SENDING DATA FROM RASPBERRY-PI TO IBM WATSON

Date	7th November 2022
Team ID	PNT2022TMID27134
Project Name	Smart Waste Management Using IOT in Metropolitan cities

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

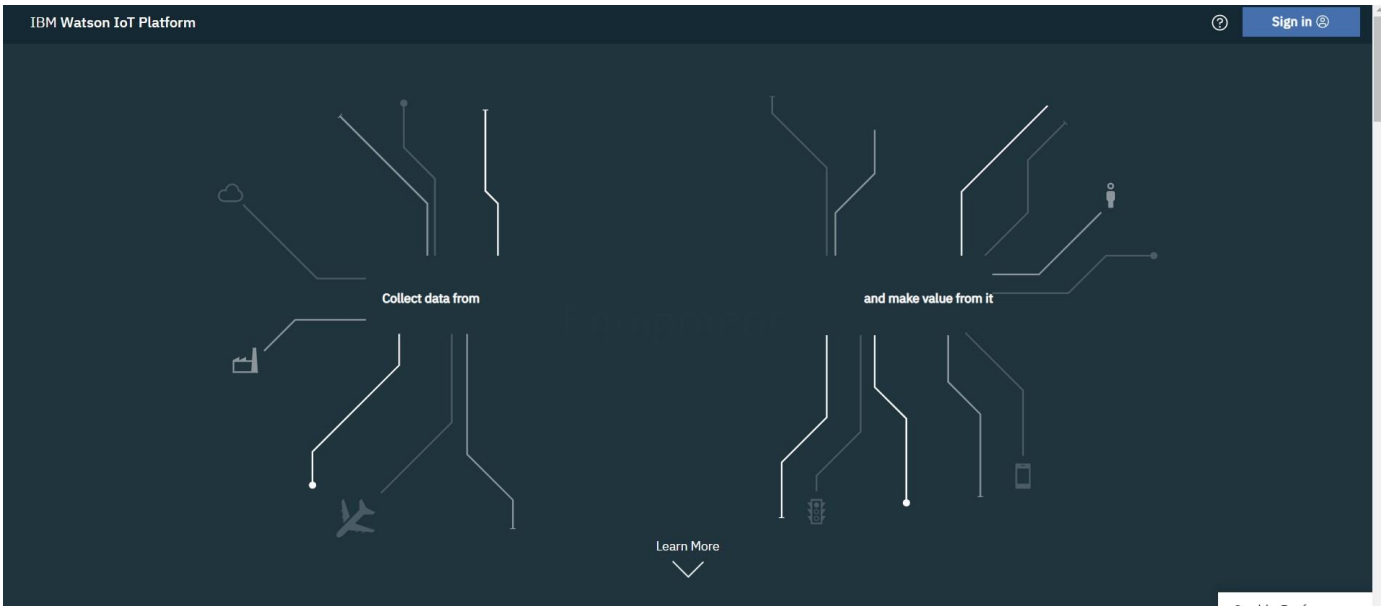
SOFTWARE:

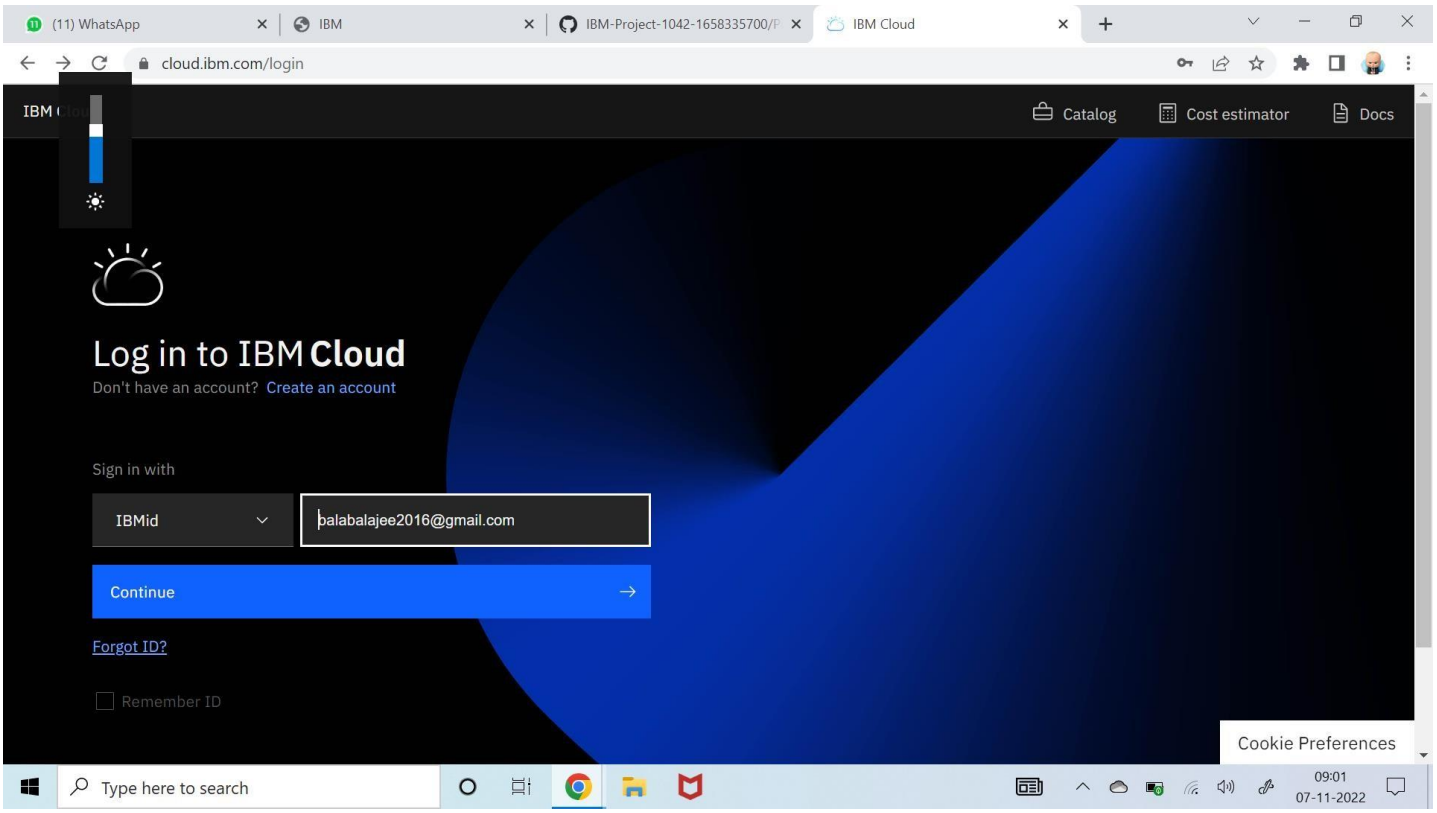
- IBM BLUEMIX ACCOUNT

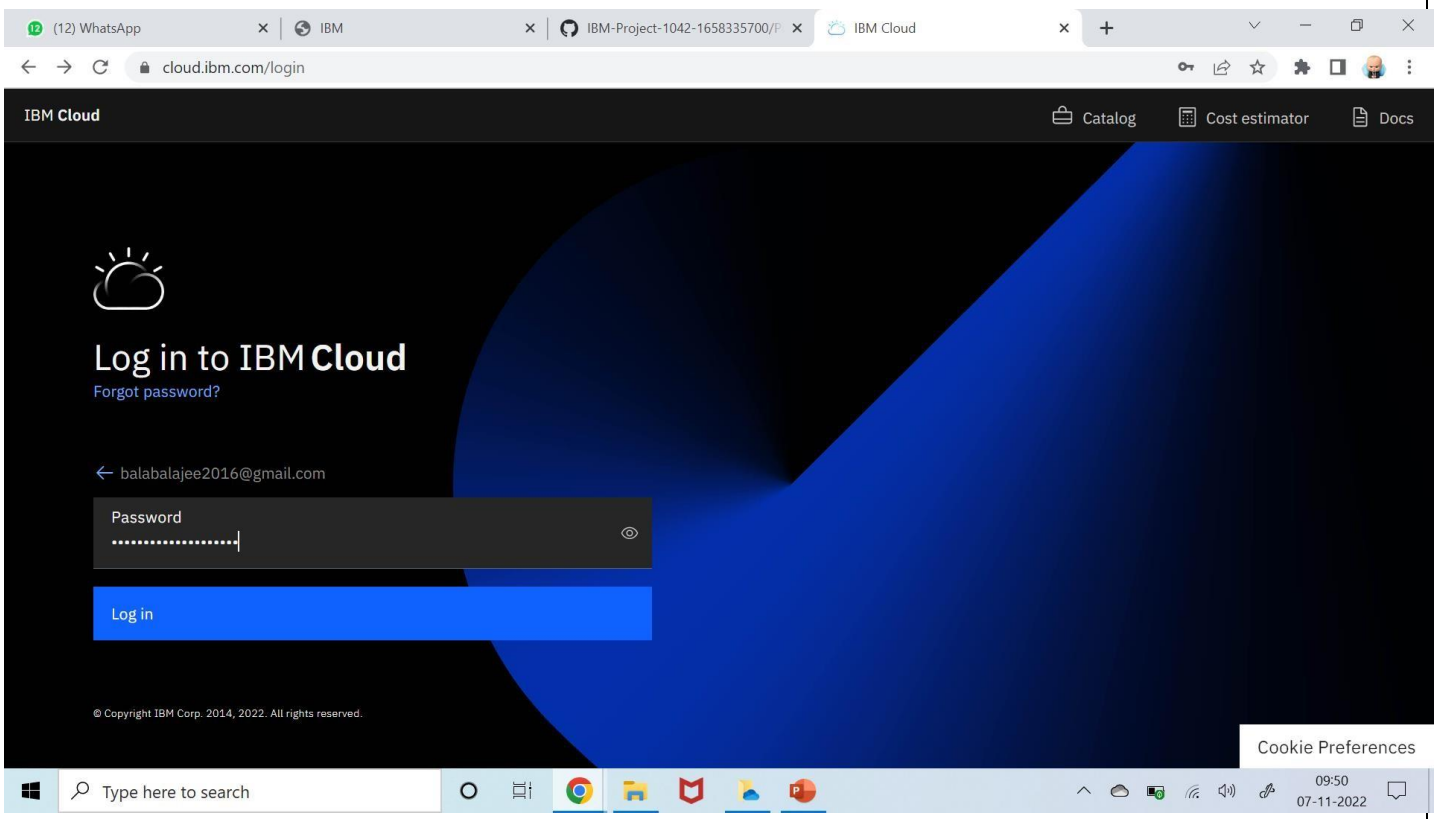
STEPS TO BE FOLLOWED

Step-1: Create a device in IBM Watson:

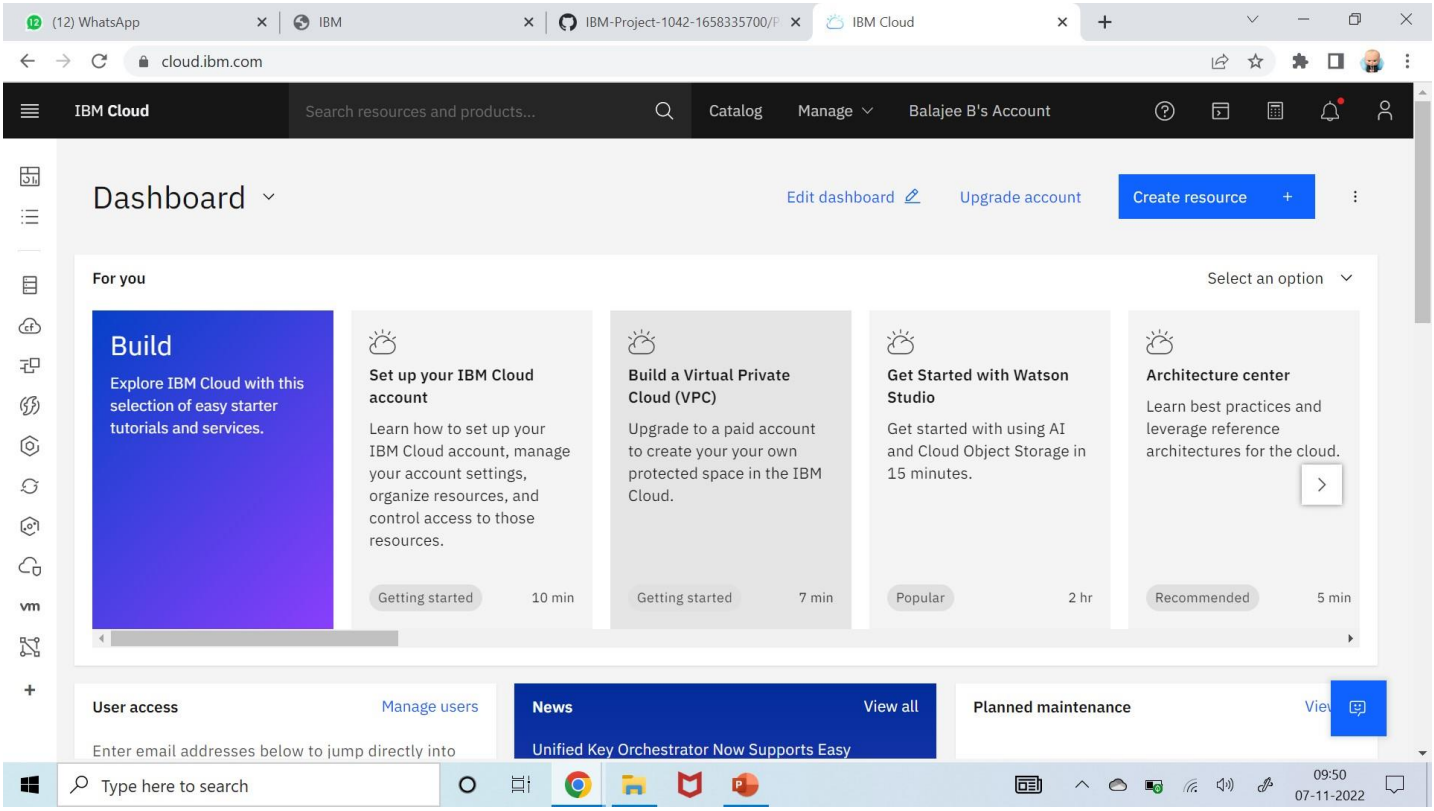
- Firstly, login into your IBM-Bluemix account with your e-mail ID and Password.


