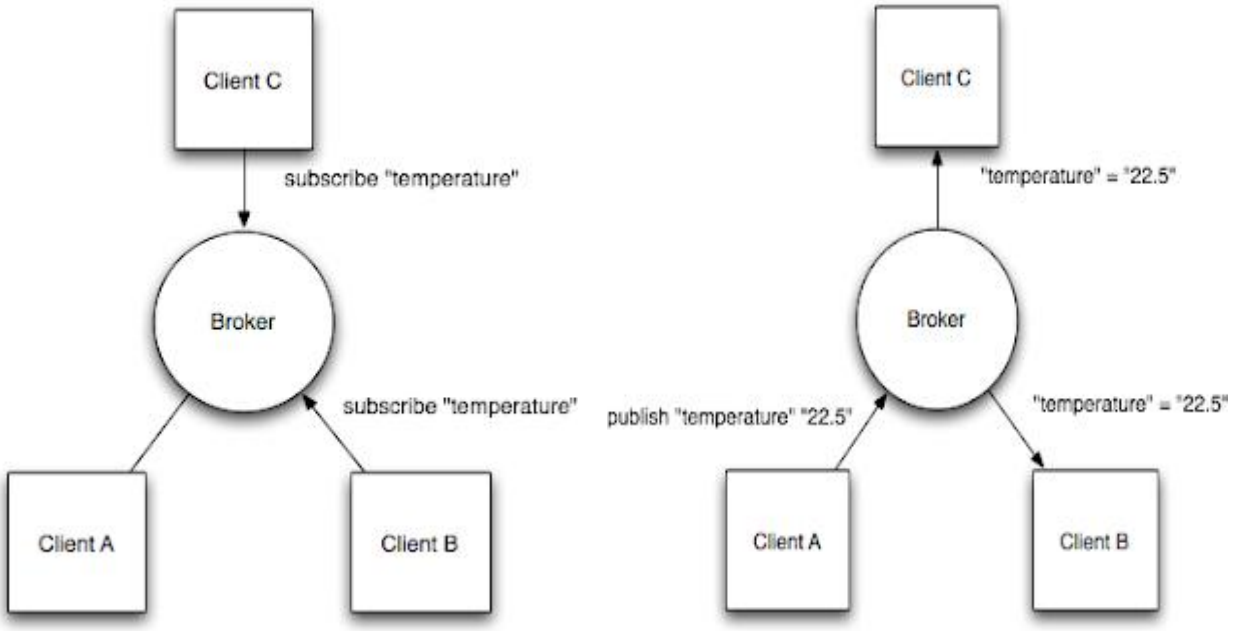
Control & Monitor Home Appliances over the Internet Using MQTT MQTT & ESP8266

What Is MQTT and How Does It Work: This protocol is easy to implement and also very easy to understand. It basically comprises of one Broker and multiple clients where clients can be treated as our smart phone, sensors, etc. and they all communicate with the server which is known as Broker.

In this protocol, every client need to connect to any address of the broker which is known as the topic to be subscribed in MQTT. In single broker there can be multiple topics and clients can also subscribe to multiple topics of the same broker.

First lets see this process in block diagram which will be easy for you to understand.

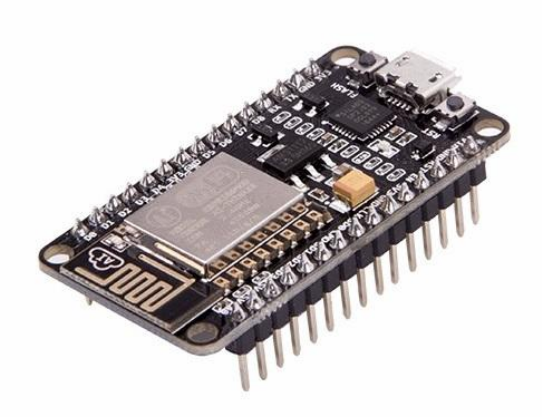


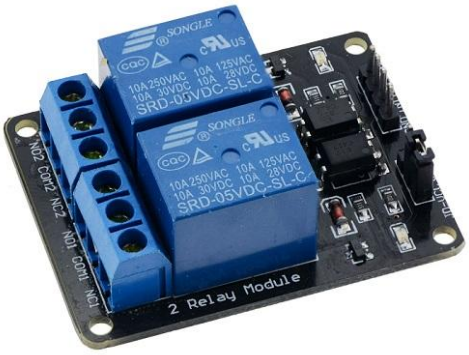
So basically here we have one broker and 3 clients subscribed to the topic “temperature”.

