

# Project Development Phase

## SMART WASTE MANAGEMENT SYSTEM FOR METROPOLITAN CITIES

TEAM ID: PNT2022TMID39310

### TEAM MEMBERS

ROLE	TEAM MEMBERS NAME	ROLL NO
TEAM LEADER	RUBESH .S	(422619104035)
TEAM MEMBER 1	ABIRAMI .S	(422619104002)
TEAM MEMBER 2	HARITHA .S	(422619104016)
TEAM MEMBER 3	TAMIZHSELVAN .D	(422619104044)

## Project Development - Delivery Of Sprint-3

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-3	Develop A Python Script	USN- 6	Develop A Python Script	10	High	S.Rubesh S.Haritha S.Abirami D.Tamizhselvan
Sprint-3	Develop A Python Script	USN- 7	Publish Data To The IBM Cloud	10	Medium	S.Rubesh S.Haritha S.Abirami D.Tamizhselvan

## Delivery

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022

# **Publish Data To The IBM Cloud**

**Task Assigned:** S.Rubesh,S.Haritha,S.Abirami,D.Tamizhselvan

**Task Started On:** 07 Nov 2022

**Task Completion Date:** 10 Nov 2022









## **SENDING DATA FROM RASPBERRY-PI TO IBM WATSON**

### **AIM:**

To send sensor data (or any dummy data) from Raspberry –Pi to IBM Watson .In our case it is DHT sensors Data.

### **REQUIREMENTS:**

#### **HARDWARE:**

-  RASPBERRY-PI (3B)(WITH ETHERNET CABLE OR WIFI CONNECTED)
-  USB MOUSE
-  USB KEYBOARD
-  VGA TO HDMI CABLE
-  A MONITOR
-  RASPBERRY'S POWER SUPPLY
-  DHT-11 Sensor
-  Connecting Wires

