SENDING DATA FROM RASPBERRY-PI TO IBM WATSON

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Project Name	GAS LEAKAGE MONITORING AND ALERTING SYSTEM FOR INDUSTRIES

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
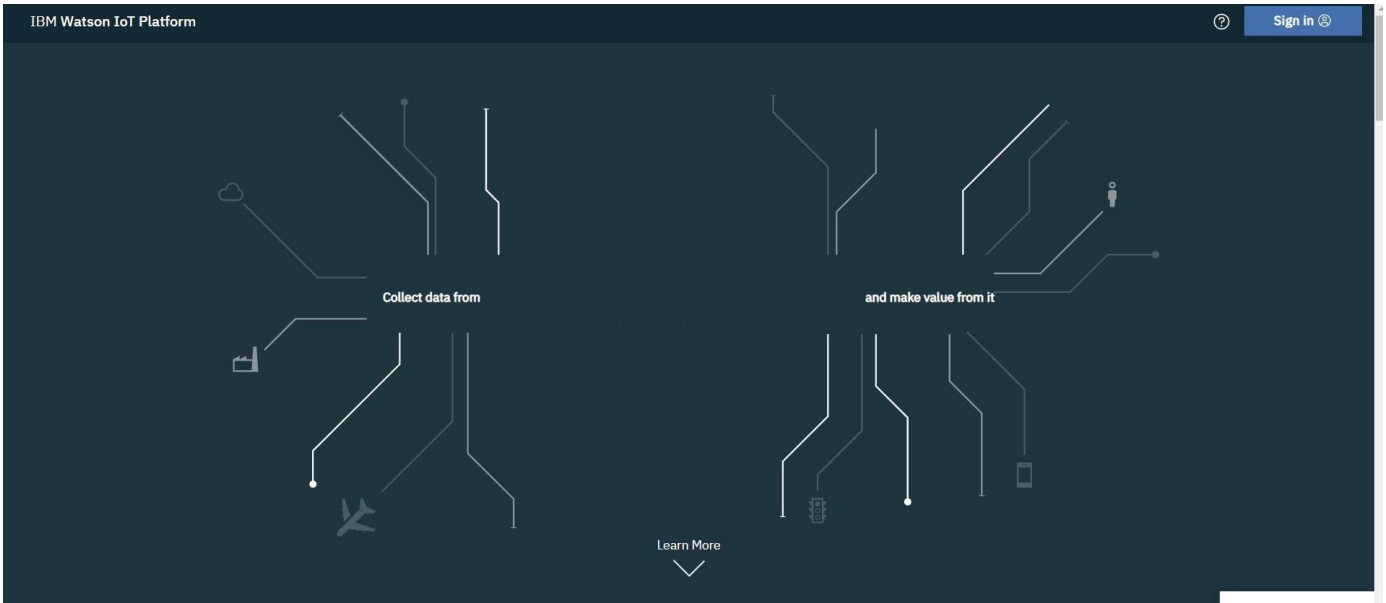- RASPBERRY'S POWER SUPPLY
- DHT-11 Sensor Connecting Wires

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.