IBM Watson IoT Platform
Sign in
Collect data from
and make value from it
Learn More

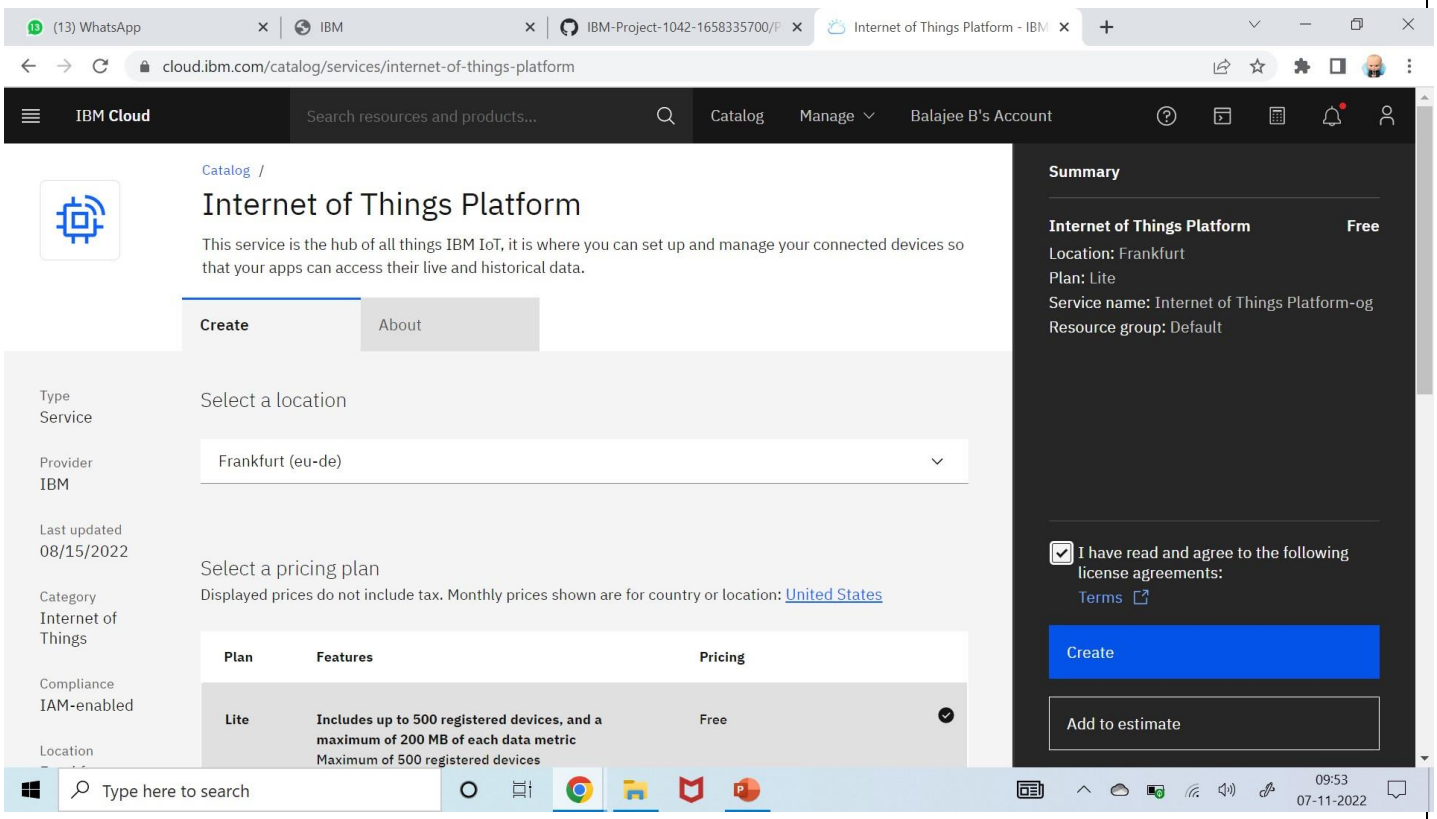

(11) WhatsApp
IBM
IBM-Project-1042-1658335700/P
IBM Cloud
cloud.ibm.com/login
Catalog
Cost estimator
Docs
Log in to IBM Cloud
Don't have an account? Create an account
Sign in with
IBMid
balabalajee2016@gmail.com
Continue
Forgot ID?
Remember ID
Cookie Preferences
Type here to search
09:01
07-11-2022

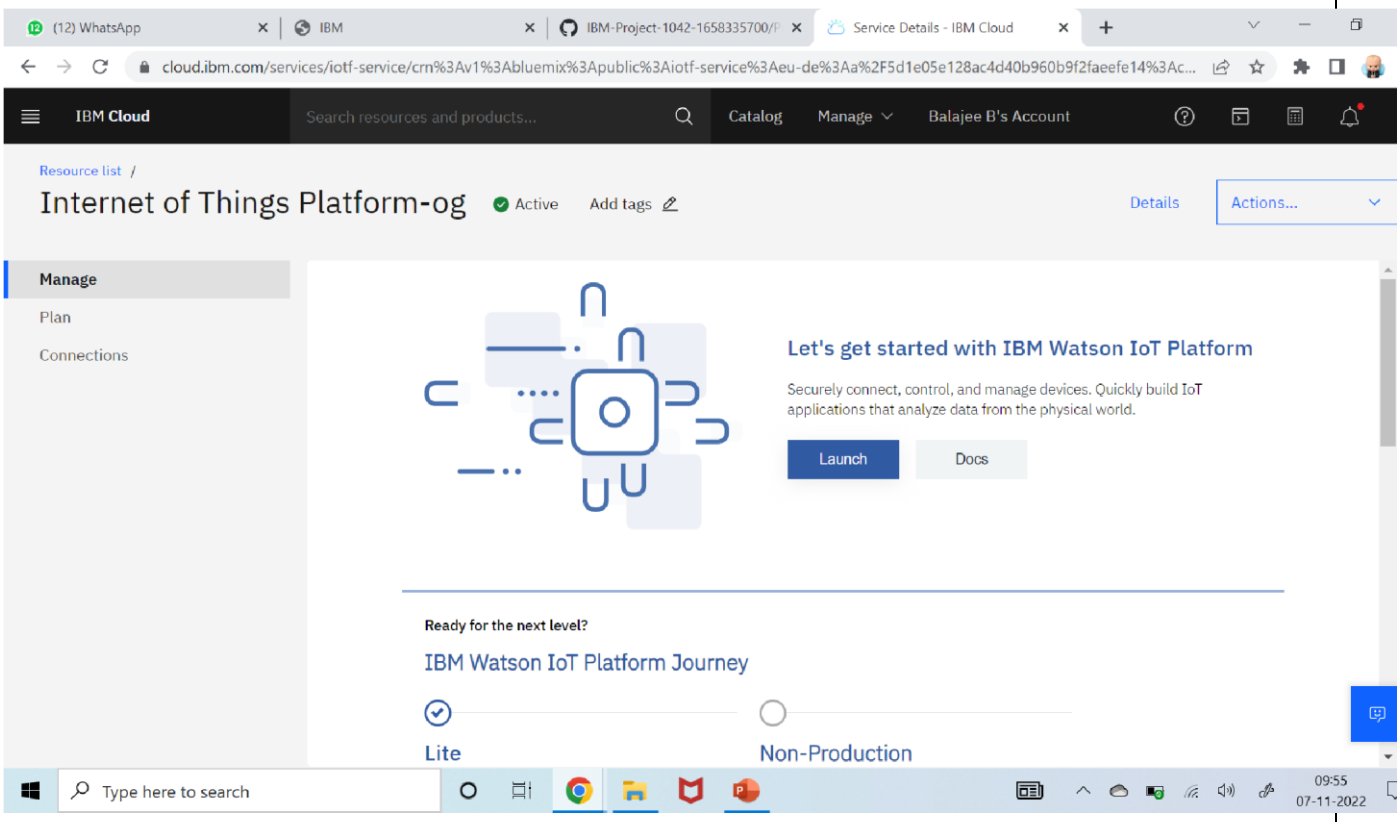


- Click on catalog on your dashboard screen, then under platform go IoT.


(12) WhatsApp
IBM
IBM-Project-1042-1658335700/P
IBM Cloud
cloud.ibm.com
IBM Cloud
Search resources and products...
Catalog
Manage
Balajee B's Account
Dashboard
Edit dashboard
Upgrade account
Create resource
For you
Select an option
Build
Explore IBM Cloud with this selection of easy starter tutorials and services.
Set up your IBM Cloud account
Learn how to set up your IBM Cloud account, manage your account settings, organize resources, and control access to those resources.
Getting started
10 min
Build a Virtual Private Cloud (VPC)
Upgrade to a paid account to create your your own protected space in the IBM Cloud.
Getting started
7 min
Get Started with Watson Studio
Get started with using AI and Cloud Object Storage in 15 minutes.
Popular
2 hr
Architecture center
Learn best practices and leverage reference architectures for the cloud.
Recommended
5 min
User access
Manage users
Enter email addresses below to jump directly into
News
View all
Unified Key Orchestrator Now Supports Easy
Planned maintenance
Type here to search
09:50
07-11-2022

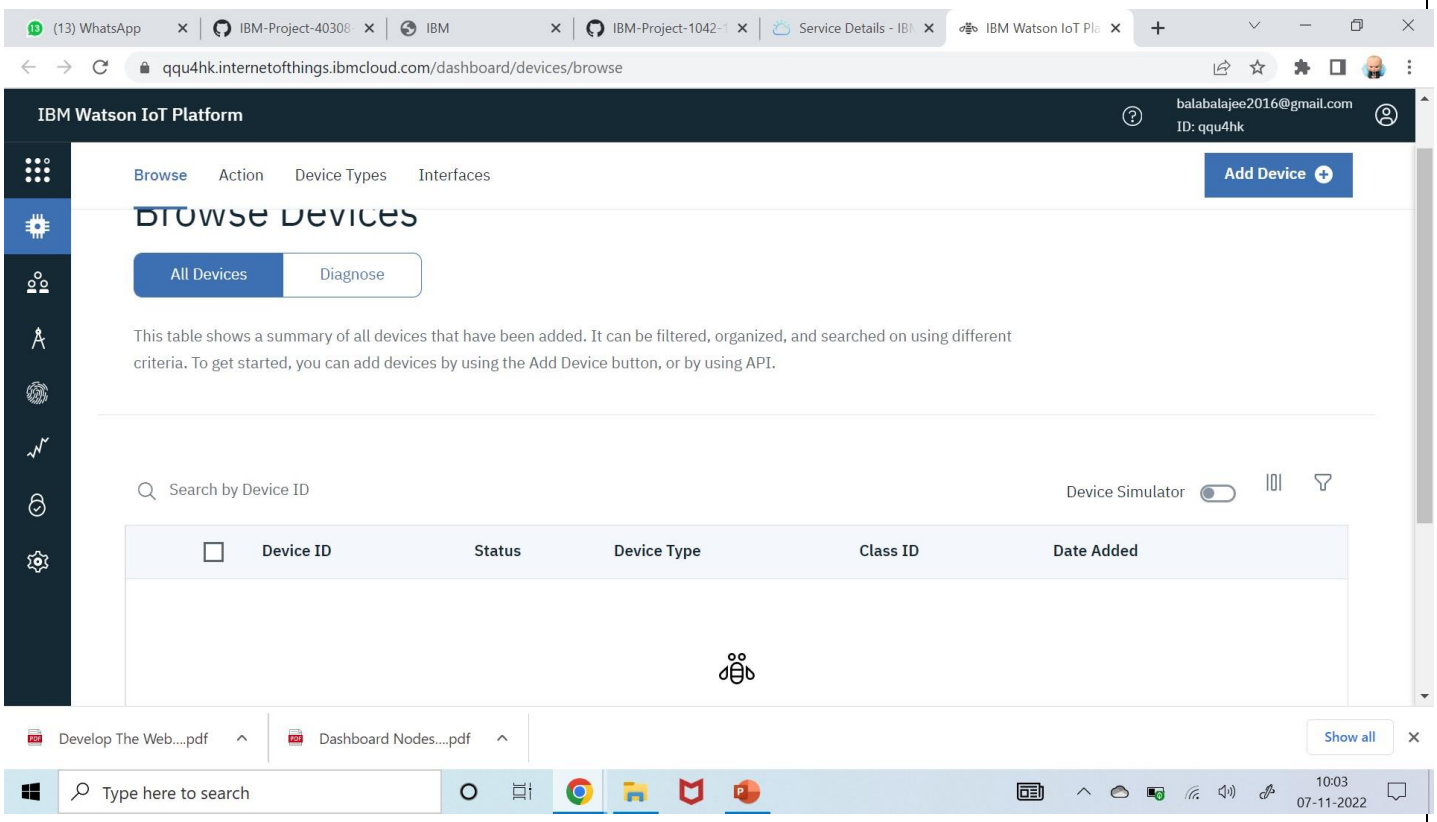
- Check all details and click on create.