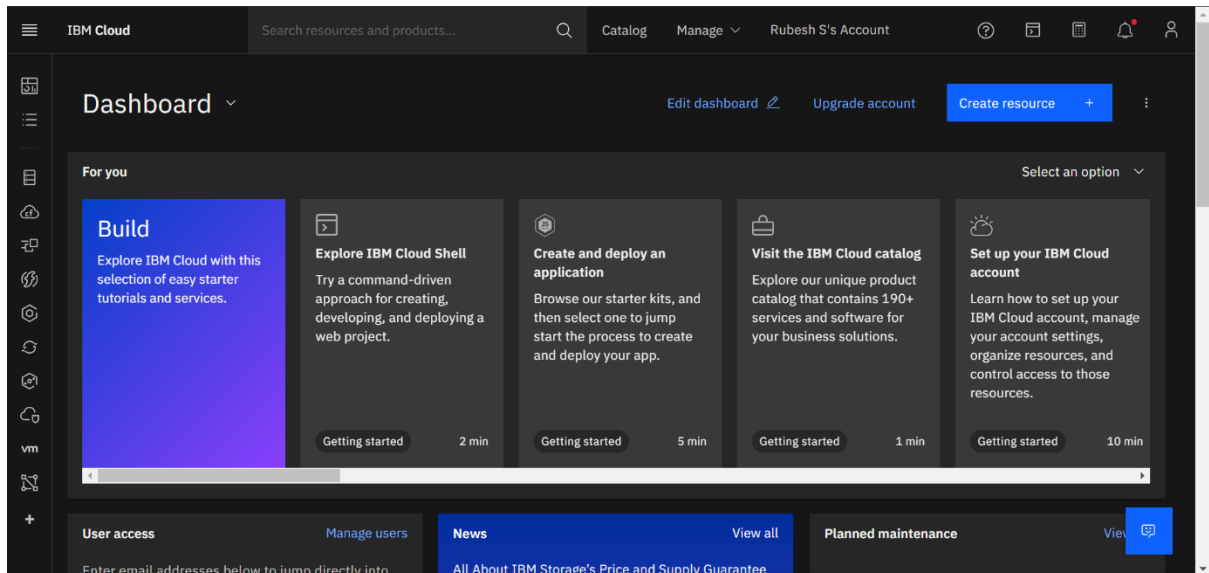
#### **SOFTWARE:**

-  IBM BLUEMIX ACCOUNT

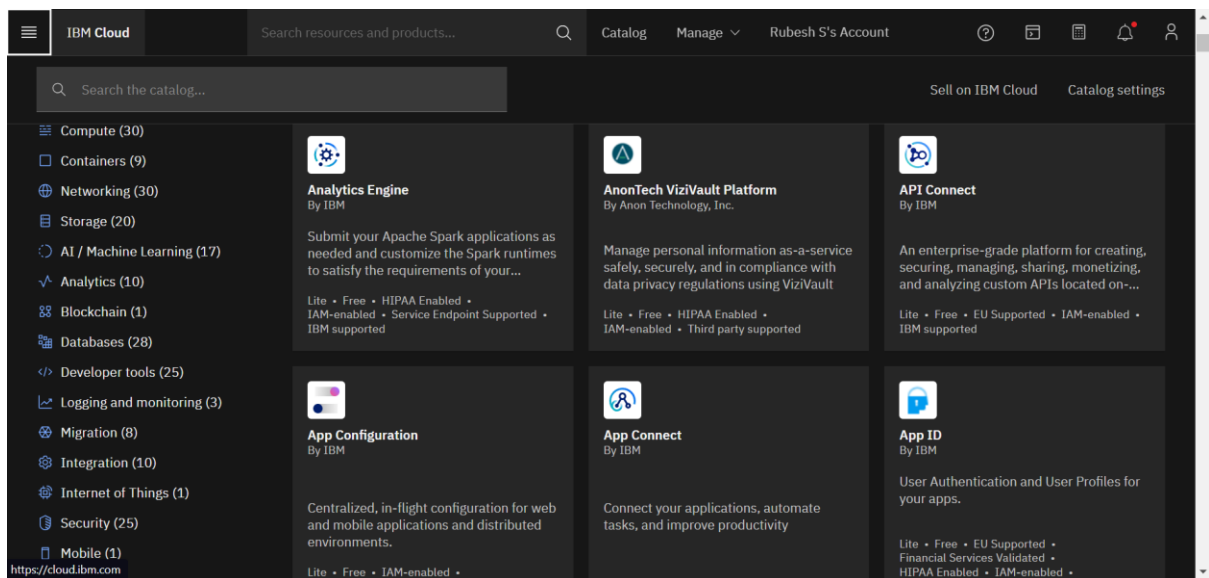
## STEPS TO BE FOLLOWED

### Step-1: Create a device in IBM Watson:

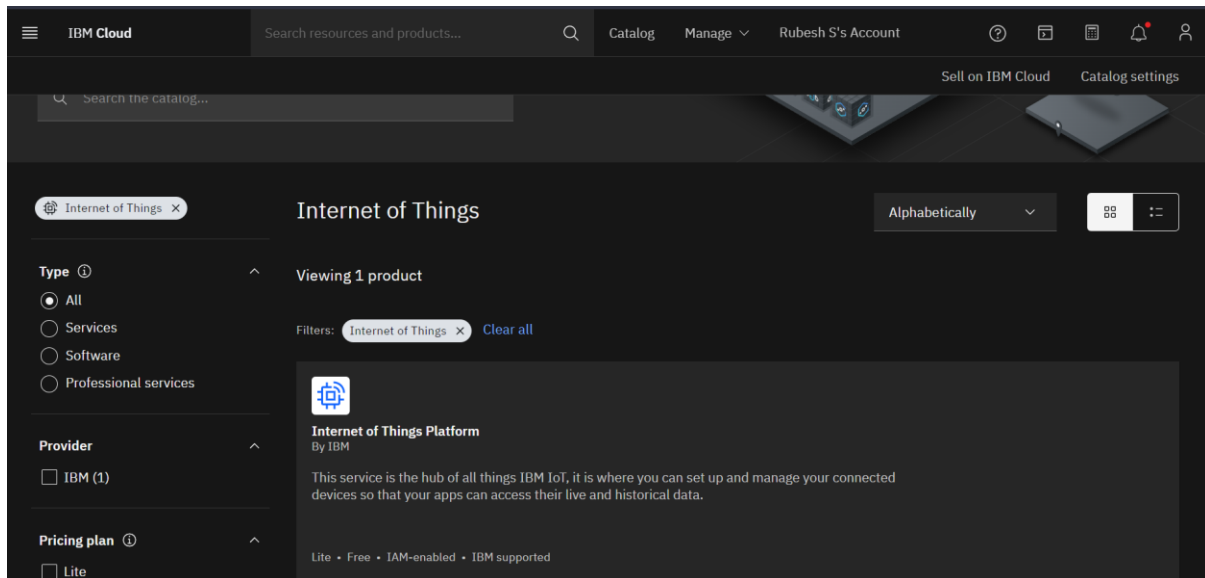
Login into my IBM account with my e-mail ID and Password.



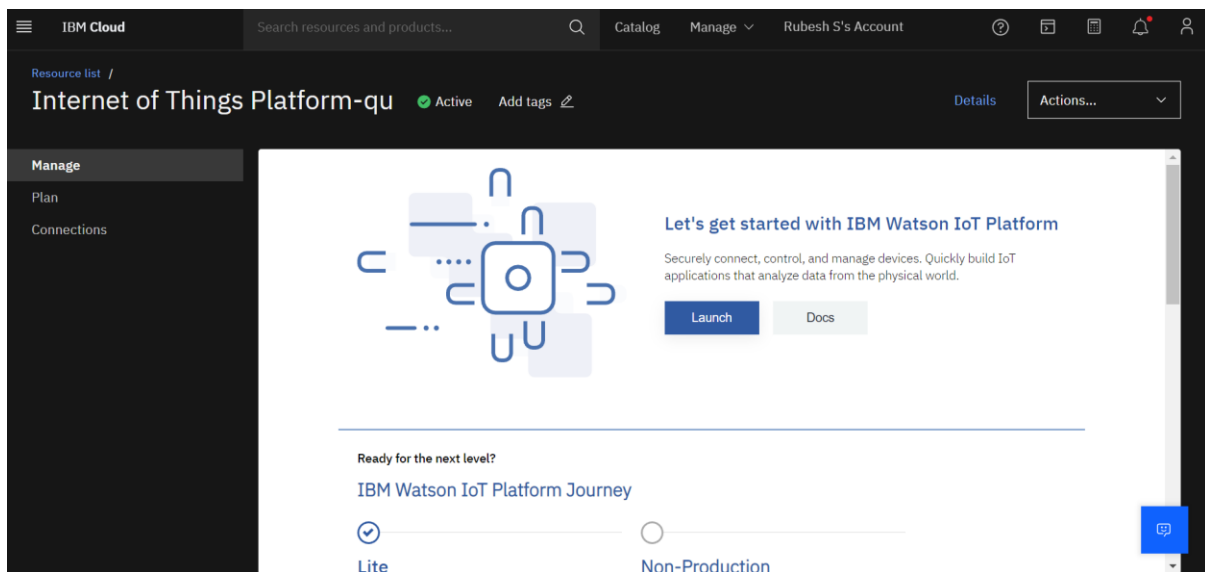
Clicked on catalog on my dashboard screen, then under platform IoT.



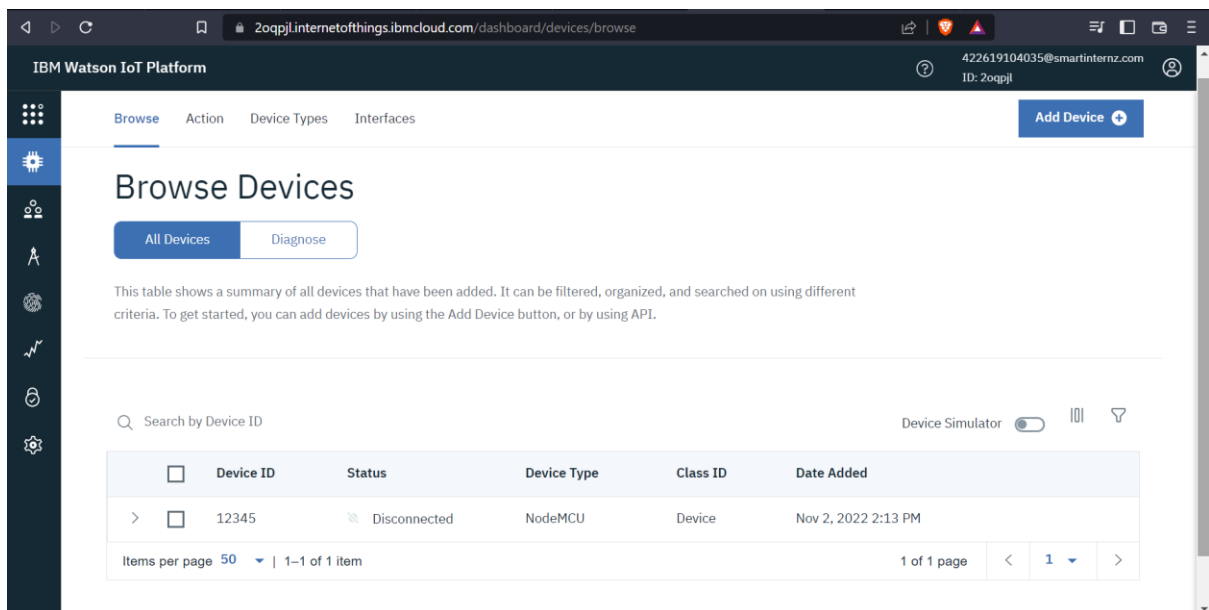
Checked all details and Clicked on create.



