SAMSUNG R&D DELHI

INTERNSHIP WEEKLY REPORT

WEEK TWO

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Introduction

This week I was given the task to learn MQTT, a messaging protocol. Then to make programs that can publish messages, subscribe to it, and the server. I was also introduced to Mr Gareja Pradip to help me with my doubts.

I started studying the materials provided and then I made some programs and I was able to make it quite easily in Python. I thought this was easy, but then I found that I had to write the code in C++ not in Python. Now this was challenging. Anyhow with the help of Mr Vibhor and Mr Gareja I was able to set and write the programs in C++ as well. Finally I was to write a program in C++ which takes data from a CSV file and keeps uploading it to a topic line by line.

MQTT

- MQTT is a standard messaging protocol for IOT devices. It consists of Clients and Servers/Brokers.
- The clients publish messages to a topic and subscribe to a topic to receive messages. While servers work as middlemen between the clients.
- So basically when a client publishes a message it goes to the server. The server distributes it to the subscribers.
- I installed the paho-mqtt library for the client and mosquitto for the server.Also there are online servers like emqx, eclipse mosquitto, etc .

- I wrote a simple publisher and subscriber here in Python.
- Then I wrote it in C++.
- There was an interesting sample code there, where we can chat like in WhatsApp.
- Then, I also wrote a program which takes data from csv file line by line and publishes it after each second.
- I also installed MQTT Explorer. It was very useful in debugging. With this we can see all the things happening on the server.
- I generally worked with localhost(127.0.0.1) with no security but I also tried to see if I am able to set passwords and I was able to.

Problems

- Apparently, the paho mqtt of C++ does not come as software. So we have to download the code and then with the help of cmake package and build it to run. But I was finding it difficult in my windows machine as there were errors while building.
- Finally I decided to switch to my Ubuntu. And thankfully it was easily done in linux setup by simply running the commands in the terminal. Although while setting environment variables we must change the path to where the code is cloned.
- While trying to take data from the CSV file. At start it was not reading the data. But then I put it on the build folder and it was fine.

Conclusion

This week was a bit heavy compared to the previous week. Although I liked it. I was quite busy most of the time trying to debug the problems. And I can promptly say I enjoyed it. There were some problems with packaging the code in Windows but was managed by switching to Linux. MQTT is a very good service as it is light, fast and dispatches a maximum data of about 256MB in one go.