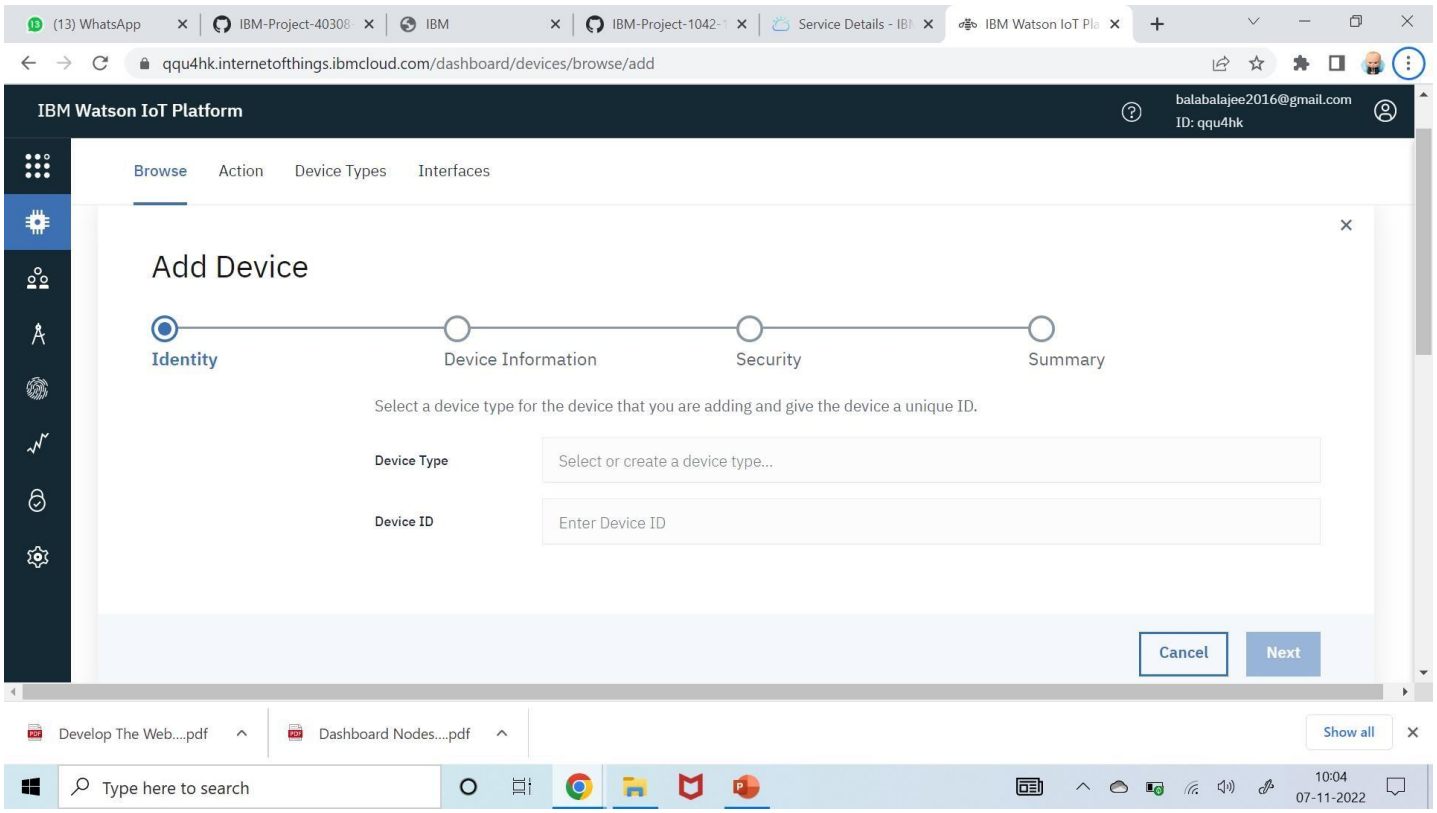
- click on Launch
  Dashboard of IBM Watson IoT platform,

- Click on Add device

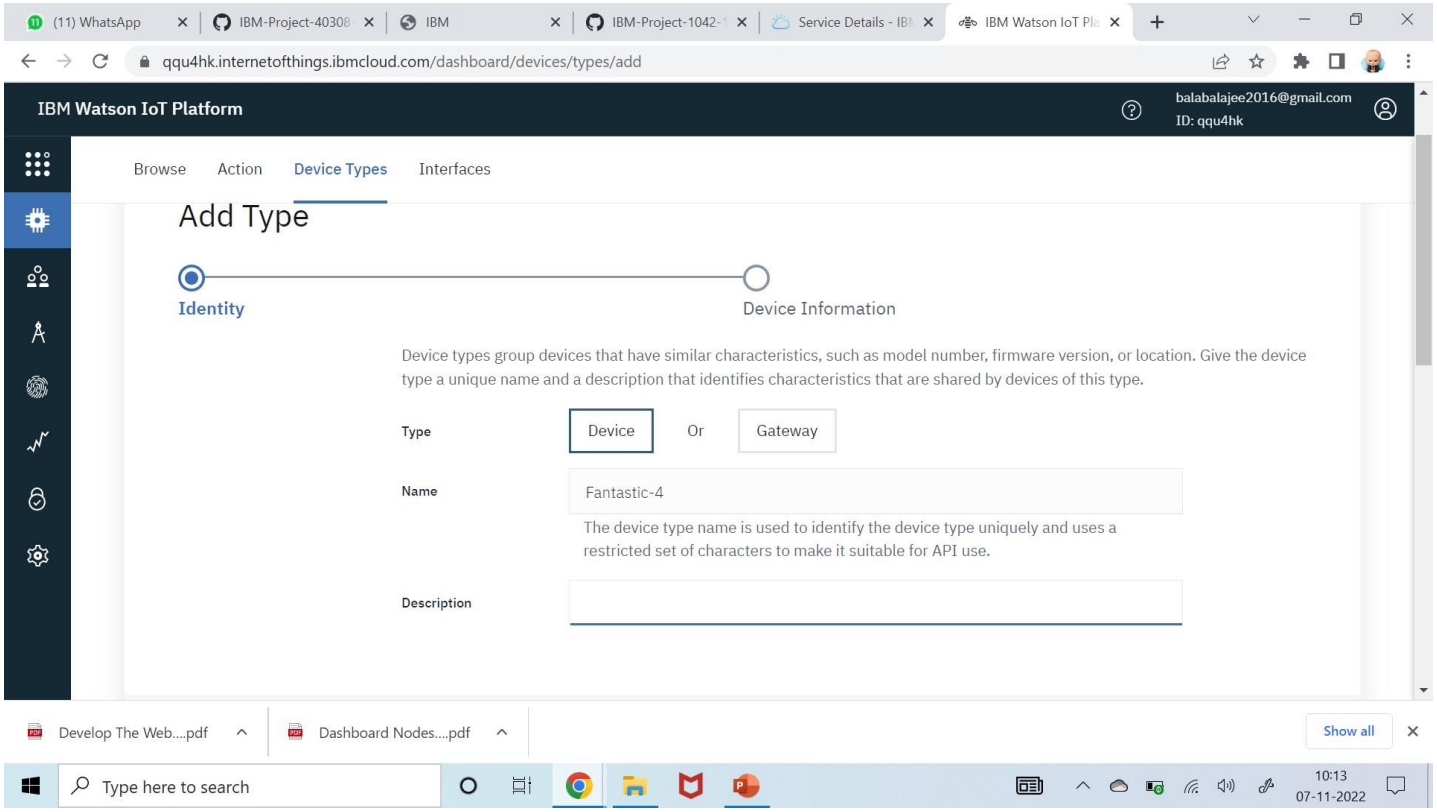


- After click on Add device this page will open

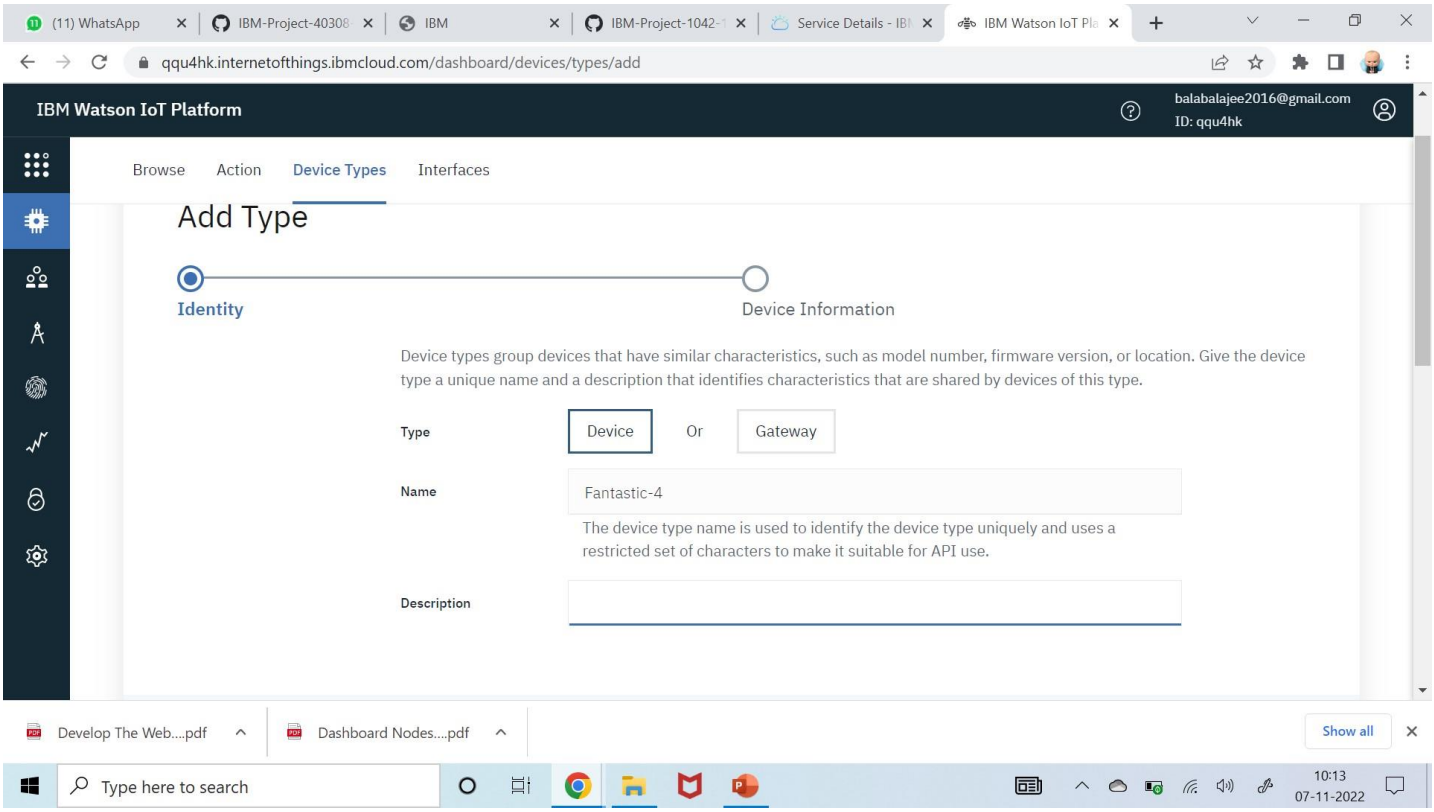
-



Go to device type and fill the details.