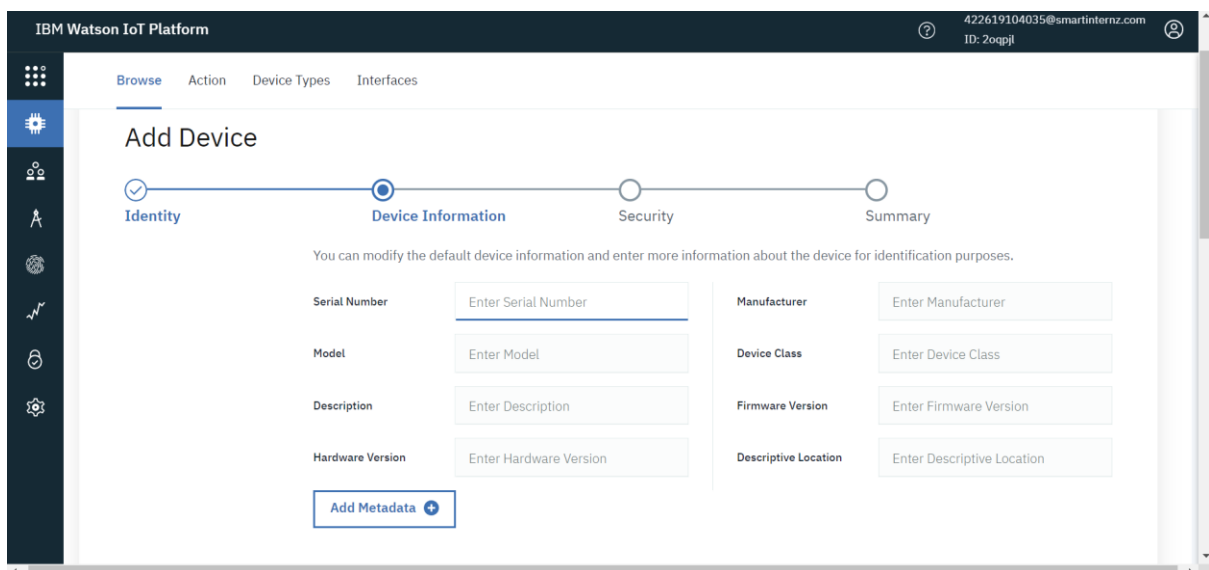
Click on Launch Dashboard of IBM Watson IoT platform



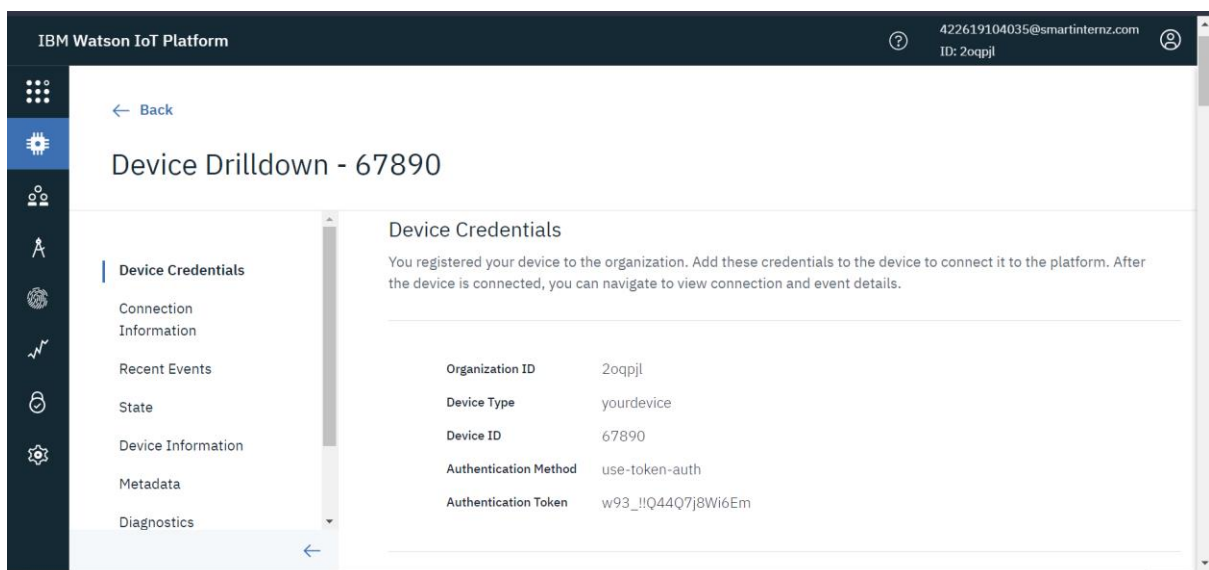
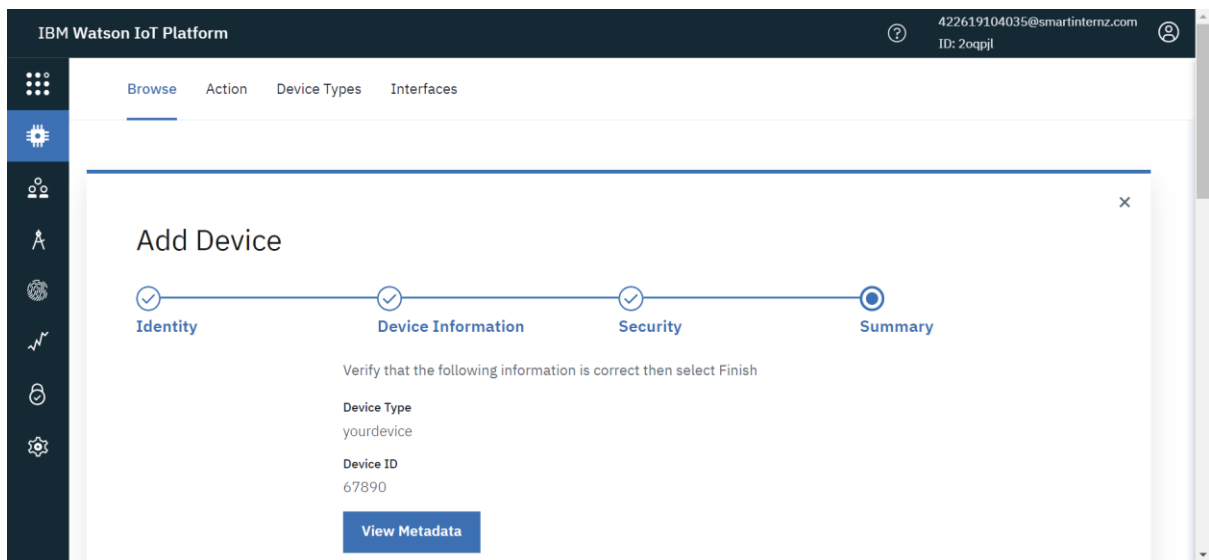
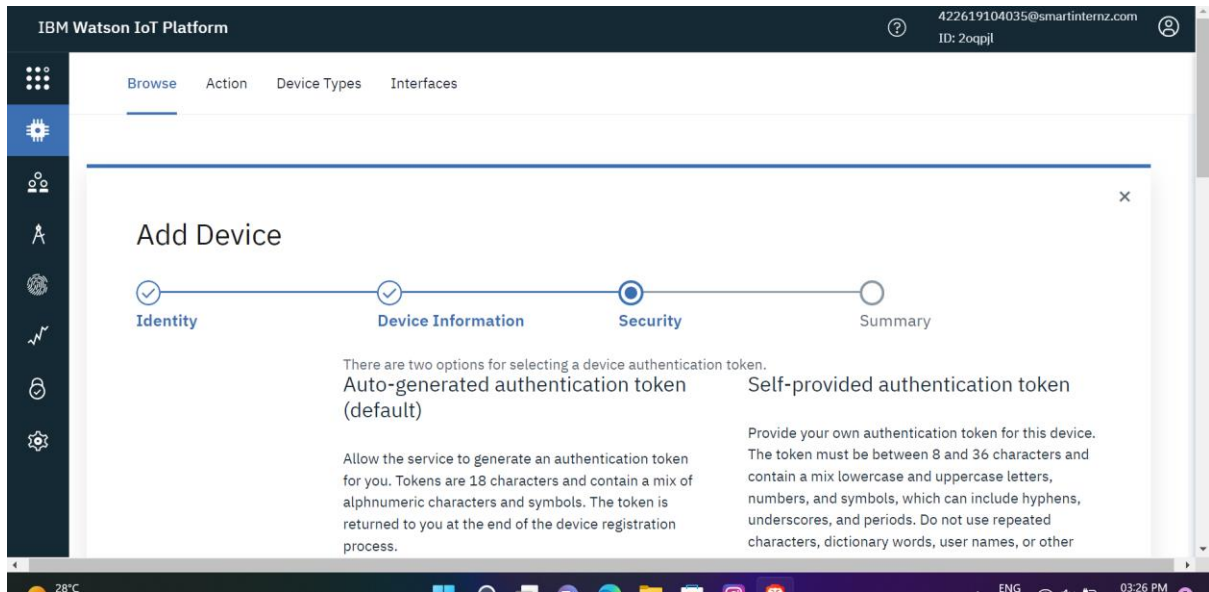
Click on Add device