So as soon as any of the client(Temperature Sensor) publishes or updates the value of Temperature to the broker, than all the clients(Smart Phone) subscribed to that topic will receive the value of temperature updated.

Things required for making this:

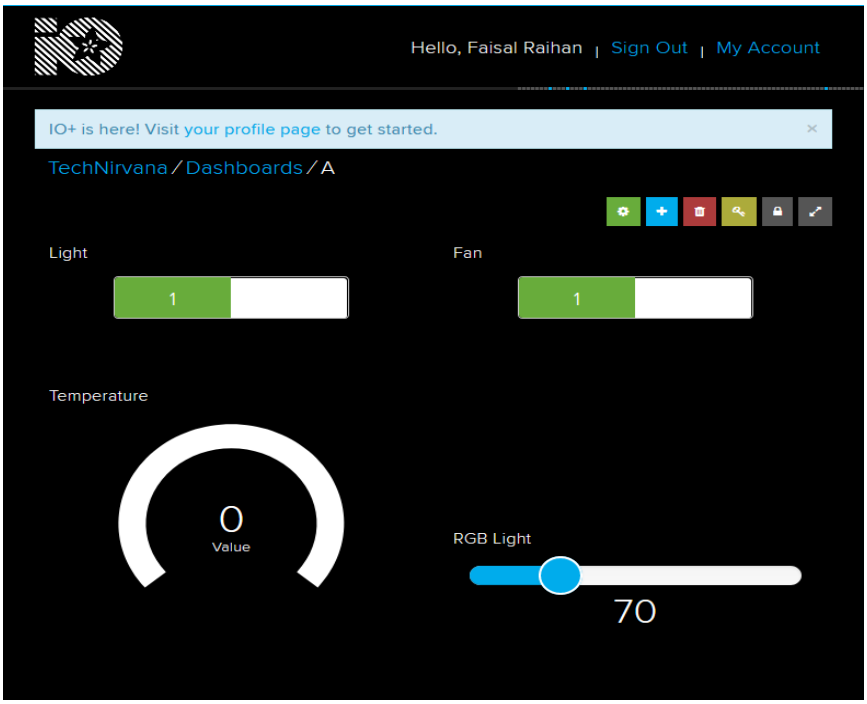
- ESP8266 12e development Board (NodeMCU)
- 5V Relay x2
- Connecting wires
- BreadBoard (optional)





First of all we will need a MQTT broker. There are many broker for MQTT but I have used Adafruit MQTT broker. Its quite simple and its UI is also great. You will love to use that broker. For using Adafruit MQTT broker, first of all you need to make an account on Adafruit.io. Fill up the basic details and you are ready to use that broker.

Than goto your dashboard. My dashboard is like this.



Account holder at Adafruit IO will have their unique key which is also called as password for the subscription. You can get your key by clicking on the third button on the right corner. It is a key shaped icon on the button.

We will be using two clients in our project first is the ESP866 12e development board and another is our Smart Phone. First of all you need to download library for MQTT client by Adafruit.

Now open example in your Arduino IDE named **"mqtt_esp8266"**. Just change the **ssid name**, **password** for internet access and also provide your broker **username** and **password(AIO key)**. And than just upload the program because in the example sketch, they have already subscribed to the topic onoff so no need to change anything in this. Than open serial monitor and your adafruit dashboard side by side.

As MQTT is very light weight, the response we can observe is around in couple of milliseconds. It's really fast!!! As you can see in the Serial monitor, whenever I toggle the switch it shows the response like "GOT 1" or "GOT 0". And side by side it is also publishing value of counter on the topic named photocell.

Broker URL, here it is (io.adafruit.com)

Port, (1883)

Username (username you have registered while making your account)

Password (Key which you can get by clicking the key icon on your dashboard)

After filling this details just subscribe to any of the topic and send either 0 or 1 to turn the button on or off. And yeah!!!!, now you can toggle the button from anywhere in the planet earth as long as you are in coverage area of your Internet service provider.