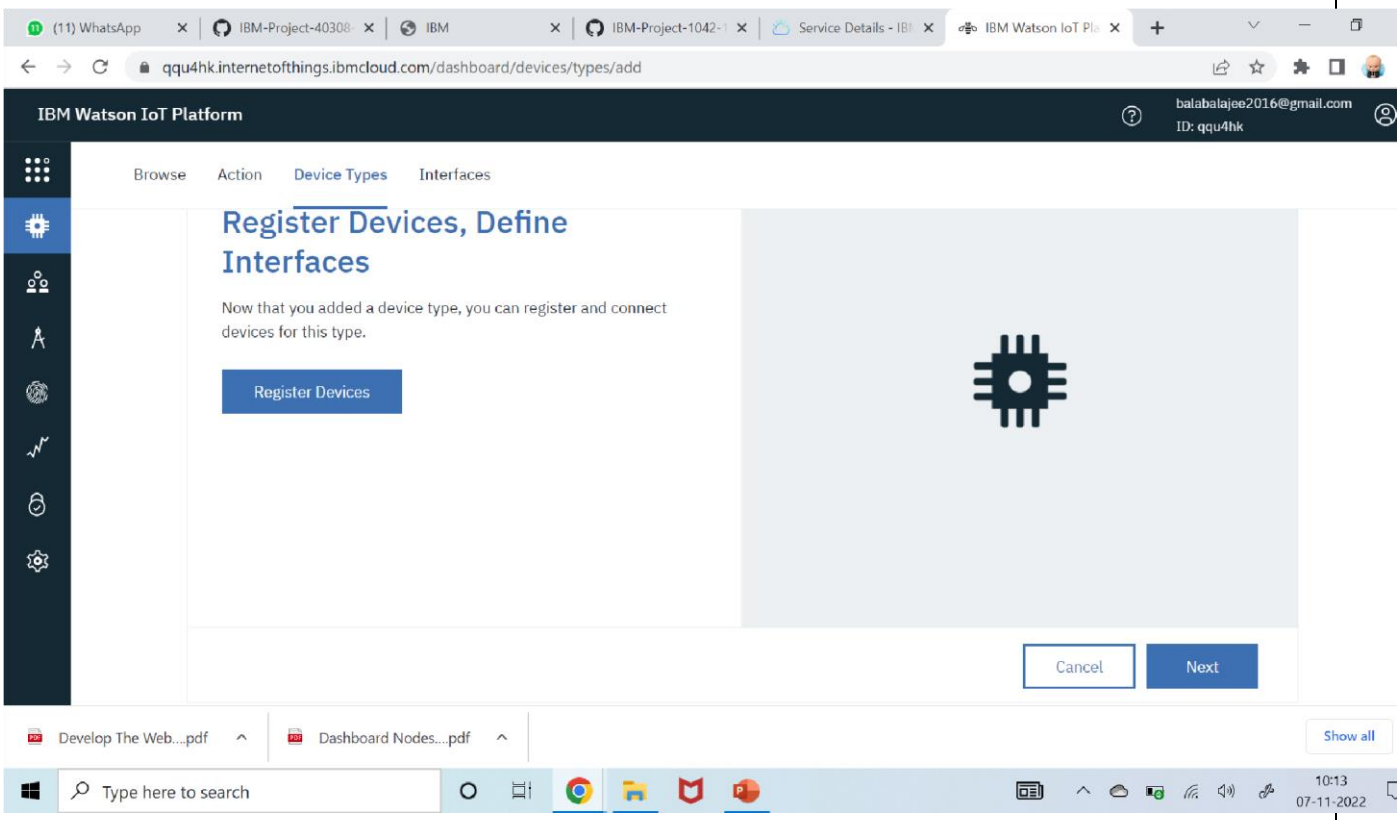


- Click on Finish


(11) WhatsApp
IBM-Project-40308
IBM
IBM-Project-1042-1
Service Details - IBI
IBM Watson IoT Pla
qqu4hk.internetofthings.ibmcloud.com/dashboard/devices/types/add
IBM Watson IoT Platform
balabalajee2016@gmail.com
ID: qqu4hk
Browse
Action
Device Types
Interfaces
Add Type
Identity
Device Information
Device types group devices that have similar characteristics, such as model number, firmware version, or location. Give the device type a unique name and a description that identifies characteristics that are shared by devices of this type.
Type
Device
Or
Gateway
Name
Fantastic-4
The device type name is used to identify the device type uniquely and uses a restricted set of characters to make it suitable for API use.
Description

Develop The Web....pdf
Dashboard Nodes....pdf
Show all
Type here to search
10:13
07-11-2022

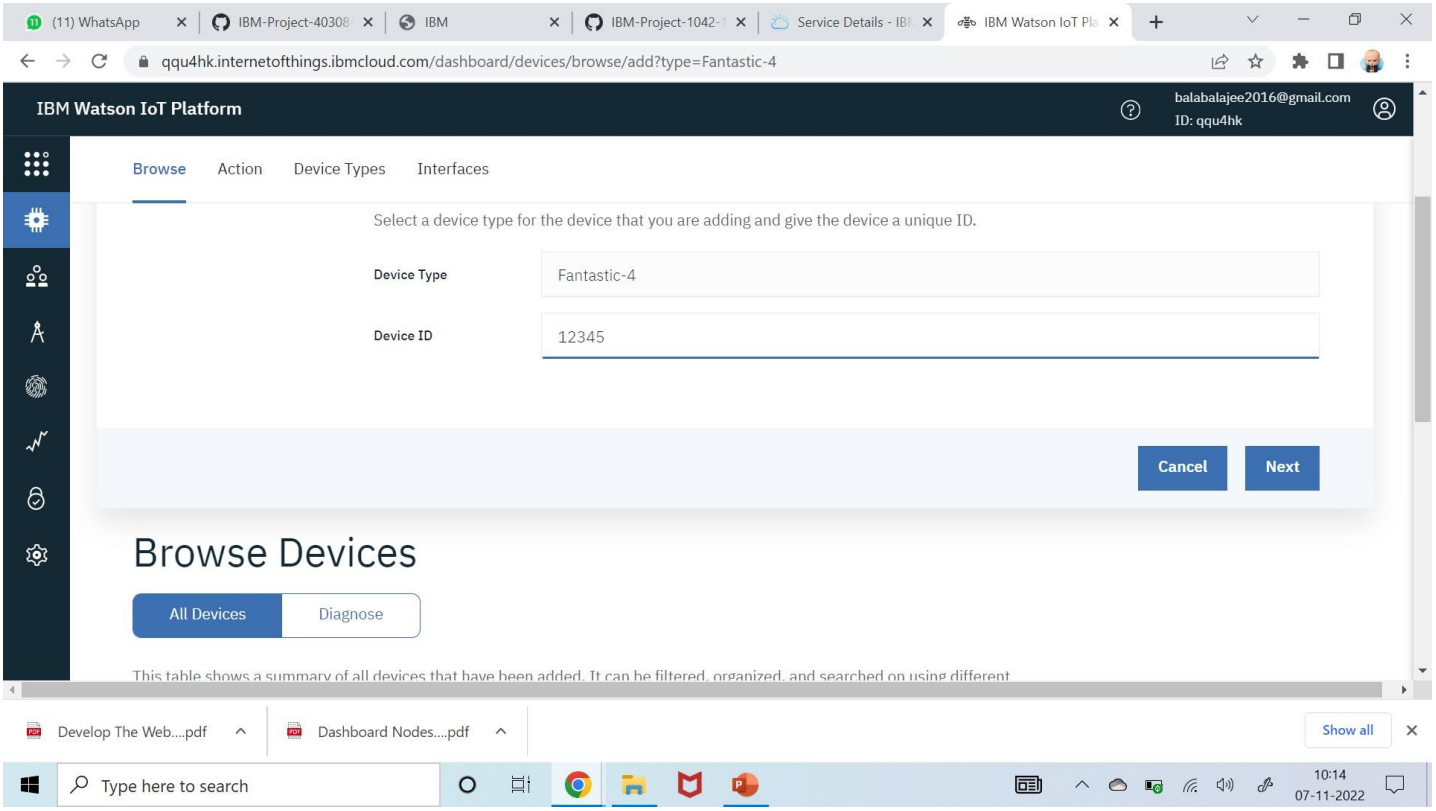
- Click on



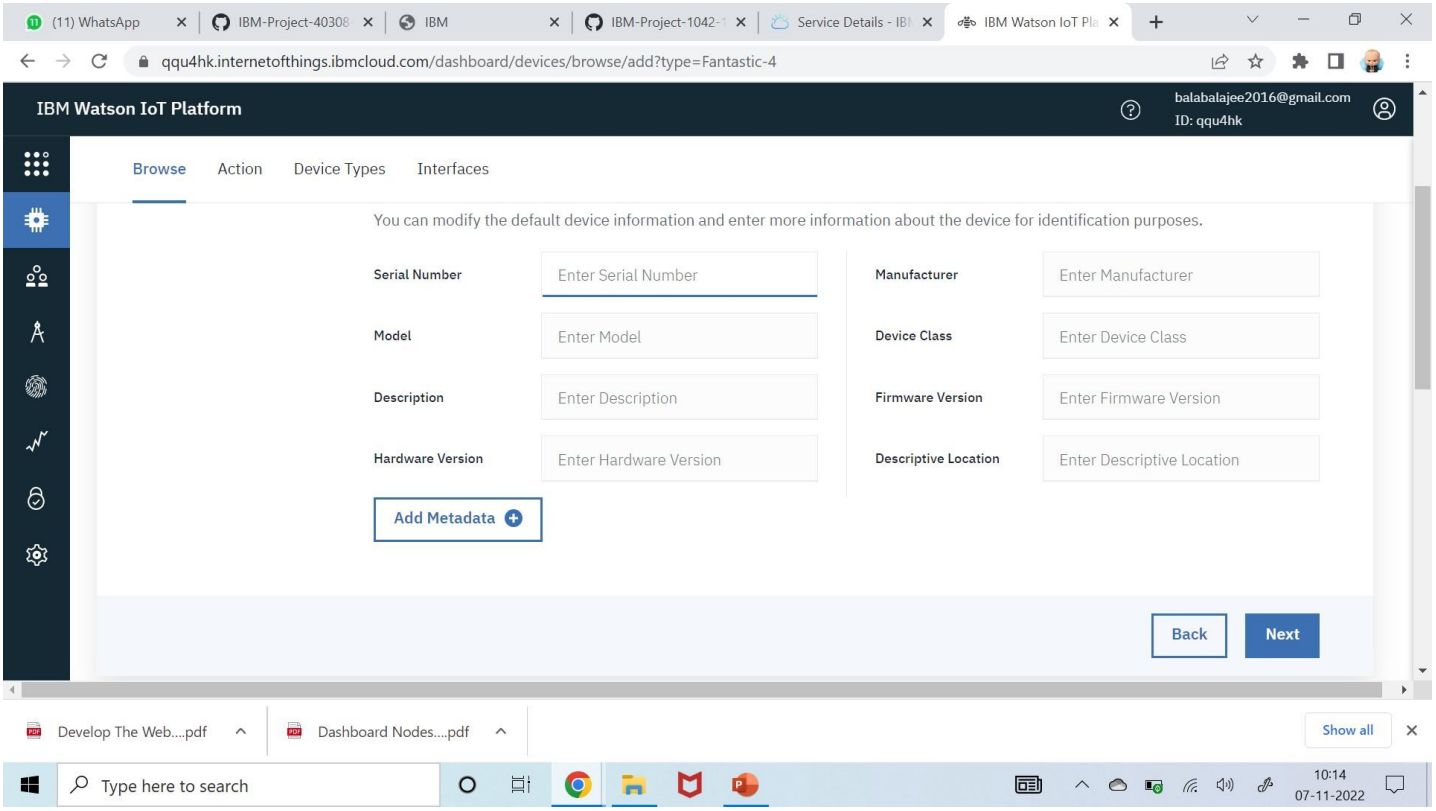
Register Device.

- Click on

- Choose the device and give device ID and then click on next.