After clicked on Add device this page is opened



Filled the details.



The screenshot shows the IBM Watson IoT Platform interface. At the top, the header displays 'IBM Watson IoT Platform' and a user profile with email '422619104035@smartinternz.com' and ID '2oqjlt'. The main navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A table lists devices with columns: Device ID, Status, Device Type, Class ID, and Date Added. Two devices are shown: ID 12345 (NodeMCU, Disconnected) and ID 67890 (mydevice, Disconnected). The device with ID 67890 is selected, and a modal window displays its details under the 'Identity' tab. The details include: Device ID (67890), Device Type (mydevice), Date Added (Nov 9, 2022 3:13 PM), Added By (422619104035@smartinternz.com), and Connection Status (Disconnected). The modal also has tabs for 'Device Information', 'Recent Events', 'State', and 'Logs'. At the bottom of the modal, it shows 'Items per page 50' and '1-2 of 2 items'.

Device ID	Status	Device Type	Class ID	Date Added
12345	Disconnected	NodeMCU	Device	Nov 2, 2022 2:13 PM
67890	Disconnected	mydevice	Device	Nov 9, 2022 3:13 PM

Identity	Device Information	Recent Events	State	Logs
Device ID	67890			
Device Type	mydevice			
Date Added	Nov 9, 2022 3:13 PM			
Added By	422619104035@smartinternz.com			
Connection Status	Disconnected			

Device is Created.

## STEP-2: INSTALLING NECESSARY PACKAGES ON YOUR PI:

- Now we are going to install necessary packages on your pi.
- Open your terminal in your pi and type the following commands
- ```
curl -LO https://github.com/ibm-messaging/iot-raspberrypi/releases/download/1.0.2.1/iot_1.0-2_armhf.deb
```
- ```
sudo dpkg -i iot_1.0-2_armhf.deb
```
- ```
service iot status
```



