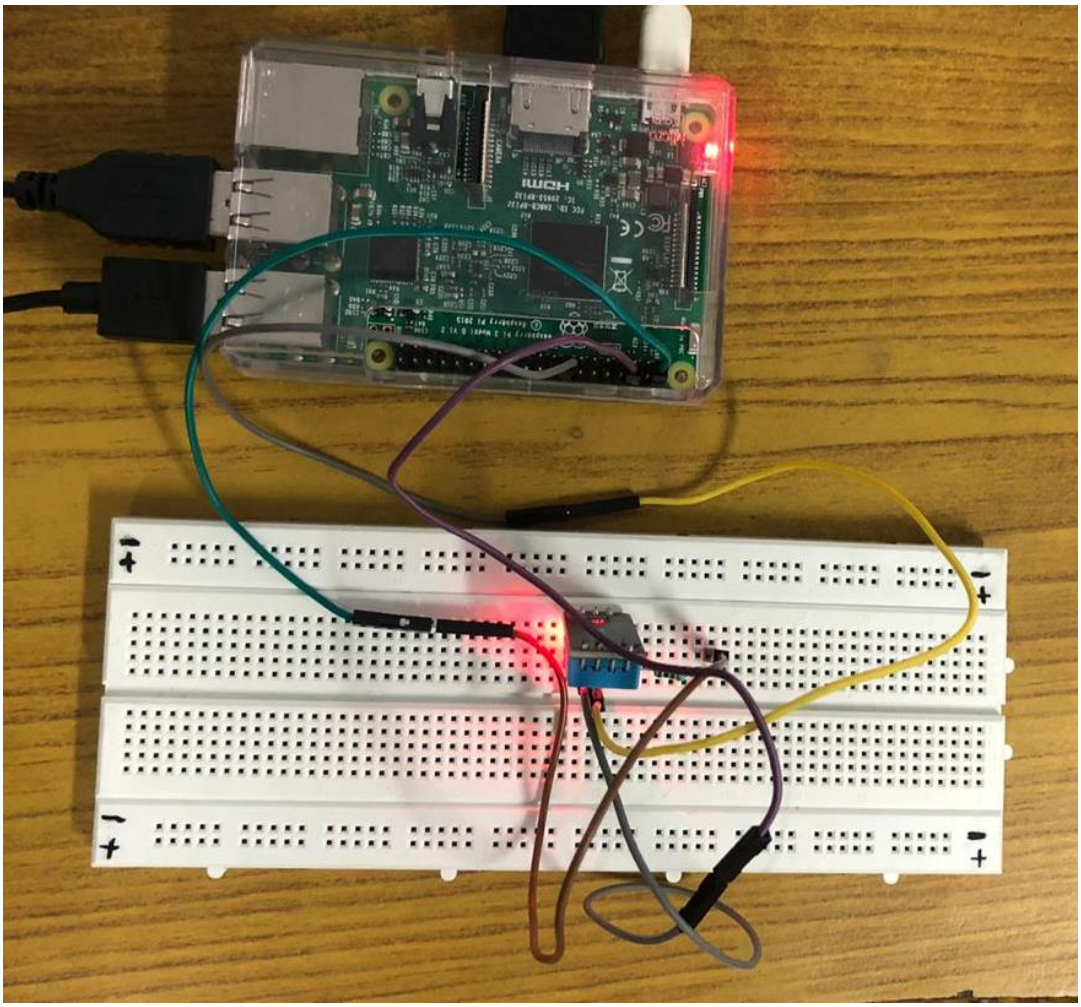

Figure 9.2: Breadboard with DHT Sensor

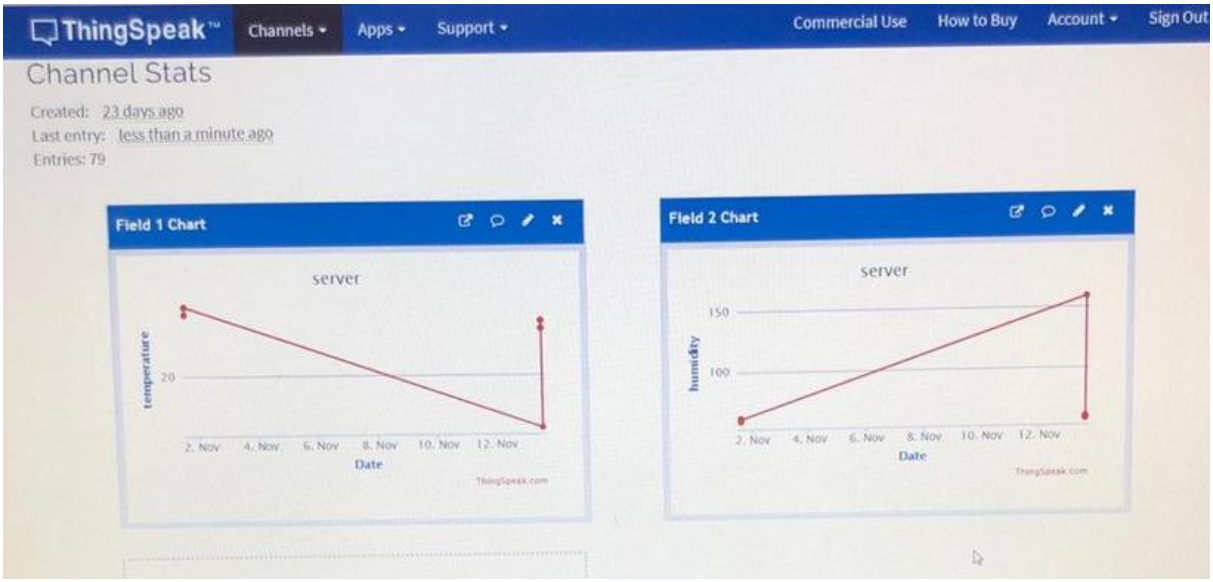

Figure 9.3: Plotted Data on the Server