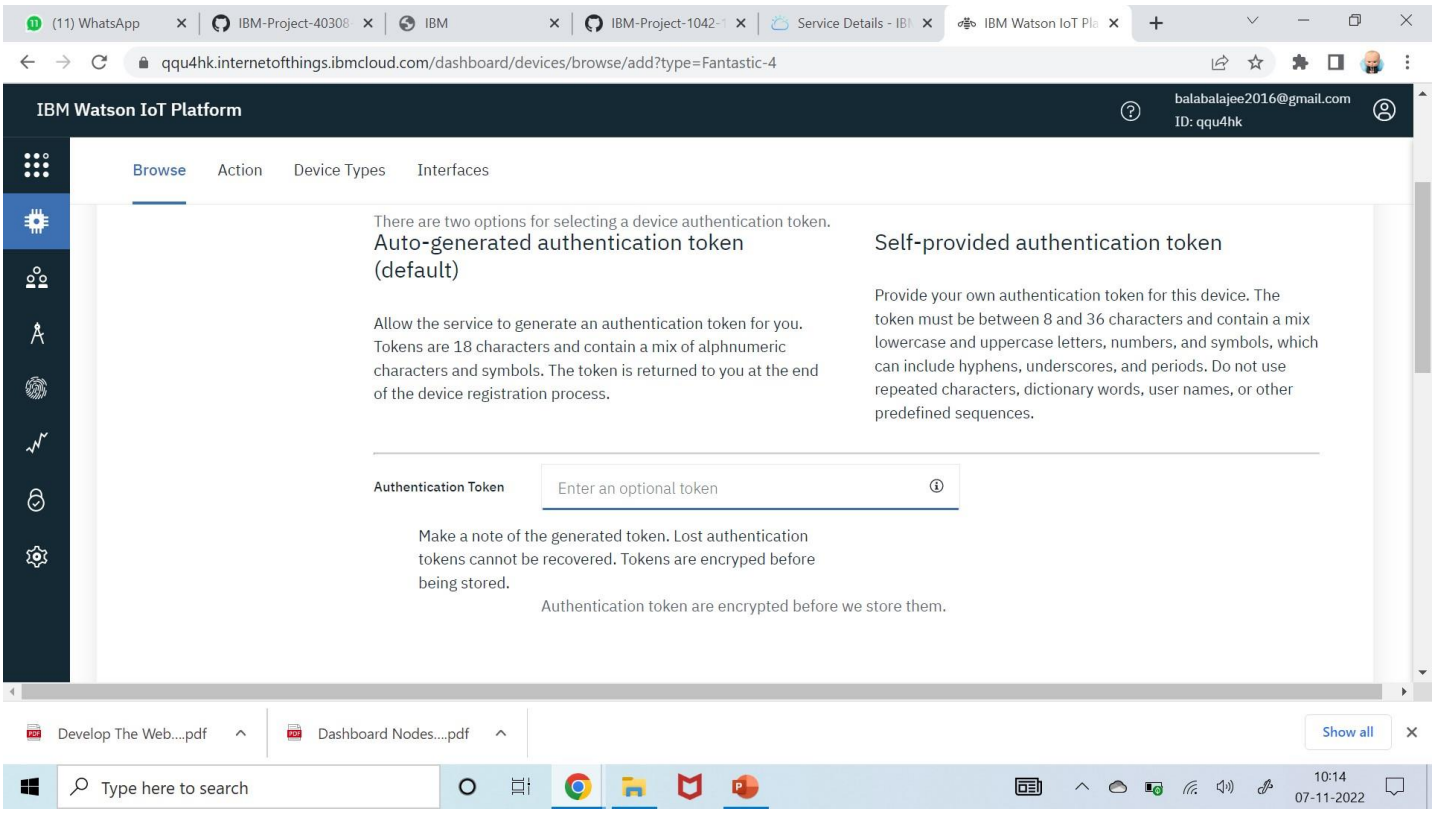


Next



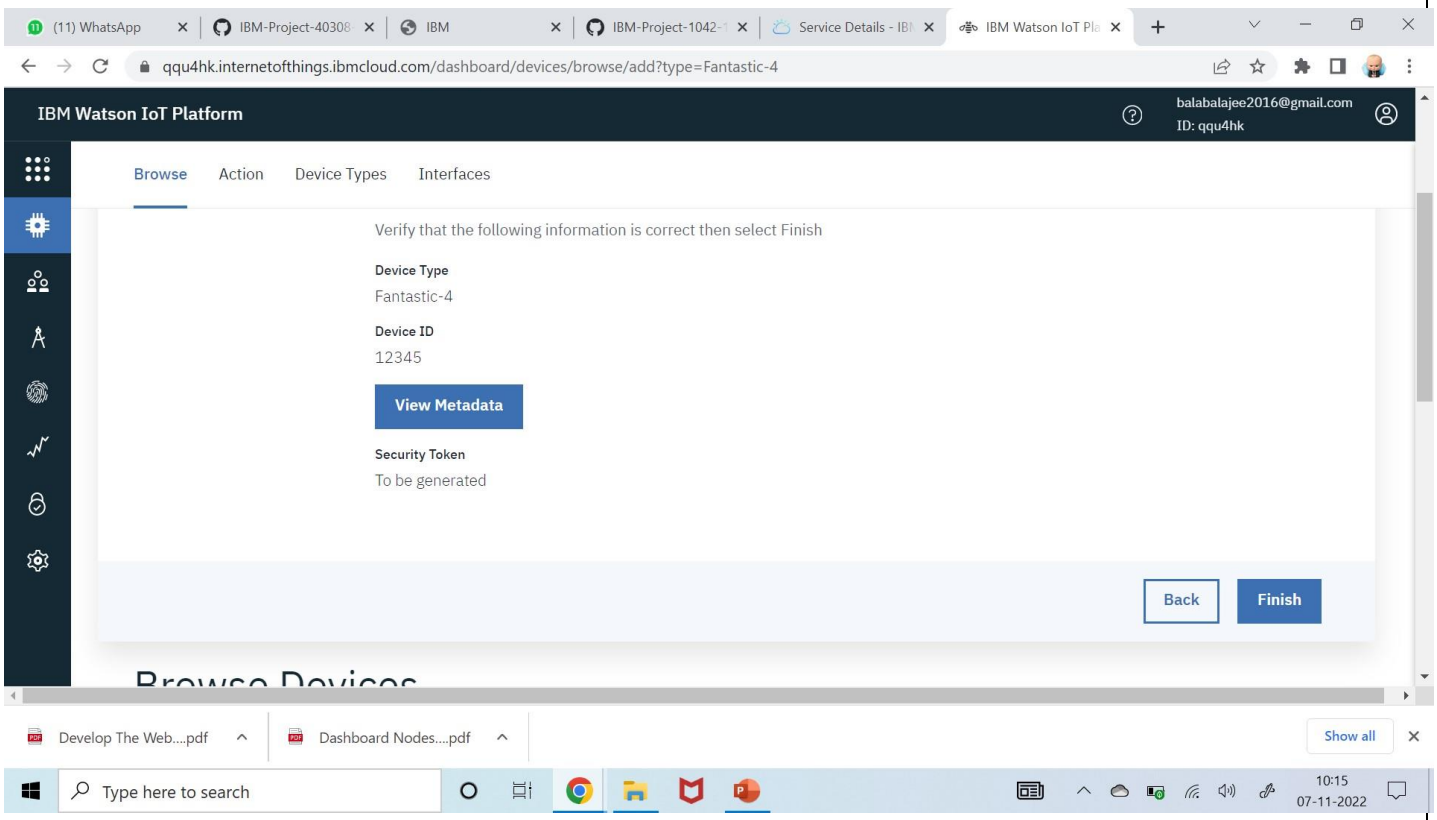
- Click on

- Click on Next

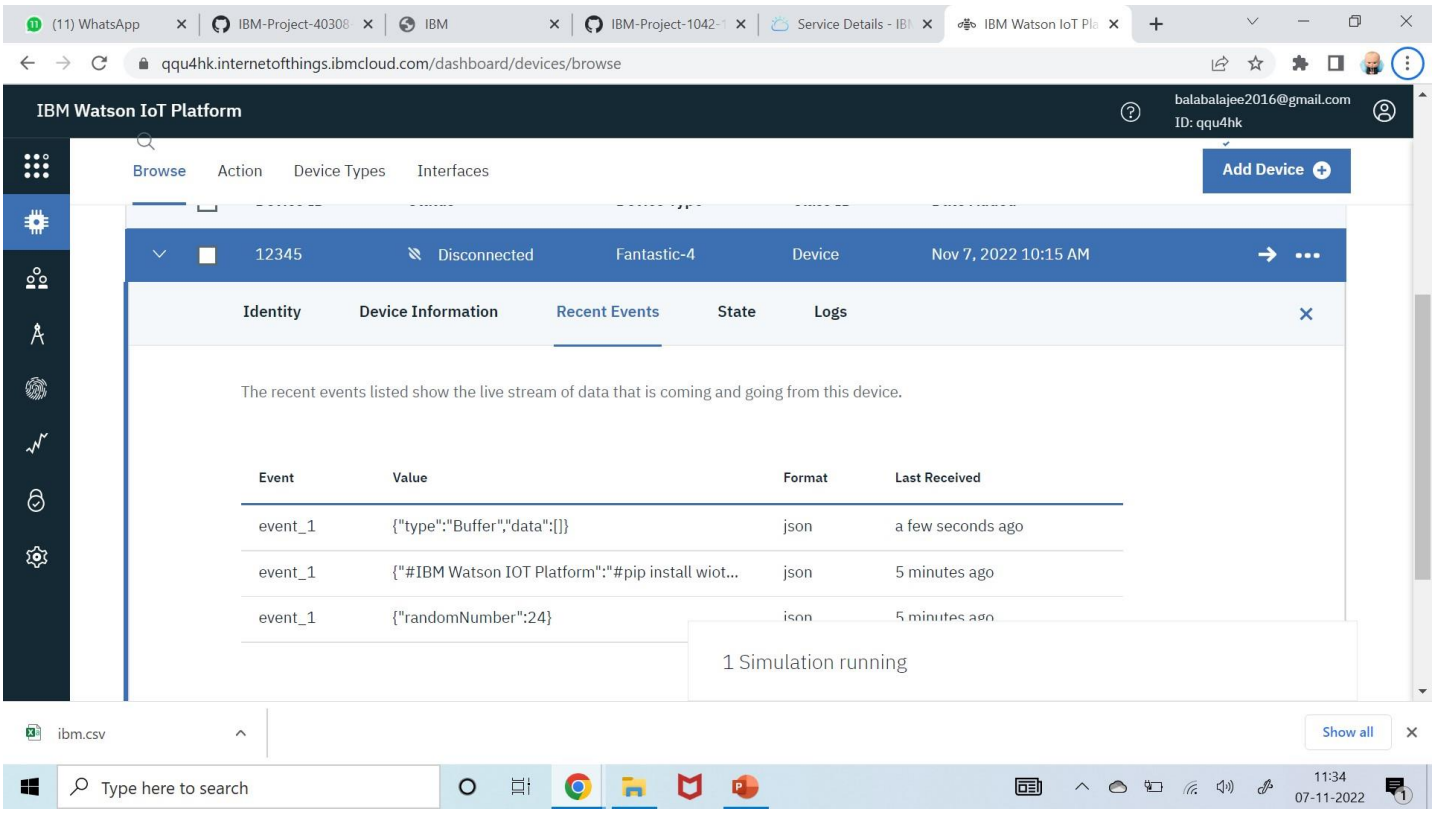


Finish

- Click on



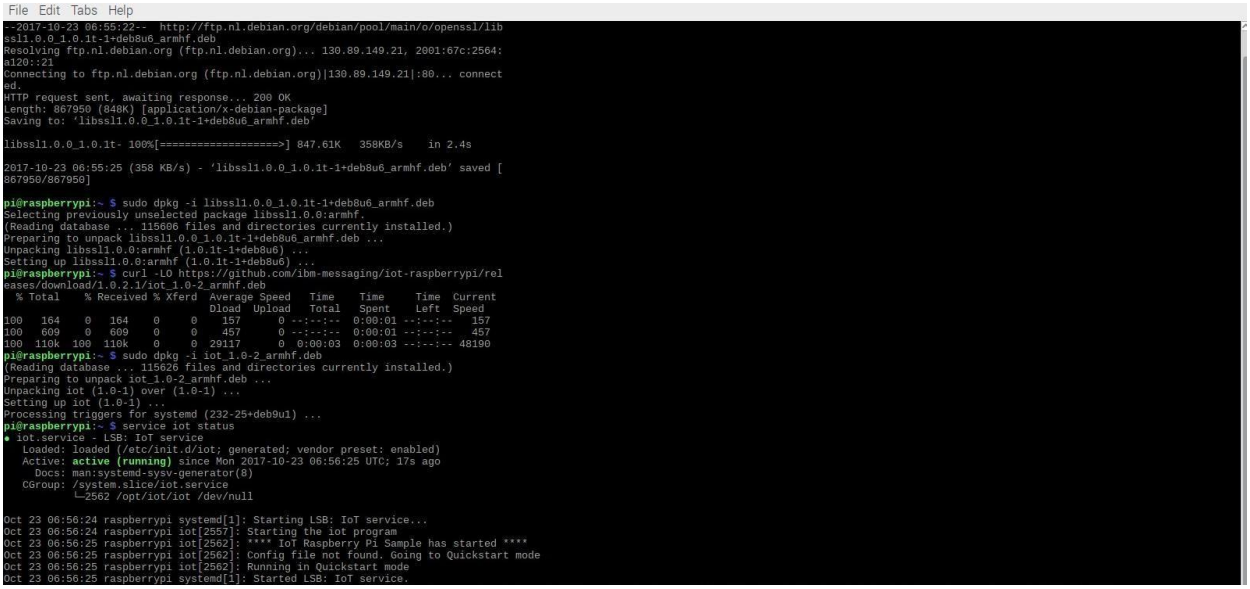
- Device is created



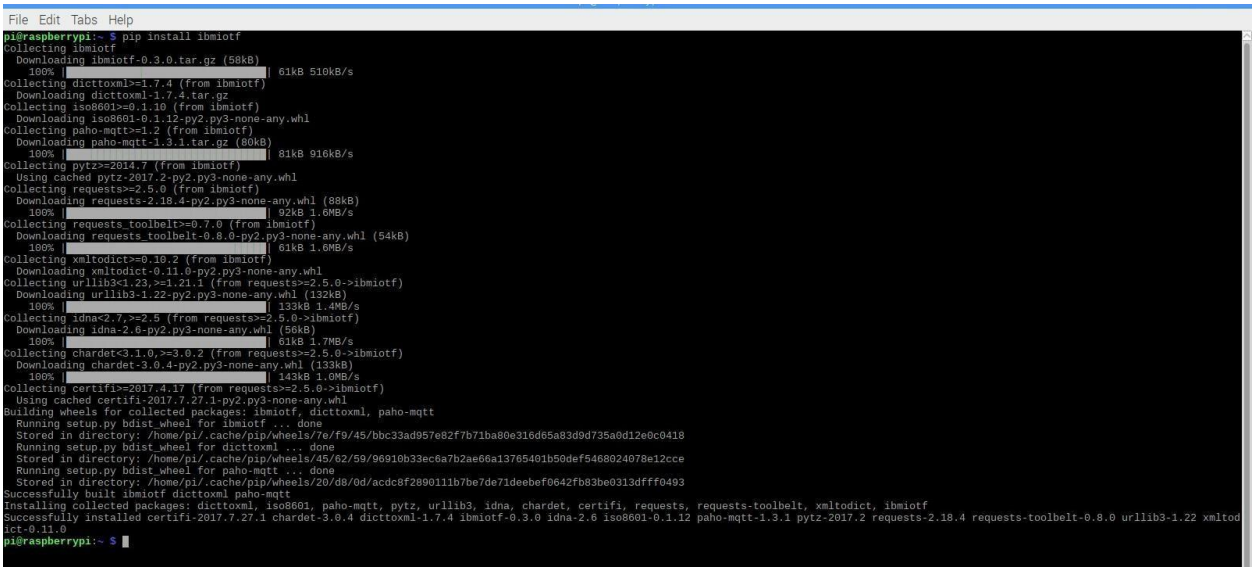
STEP-2: INSTALLING NECESSARY PACKAGES ON YOUR PI:

- 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/io t_1.0-2_armhf.deb
- sudo dpkg -i iot_1.0-2_armhf.deb
- service iot status

Following are the images as to what appears on your pi's terminal when u type these commands

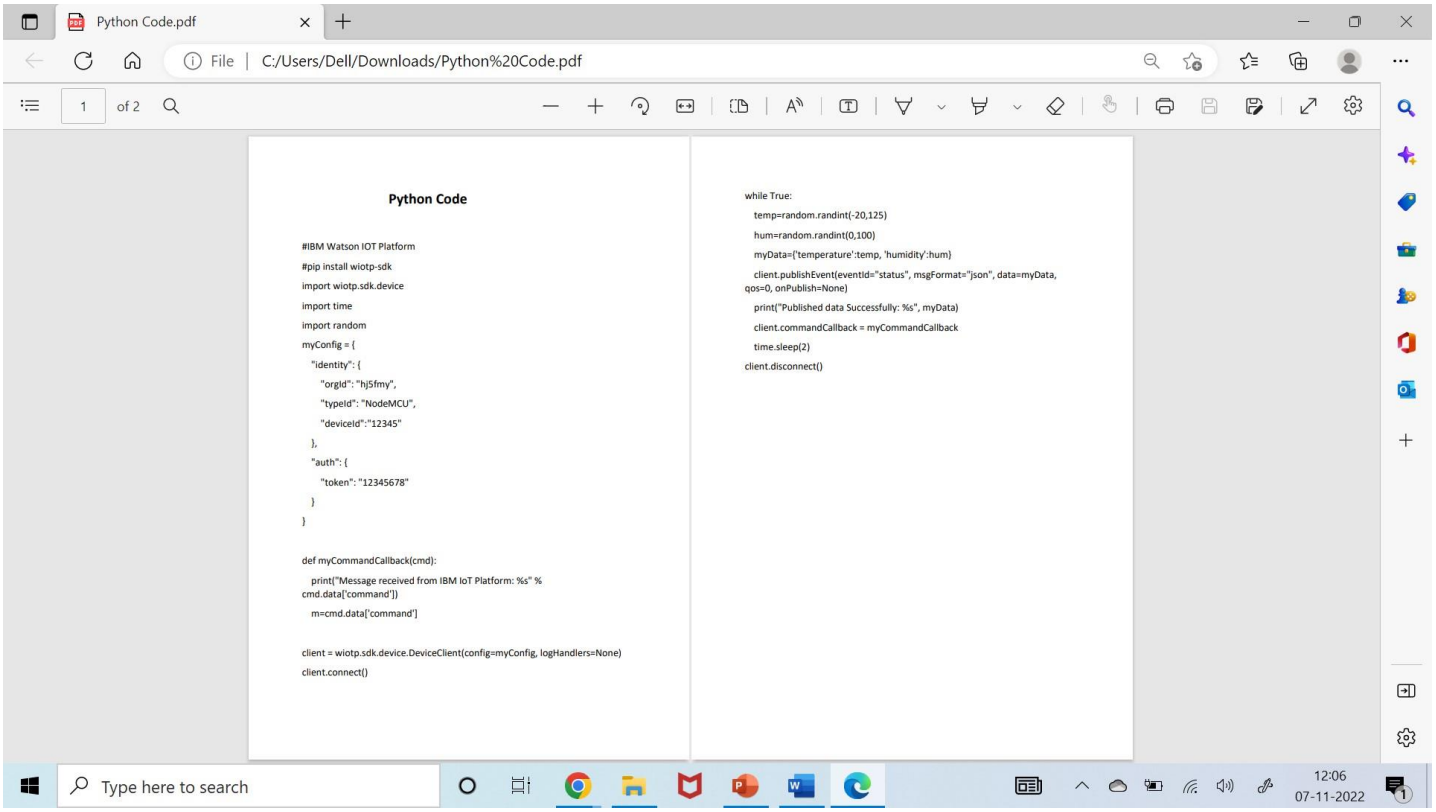


- Then open your terminal and type pip install ibmiotf



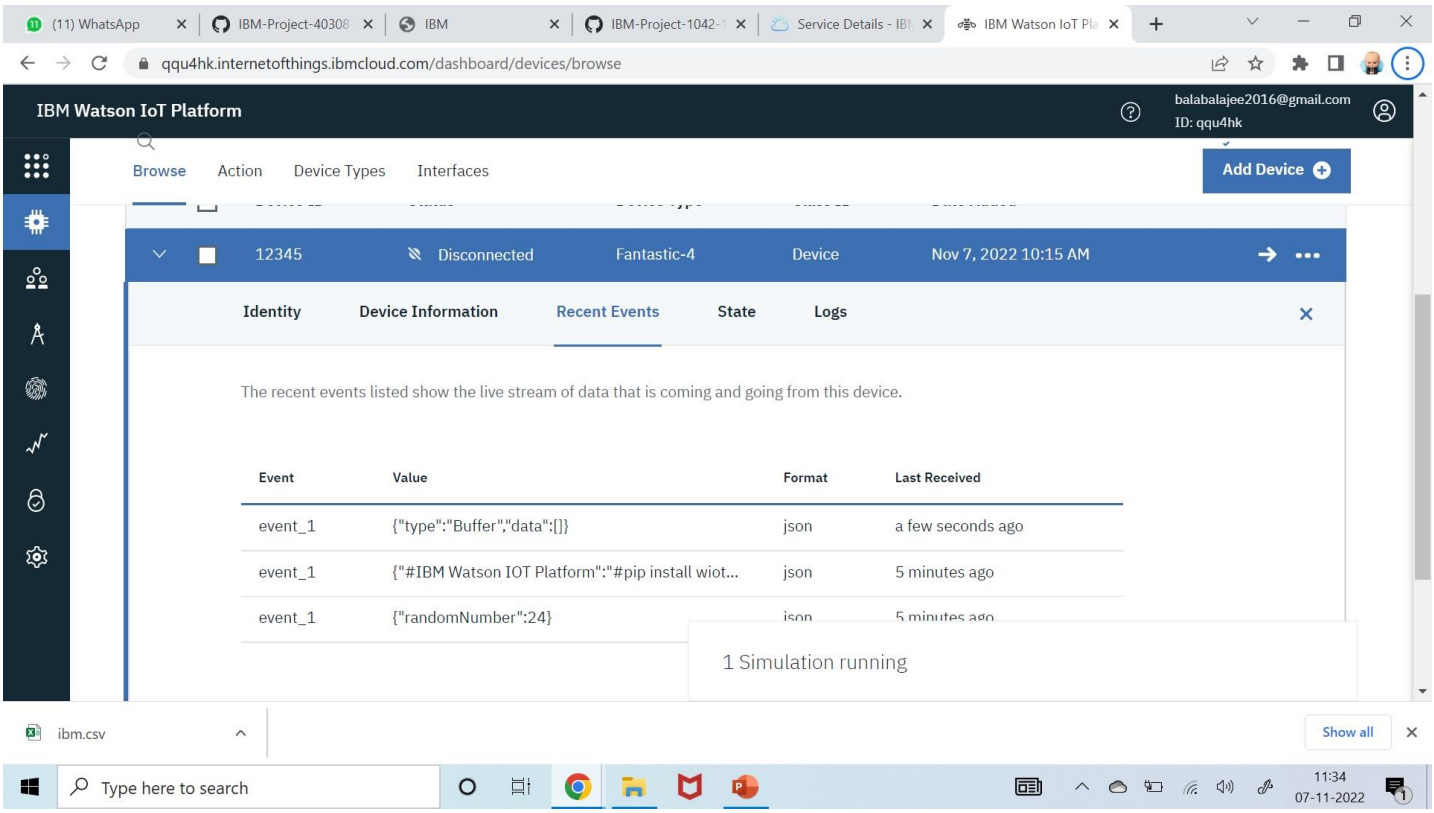
I have sent DHT-11 Sensors data to ibm bluemix .To get the code u need to login into IOT GYAN.

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



Step-3: checking your data sent on IBM Bluemix:

- After you have sent your sensors data you can check whether it is received at your iot platform Just look at the image below and if u see the same wifi kind of symbol on your created device then your dta is being received.

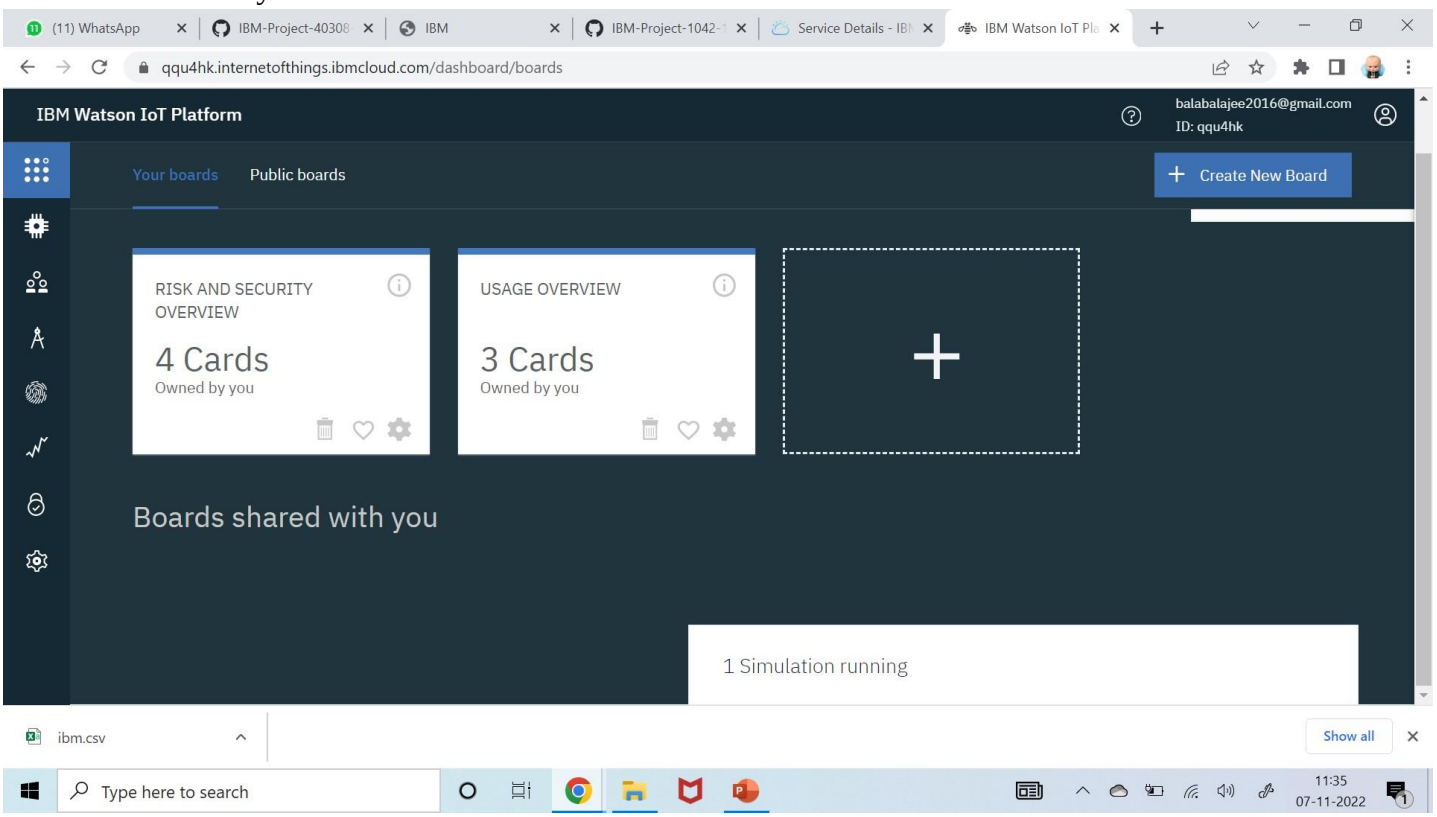

IBM Watson IoT Platform
balabalajee2016@gmail.com
ID: qqu4hk
Browse
Action
Device Types
Interfaces
Add Device
12345
Disconnected
Fantastic-4
Device
Nov 7, 2022 10:15 AM
Identity
Device Information
Recent Events
State
Logs
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
event_1
{"type":"Buffer","data":[]}
json
a few seconds ago
event_1
{"#IBM Watson IOT Platform":"#pip install wiot...
json
5 minutes ago
event_1
{"randomNumber":24}
json
5 minutes ago
1 Simulation running

ibm.csv
Show all
Type here to search
11:34
07-11-2022

After double clicking on your created device you can see the received data as shown in image