Following are the images that appears on pi's terminal

```
File Edit Tabs Help
--2017-10-23 06:55:22-- http://ftp.nl.debian.org/debian/pool/main/o/openssl/lib
ssl1.0.0_1.0.1t-1-deb8u6_armhf.deb
Resolving ftp.nl.debian.org (ftp.nl.debian.org)... 130.89.149.21, 2001:67c:2564:
a120::21
Connecting to ftp.nl.debian.org (ftp.nl.debian.org)[130.89.149.21]:80... connect
ed
HTTP request sent, awaiting response... 200 OK
Length: 867950 (848K) [application/x-debian-package]
Saving to: 'libssl1.0.0_1.0.1t-1-deb8u6_armhf.deb'

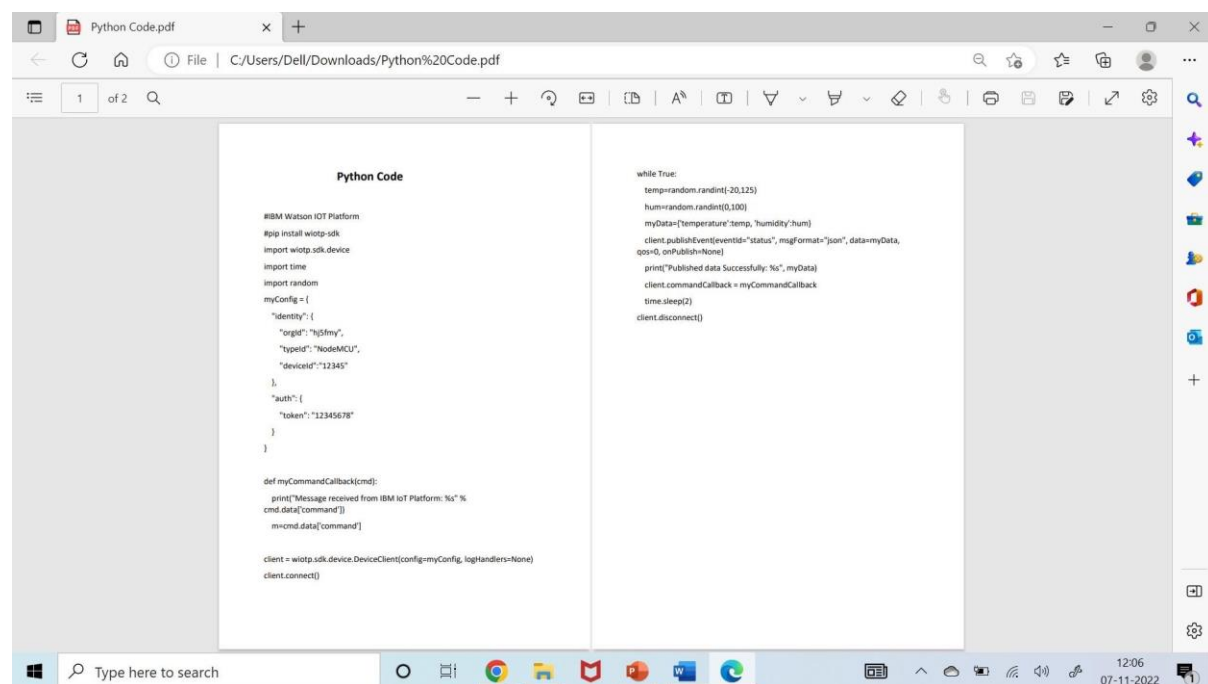
libssl1.0.0_1.0.1t- 100%[=====] 847.61K  358KB/s   in 2.4s

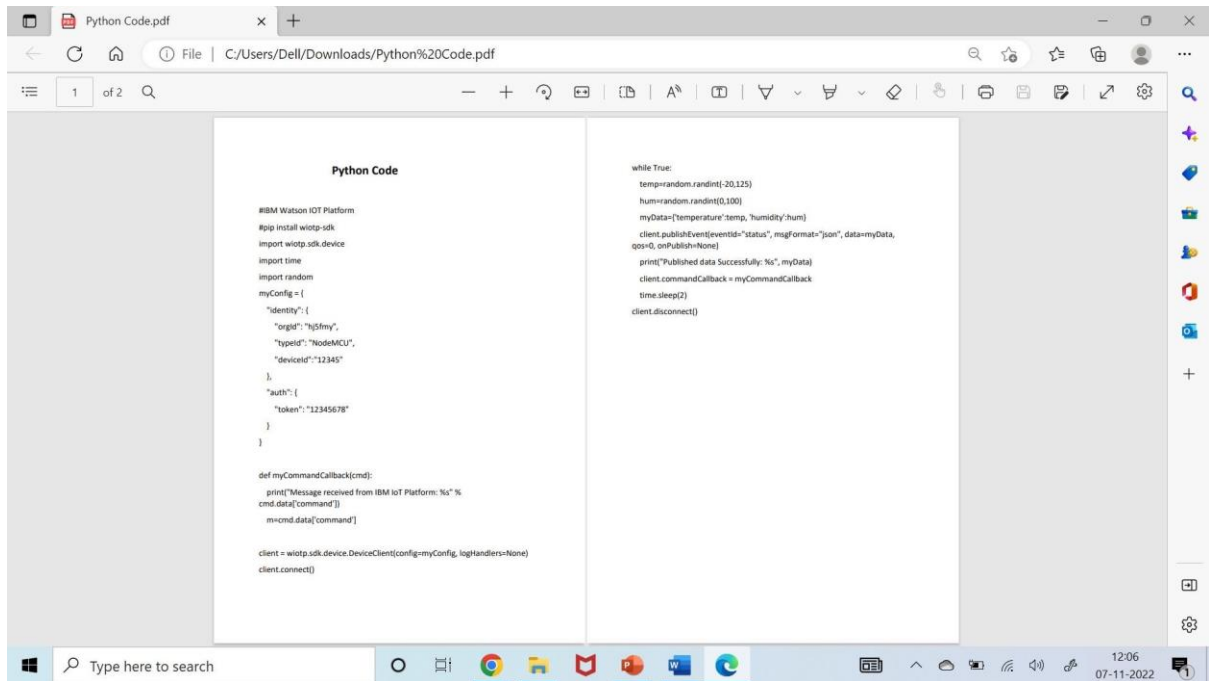
2017-10-23 06:55:25 (358 KB/s) - 'libssl1.0.0_1.0.1t-1-deb8u6_armhf.deb' saved [
867950/867950]

pi@raspberrypi:~$ sudo dpkg -i libssl1.0.0_1.0.1t-1-deb8u6_armhf.deb
Selecting previously unselected package libssl1.0.0:armhf.
(Reading database ... 115606 files and directories currently installed.)
Preparing to unpack libssl1.0.0_1.0.1t-1-deb8u6_armhf.deb ...
Unpacking libssl1.0.0:armhf (1.0.1t-1-deb8u6) ...
Setting up libssl1.0.0:armhf (1.0.1t-1-deb8u6) ...
pi@raspberrypi:~$ curl -LO https://github.com/ibm-messaging/iot-raspberrypi/rel
eases/download/1.0.2.1/iot_1.0-2_armhf.deb
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
             % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
100 164    0 164    0    0   157    0 --:--:--  0:00:01 --:--:-- 157
100 609    0 609    0    0   457    0 --:--:--  0:00:01 --:--:-- 457
100 110k 100 110k    0    0 20117    0 0:00:03 0:00:03 --:--:-- 48190
pi@raspberrypi:~$ sudo dpkg -i iot_1.0-2_armhf.deb
(Reading database ... 115626 files and directories currently installed.)
Preparing to unpack iot_1.0-2_armhf.deb ...
Unpacking iot (1.0-1) over (1.0-1) ...
Setting up iot (1.0-1) ...
Processing triggers for systemd (232-25+deb9u1) ...
pi@raspberrypi:~$ service iot status
* iot.service - LSB: IoT service
   Loaded: loaded (/etc/init.d/iot; generated; vendor preset: enabled)
   Active: active (running) since Mon 2017-10-23 06:56:25 UTC; 17s ago
     Docs: man:systemd-sysv-generator(8)
    CGroup: /system.slice/iot.service
            └─2562 /opt/iot/iot /dev/null

Oct 23 06:56:24 raspberrypi systemd[1]: Starting LSB: IoT service...
Oct 23 06:56:24 raspberrypi iot[2567]: Starting the iot program
Oct 23 06:56:25 raspberrypi iot[2562]: **** IoT Raspberry Pi Sample has started ****
Oct 23 06:56:25 raspberrypi iot[2562]: Config file not found. Going to Quickstart mode
Oct 23 06:56:25 raspberrypi iot[2562]: Running in Quickstart mode
Oct 23 06:56:25 raspberrypi systemd[1]: Started LSB: IoT service.
```