Sign in

Collect data from

and make value from it

Learn More

IBM

Log in to IBM

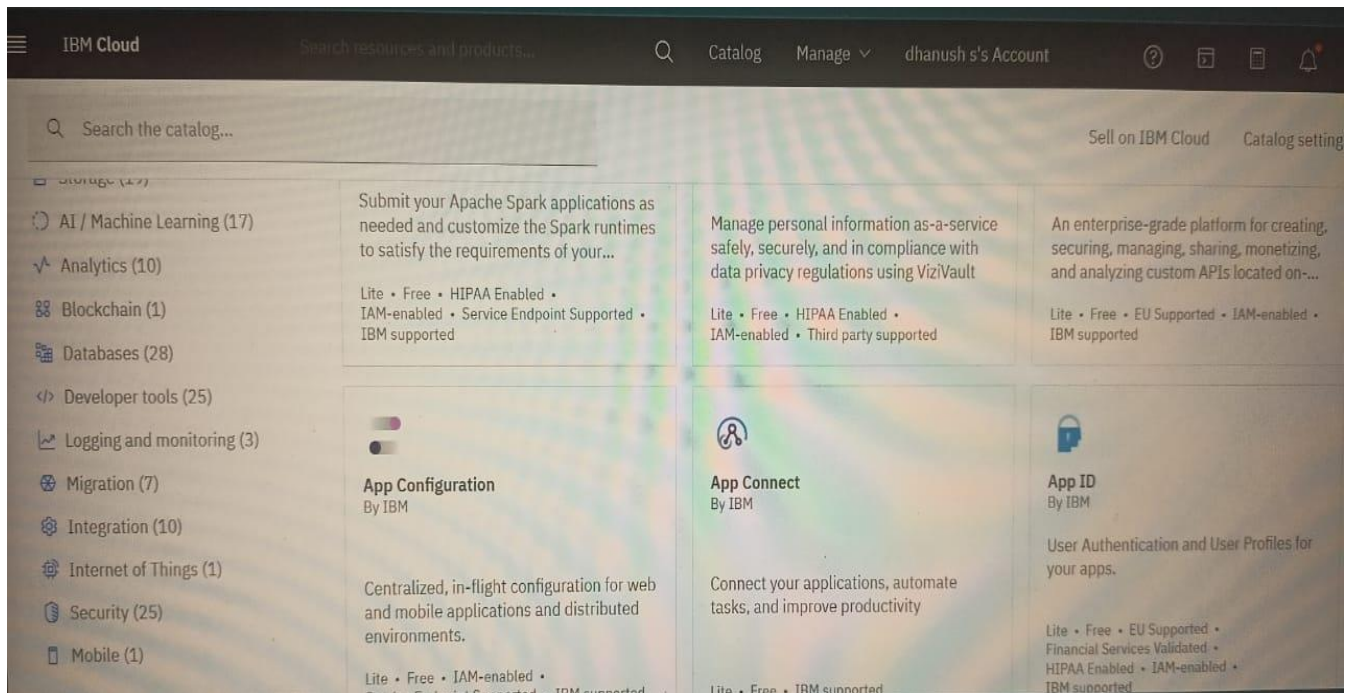IBMid   Forgot IBMid?

☑ Remember me ⓘ

Continue   →

Don't have an account? Create an IBMid

Need help? Contact the IBMid help desk

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

○ Check all details and click on create.