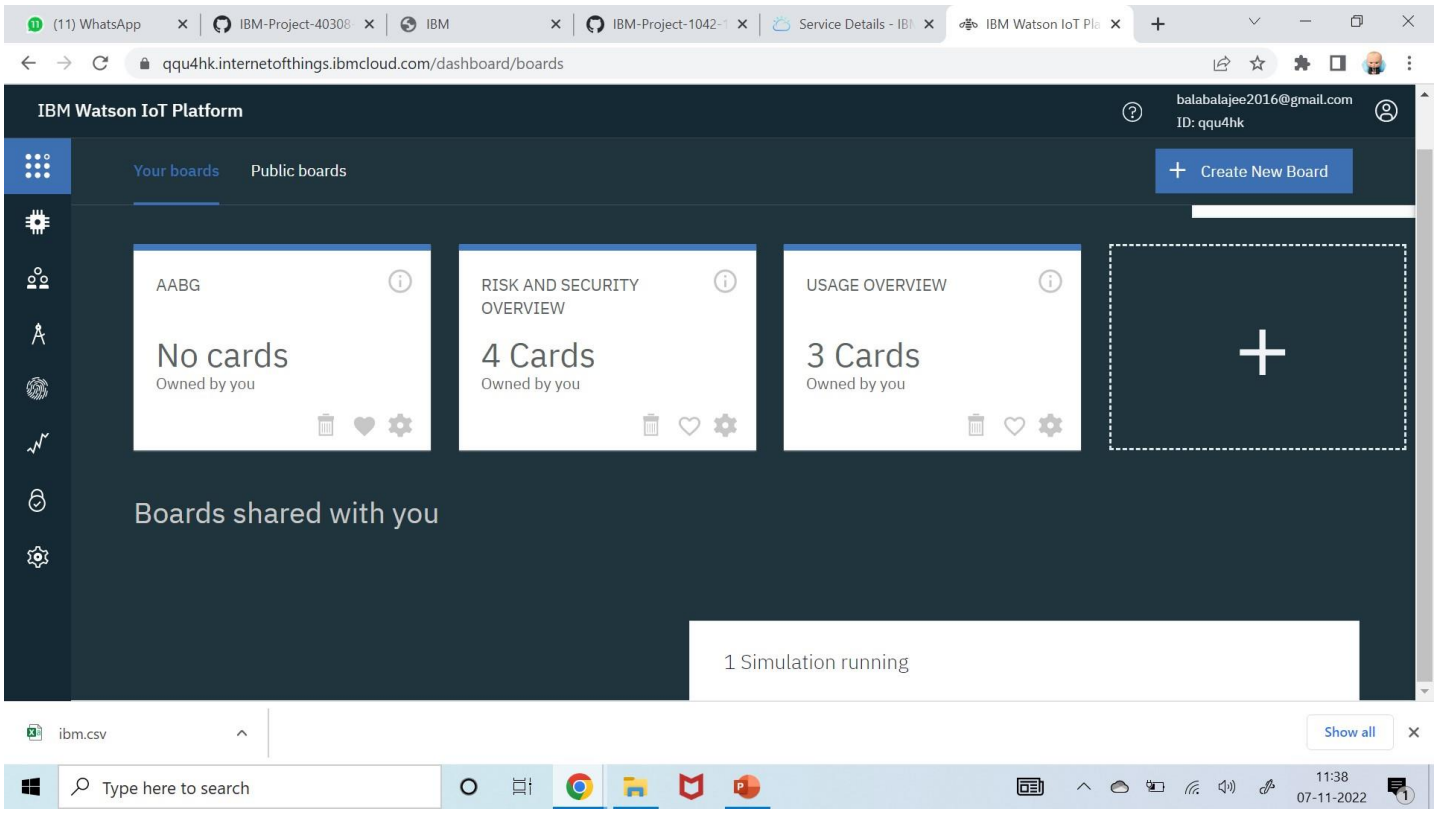
Step-4: Creating boards and cards for visualization of data:

- In your Watson platform you have an option called board .Click on it and you get the following window on your screen

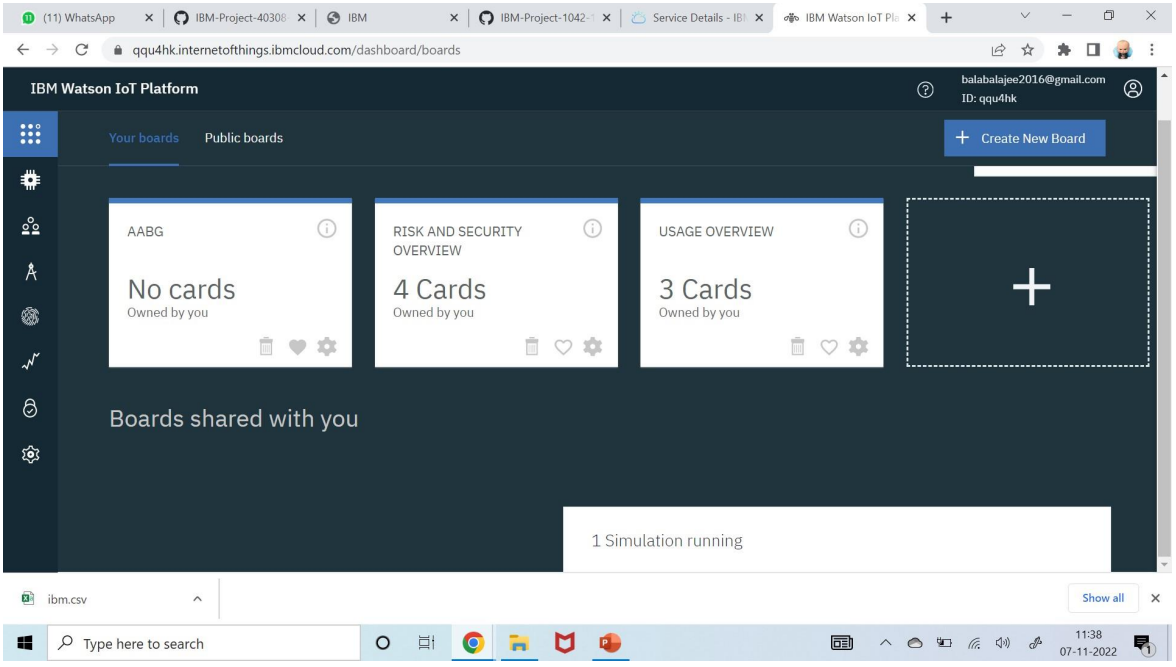


- Click on Create a new board to create a board .

The given below window appears give a name and description to your board as shown in the window below.