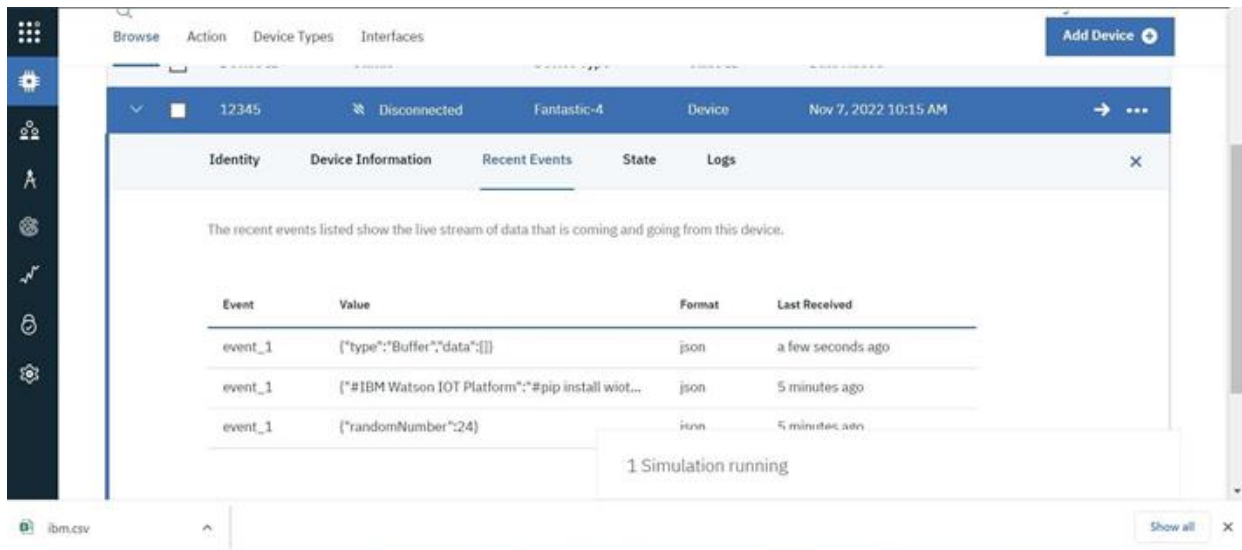
Then I got the image as follows in my pi's shell:





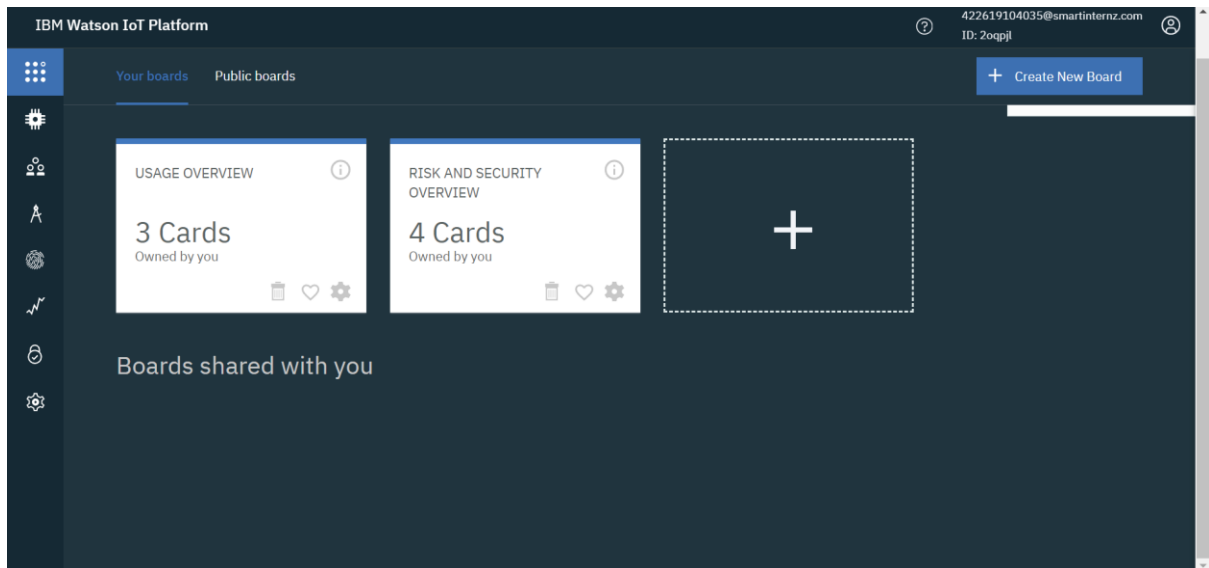
### Step-3: checking the data sent on IBM:

After sending the sensors data we can check whether it is received at the iot platform.