○ click on Launch
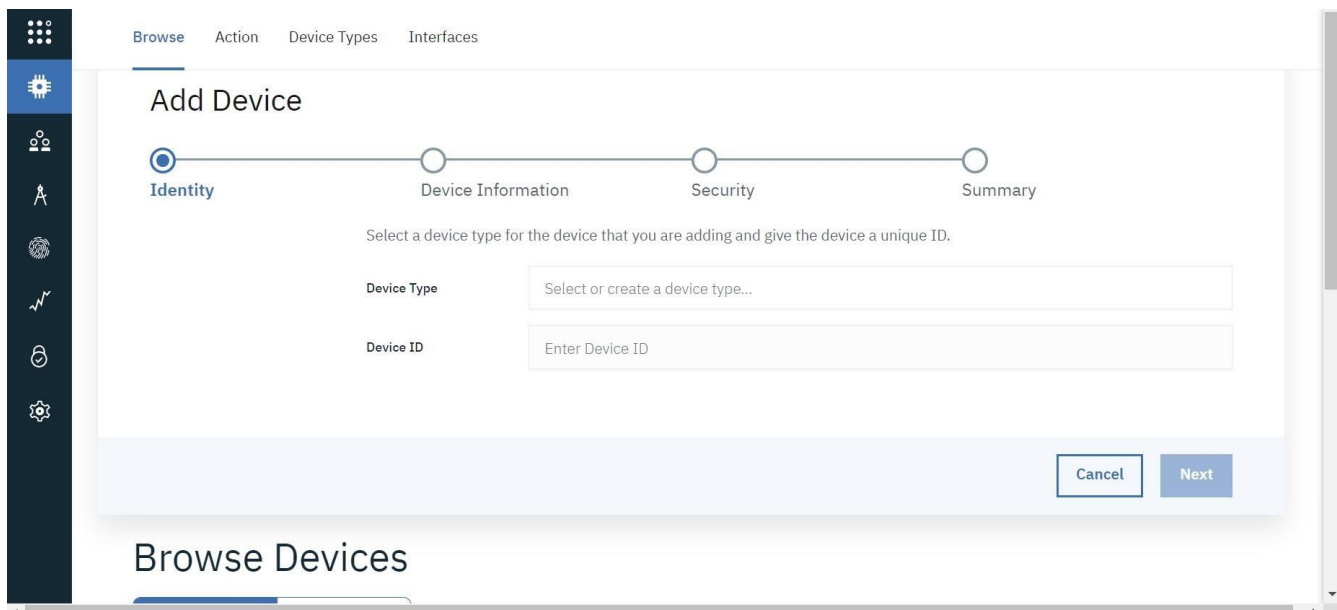

Dashboard of IBM Watson IoT platform,

○ Click on Add device
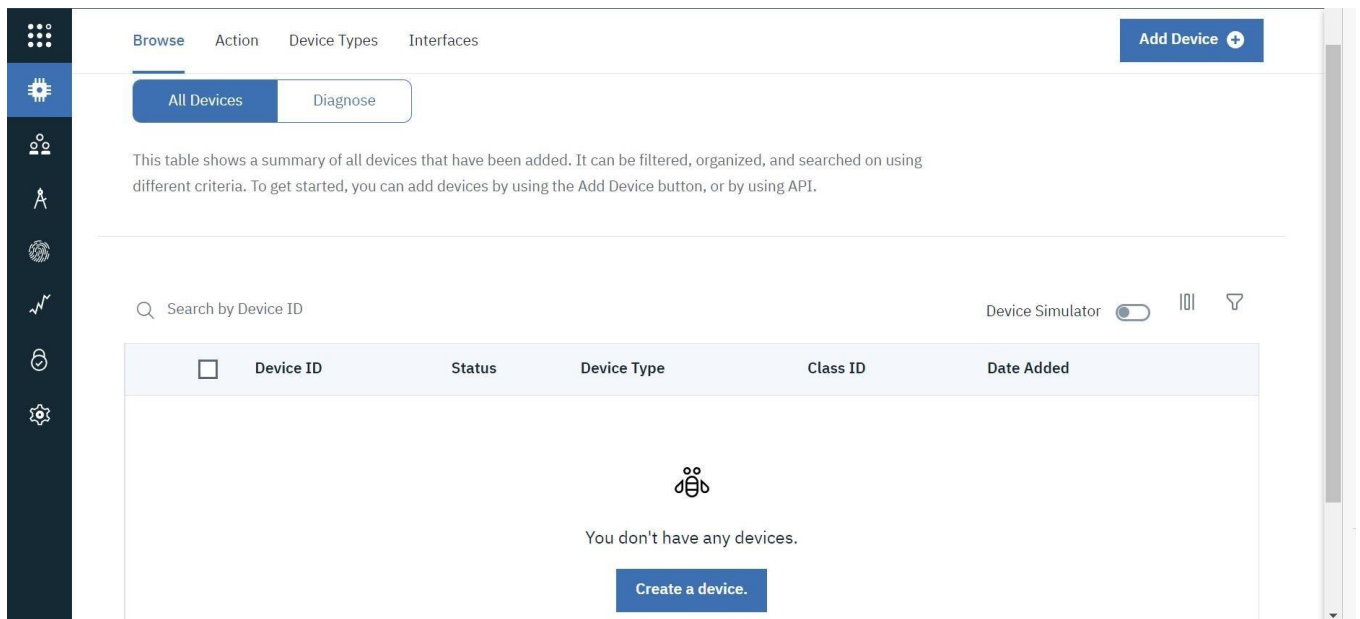
○ After click on Add device this page will open

○ Go to device type and fill the details.

o Click on Finish

Register Device.

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

O **Click on Next**

Browse   Action   Device Types   Interfaces

Add Device

Identity — Device Information — Security — Summary

You can modify the default device information and enter more information about the device for identification purposes.

Serial Number	Enter Serial Number	Manufacturer	Enter Manufacturer
Model	Enter Model	Device Class	Enter Device Class
Description	Enter Description	Firmware Version	Enter Firmware Version
Hardware Version	Enter Hardware Version	Descriptive Location	Enter Descriptive Location

Add Metadata ⊕

O **Click on Next**

Browse   Action   Device Types   Interfaces

Identity — Device Information — Security — Summary

There are two options for selecting a device authentication token.