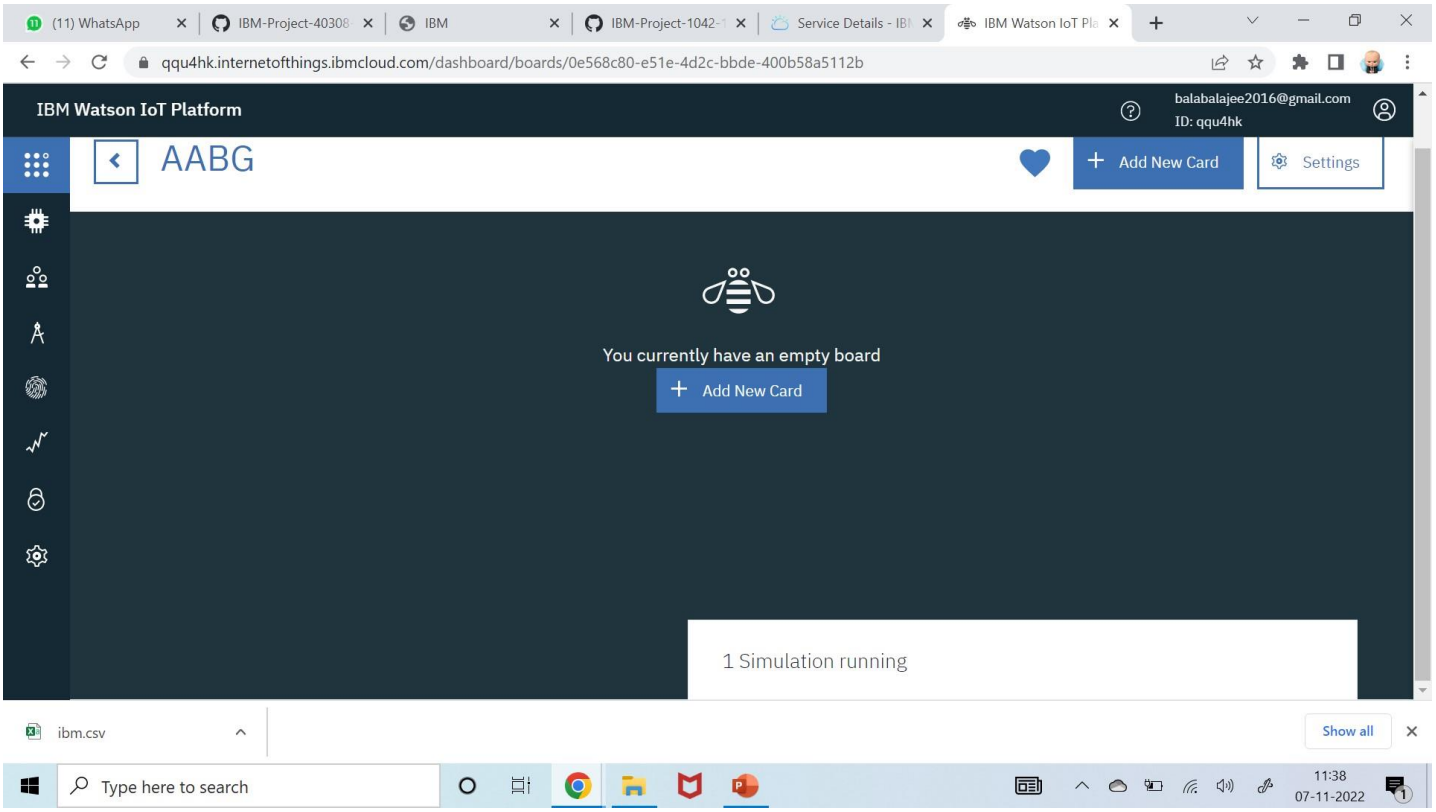


- Then click on Next you get the below window then again click on Sub

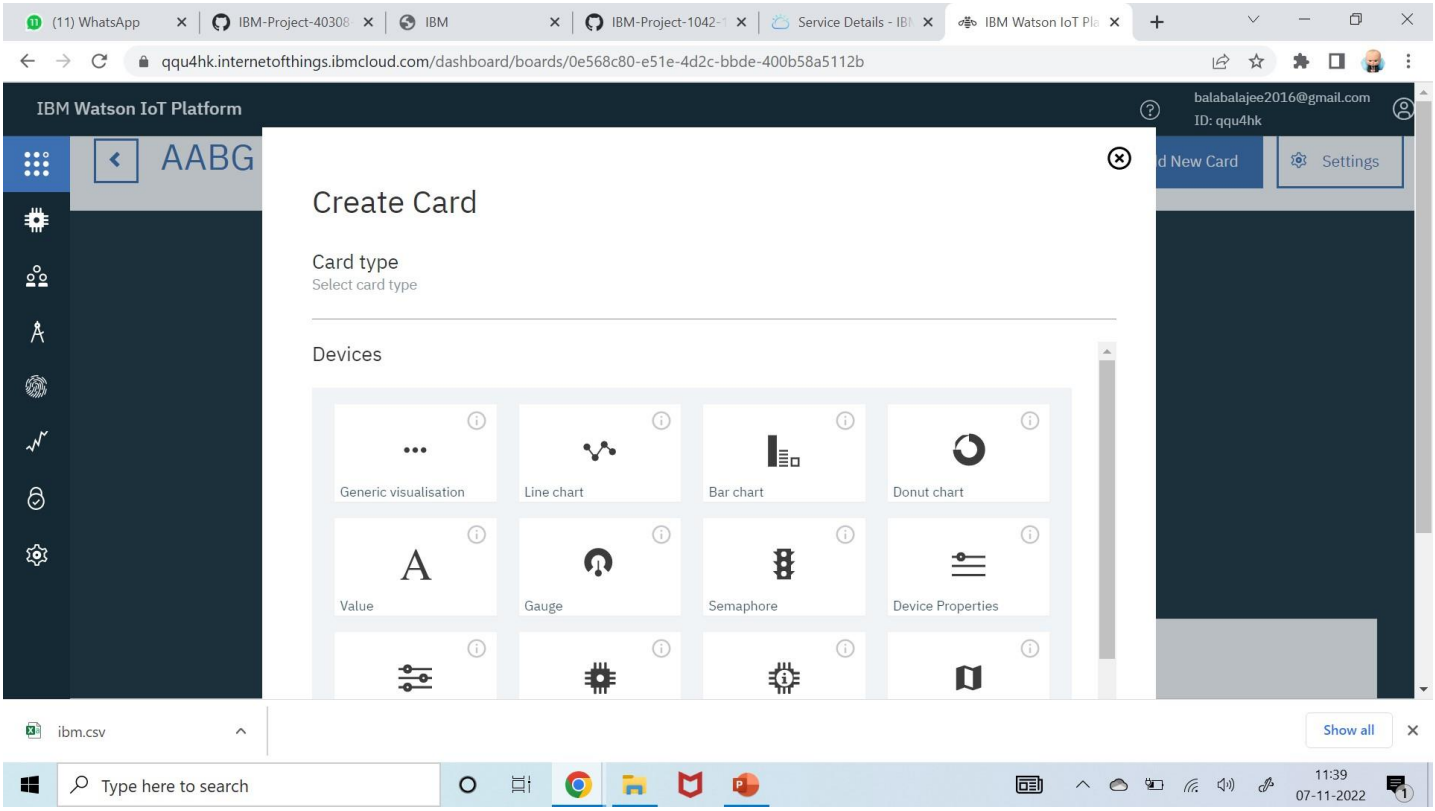


Then double click on your boards name which you have created.

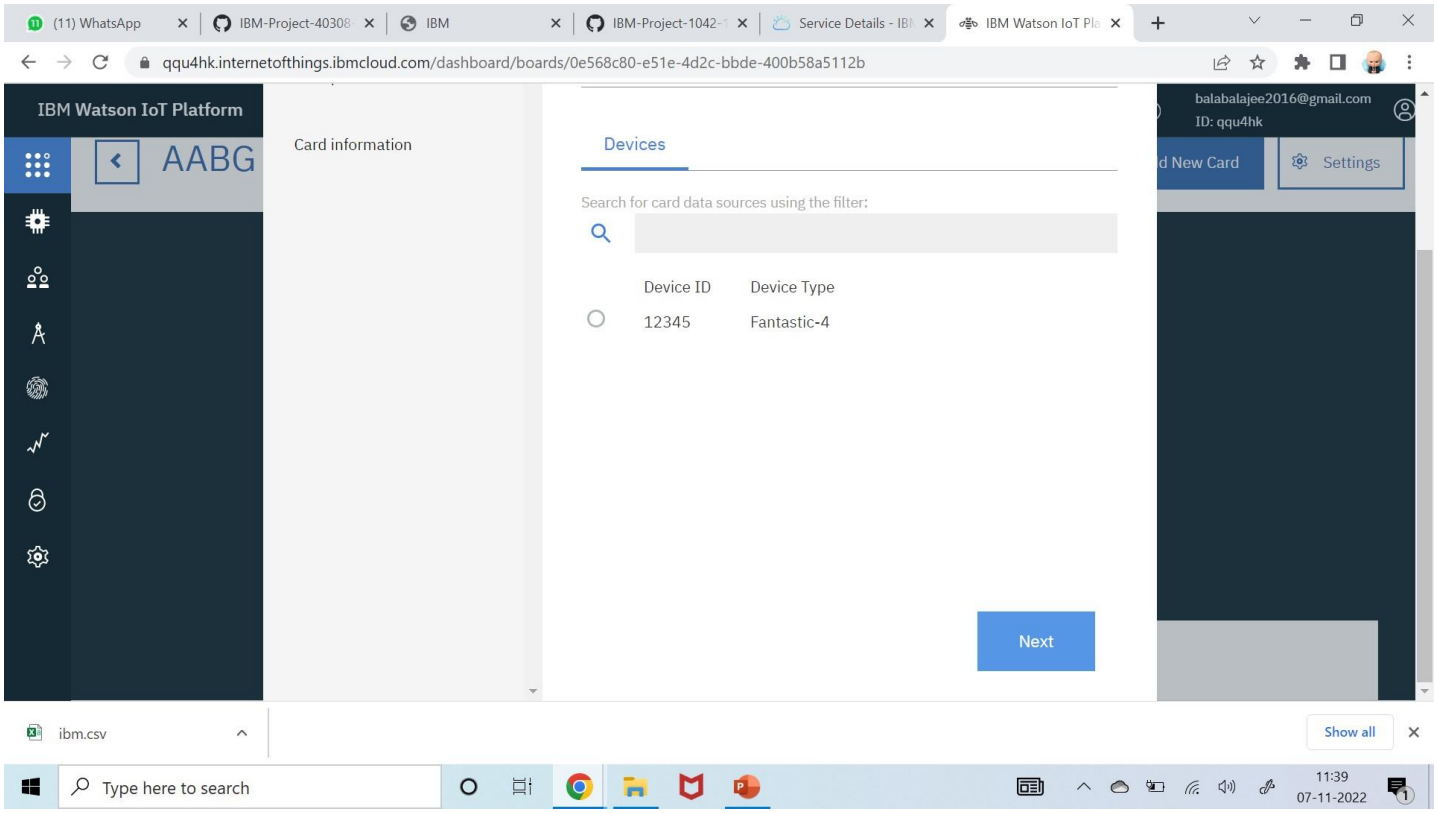
- Click on Add New Card



- Select the type of Graph u want accordingly and click next

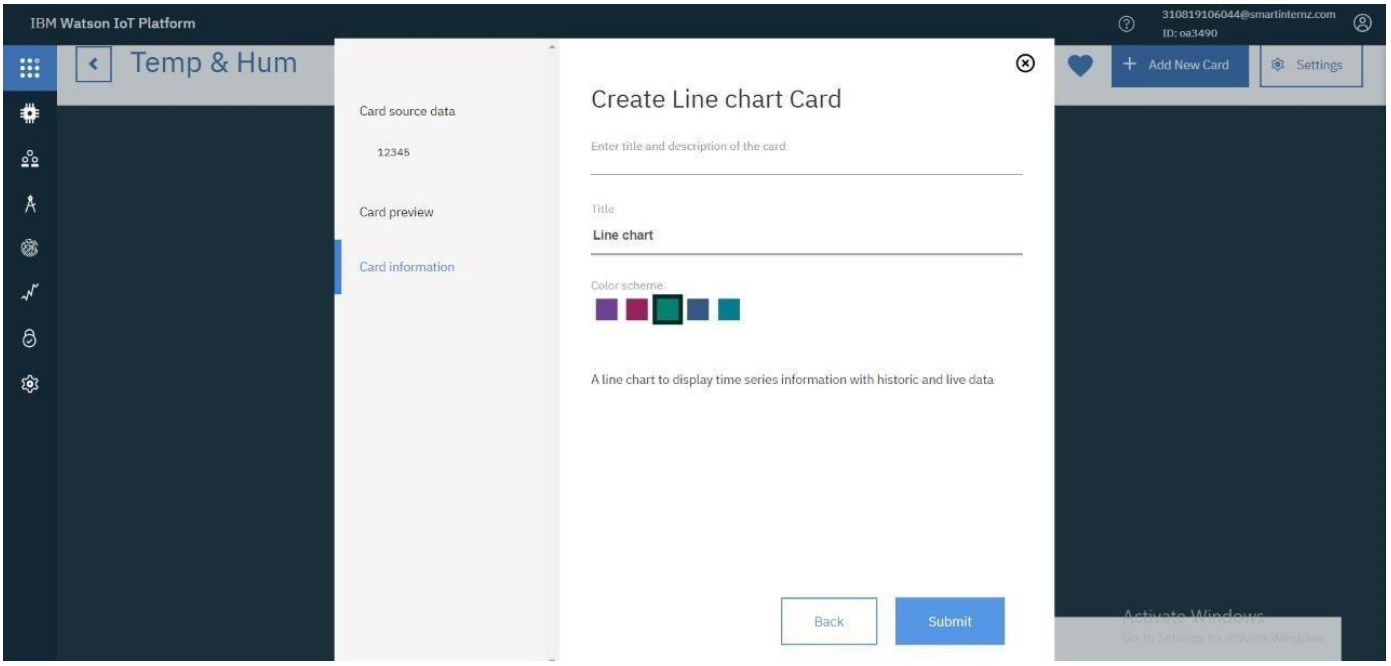


- You get the below window, choose the Device and click on Next.

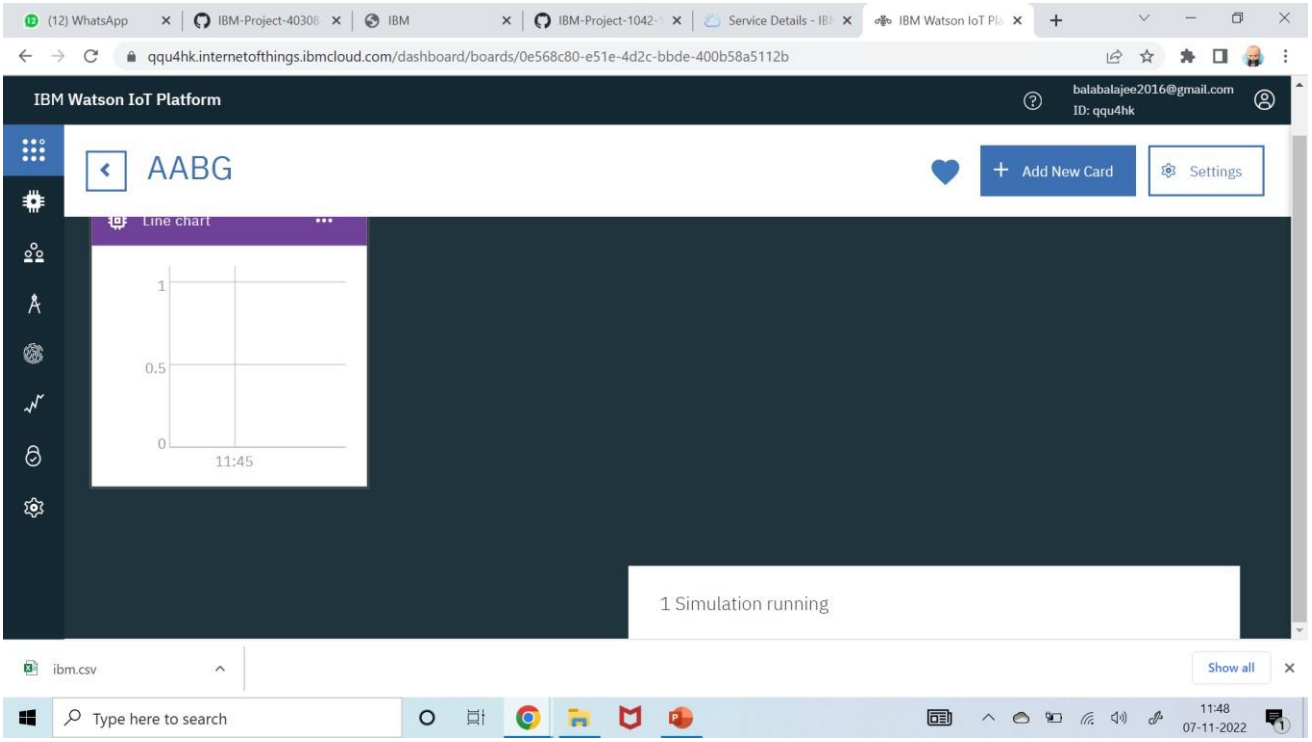


- Select the event, properly to be visualized on your graph and click next. In my case it is humidity

- Then select the size of the graph and color of the graph board you want and click 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.