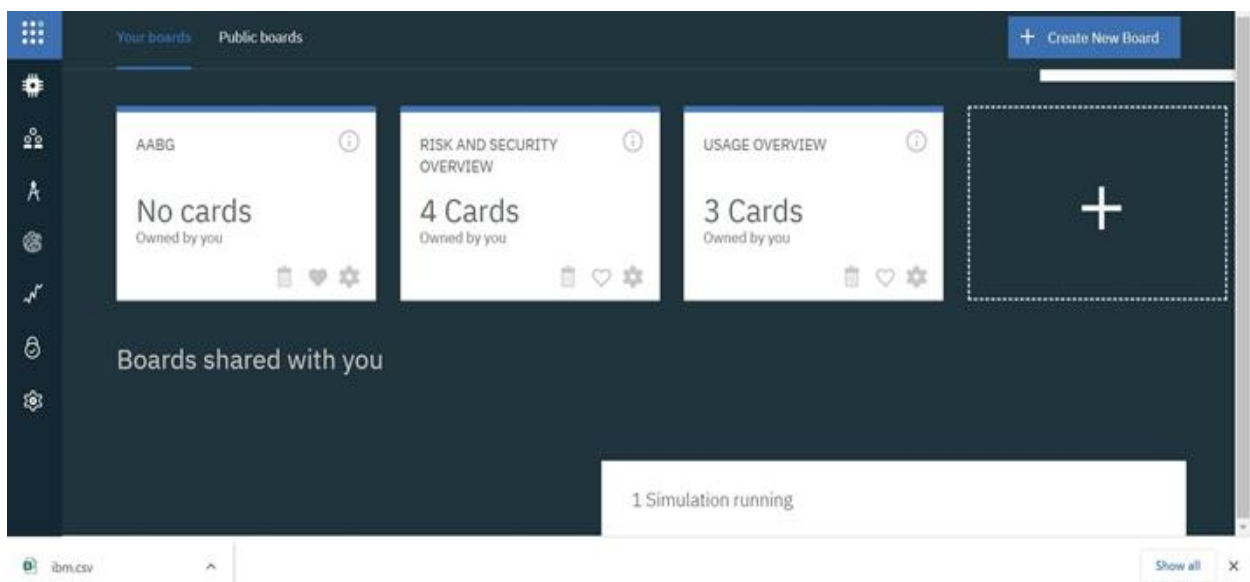


#### Step-4: Creating boards and cards for visualization of data:

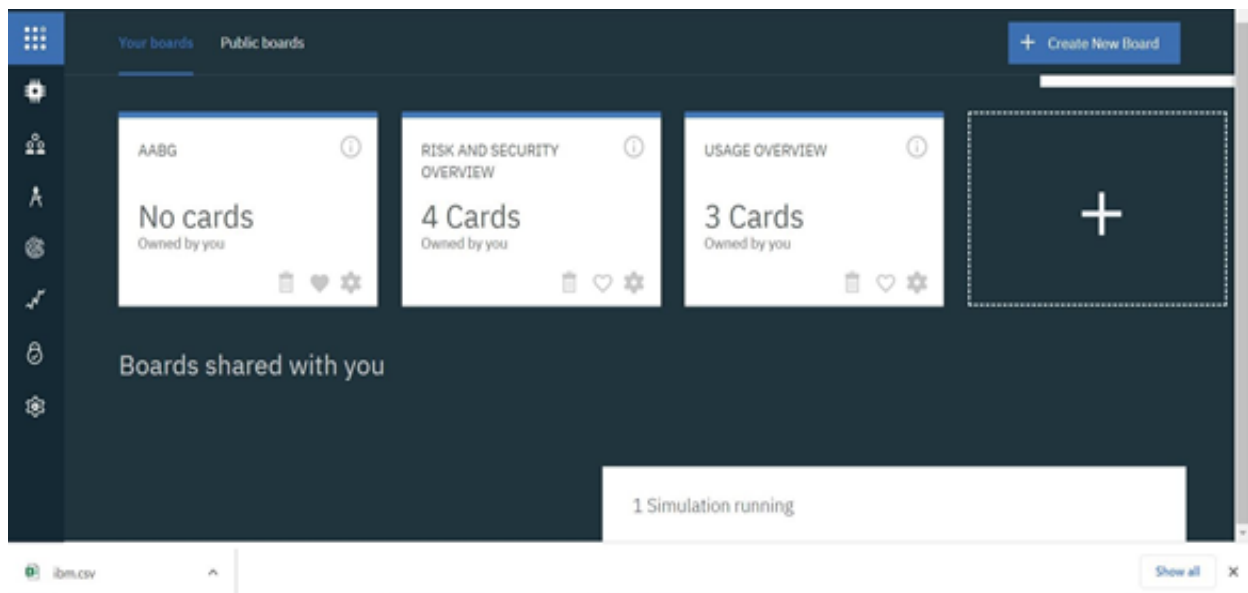
In Watson platform we have an option called board .Clicked on it and got the following window on the screen



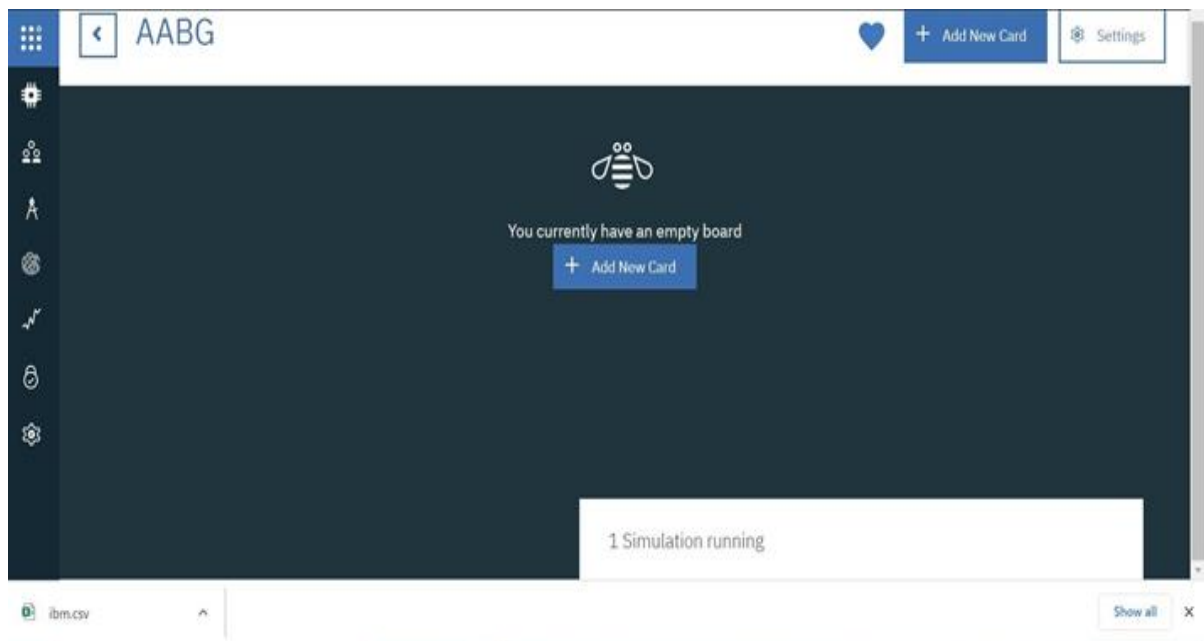
Clicked on Create a new board to create a board .



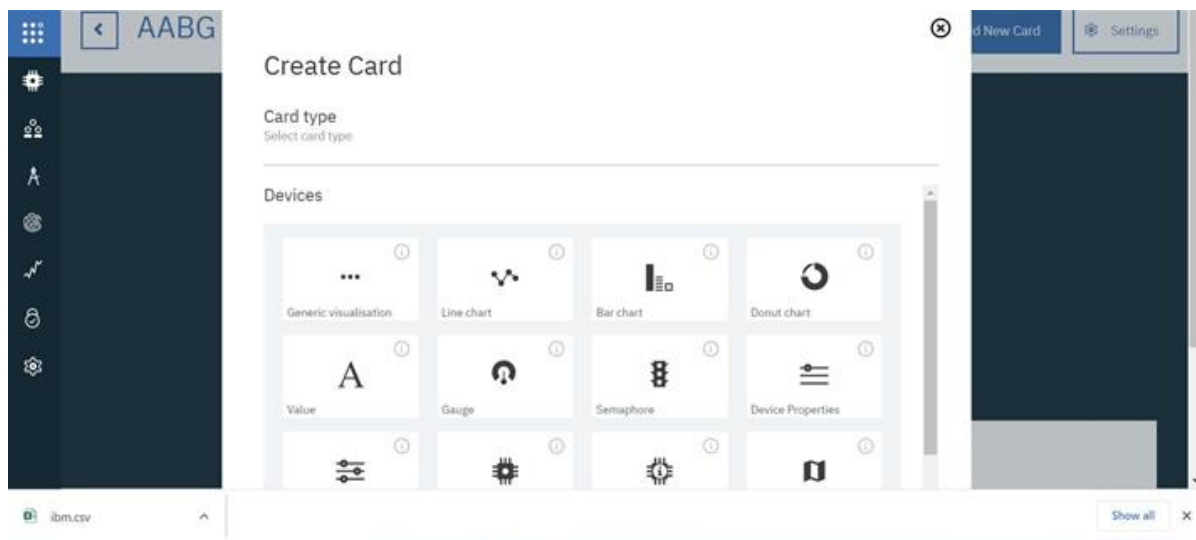
Then clicked on Next then again click on Sub