Auto-generated authentication token (default)

Allow the service to generate an authentication token for you. Tokens are 18 characters and contain a mix of alphnumeric characters and symbols. The token is returned to you at the end of the device registration process.

Self-provided authentication token

Provide your own authentication token for this device. The token must be between 8 and 36 characters and contain a mix lowercase and uppercase letters, numbers, and symbols, which can include hyphens, underscores, and periods. Do not use repeated characters, dictionary words, user names, or other predefined sequences.

Authentication Token   Enter an optional token   ⓘ

Make a note of the generated token. Lost authentication tokens cannot be recovered. Tokens are encryped before being stored.

Authentication token are encrypted before we store them.

Finish

Add Device

Identity ——————— Device Information ——————— Security ——————— Summary

Verify that the following information is correct then select Finish

Device Type
Nagarajan

Device ID
12345

View Metadata

Security Token
To be generated

Back   Finish

○ Device is created

Browse   Action   Device Types   Interfaces   Add Device ⊕

Browse Devices

All Devices   Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different
criteria. To get started, you can add devices by using the Add Device button, or by using API.

Q Search by Device ID   Device Simulator ⬤

	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
> ☐	12345	Disconnected	Nagarajan	Device	Oct 31, 2022 11:38 AM	

Items per page 50 ▼ | 1–1 of 1 item   1 of 1 page   <   1 ▼   >

1 Simulation running

Activate Windows
Go to Settings to activate Windows.

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

O I have sent DHT-11 Sensors data to ibm bluemix .To get the code u need to login into IOT GYAN. O
Then I get the image as follows in my pi's shell:

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

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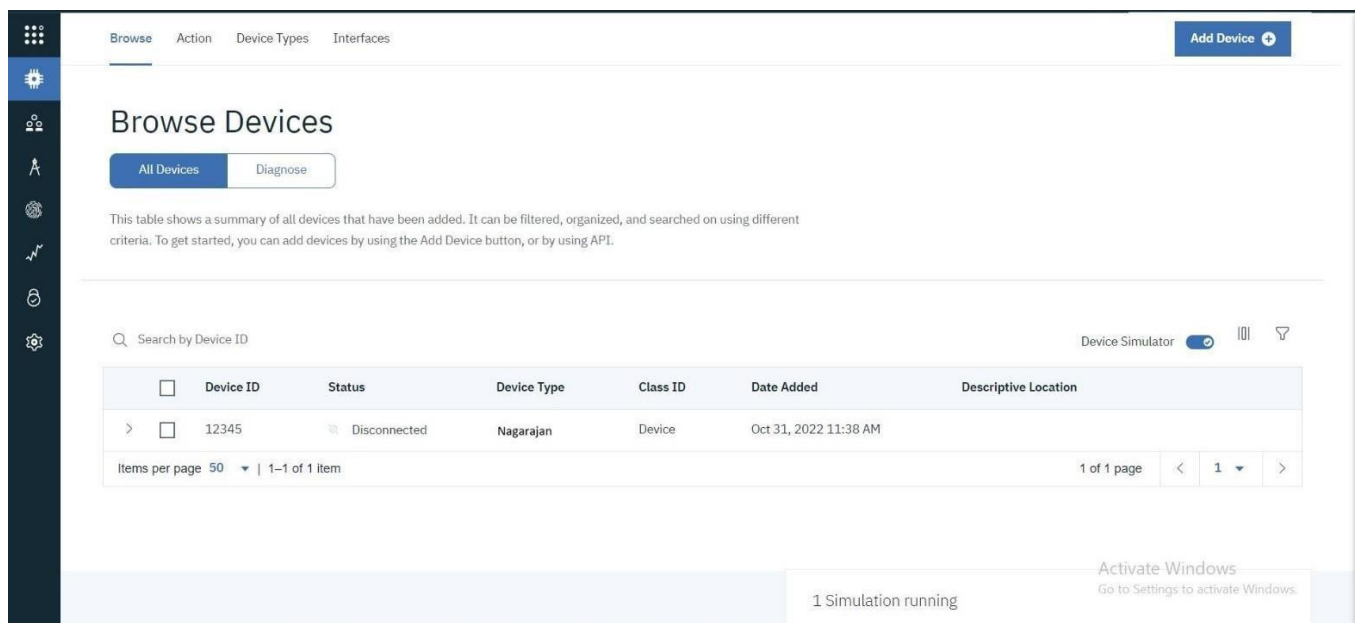
O After double clicking on your created device you can see the received data as shown in image