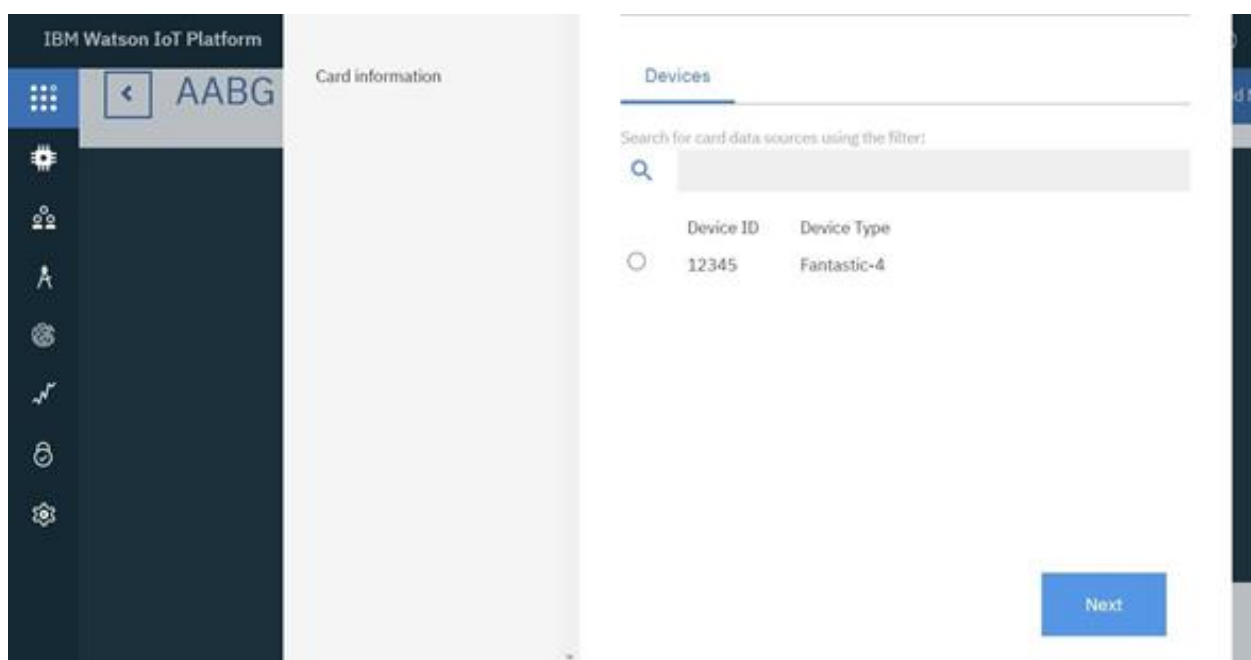
Clicked on Add New Card



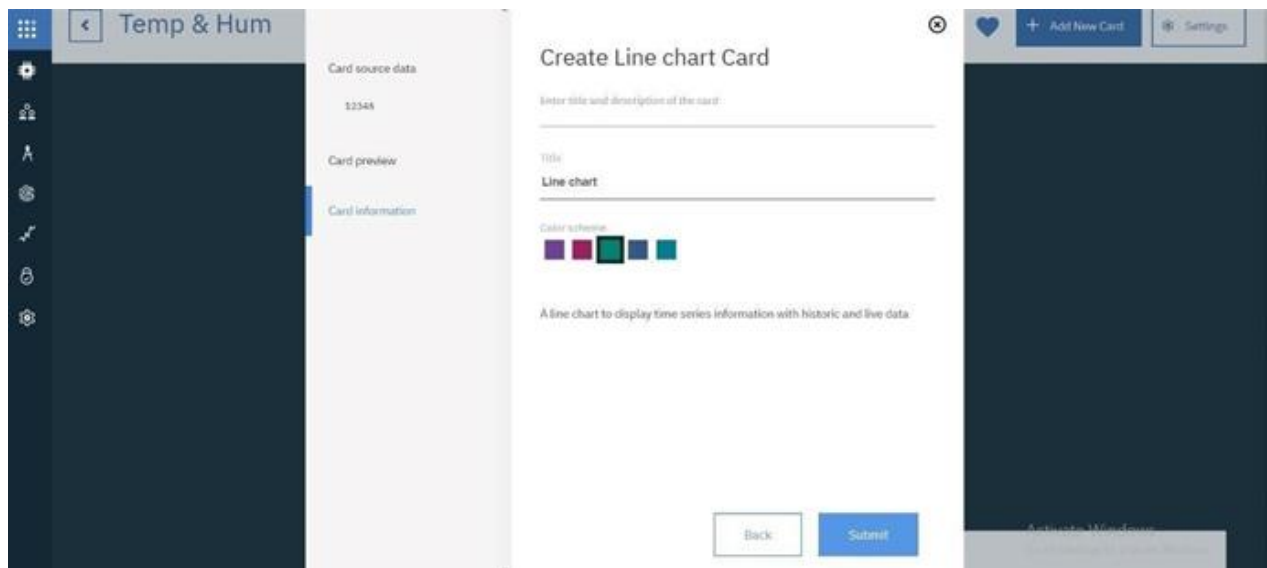
Select the type of Graph u want accordingly and click next



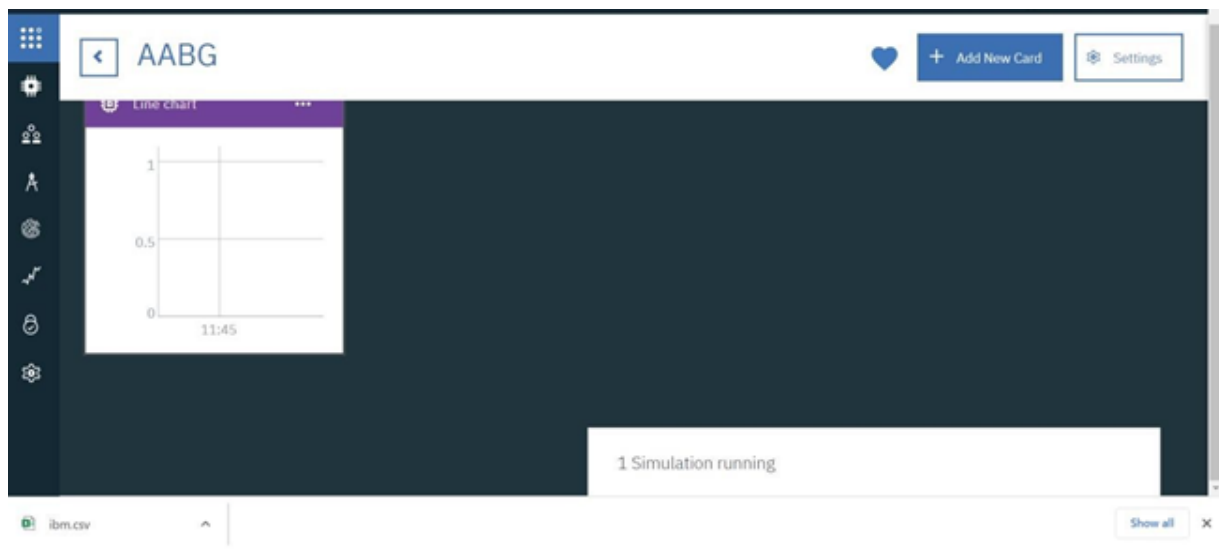
Choose the Device and click on Next.



Selected the event and clicked next. In this case it is humidity. Then selected the size of the graph and color of the graph board and clicked next.



Here is the graph



Repeat the process to get different graphs.

## RESULT:

Hence, we were able to send data from our pi to IBM Watson and visualize it on a graph.