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
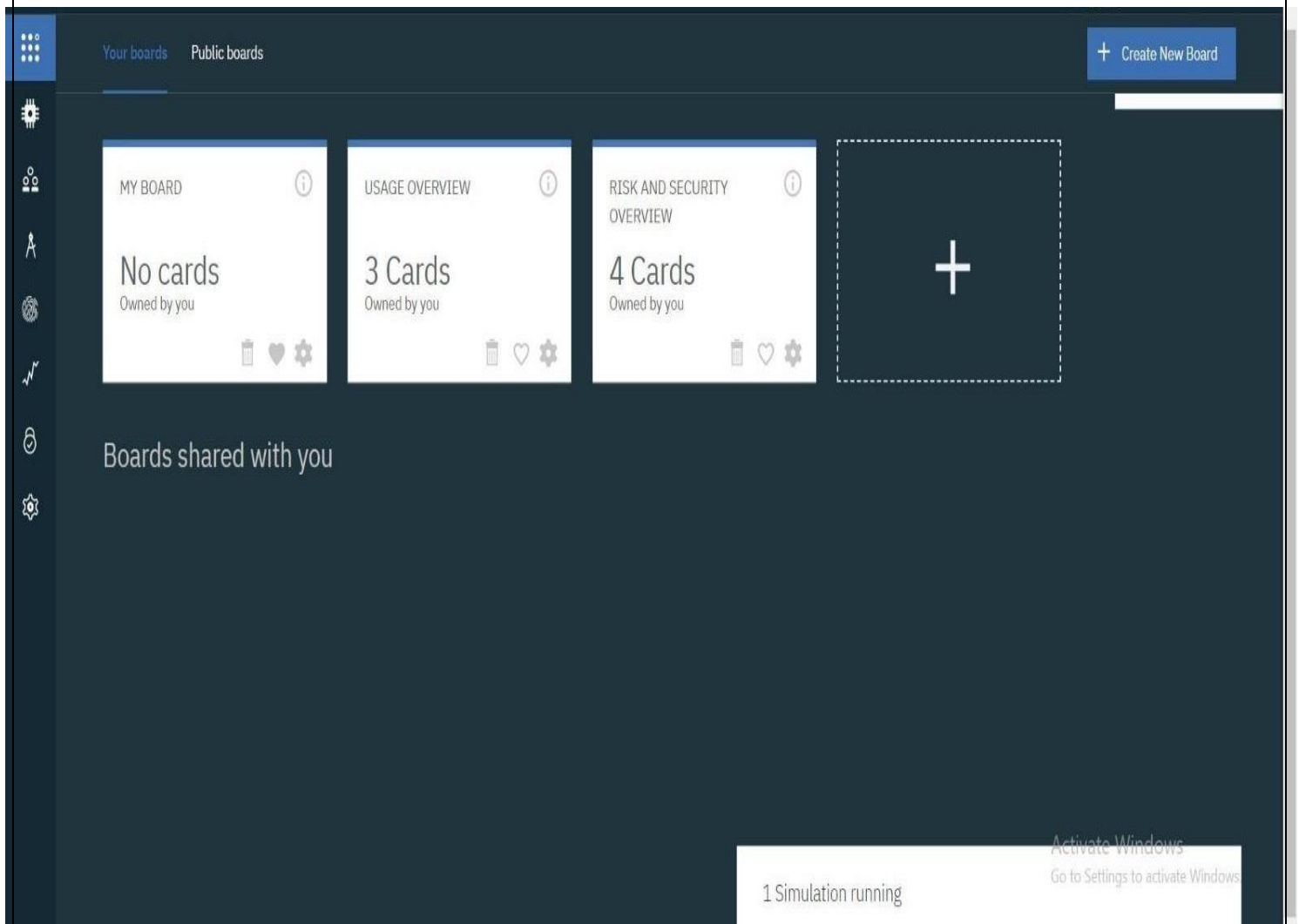

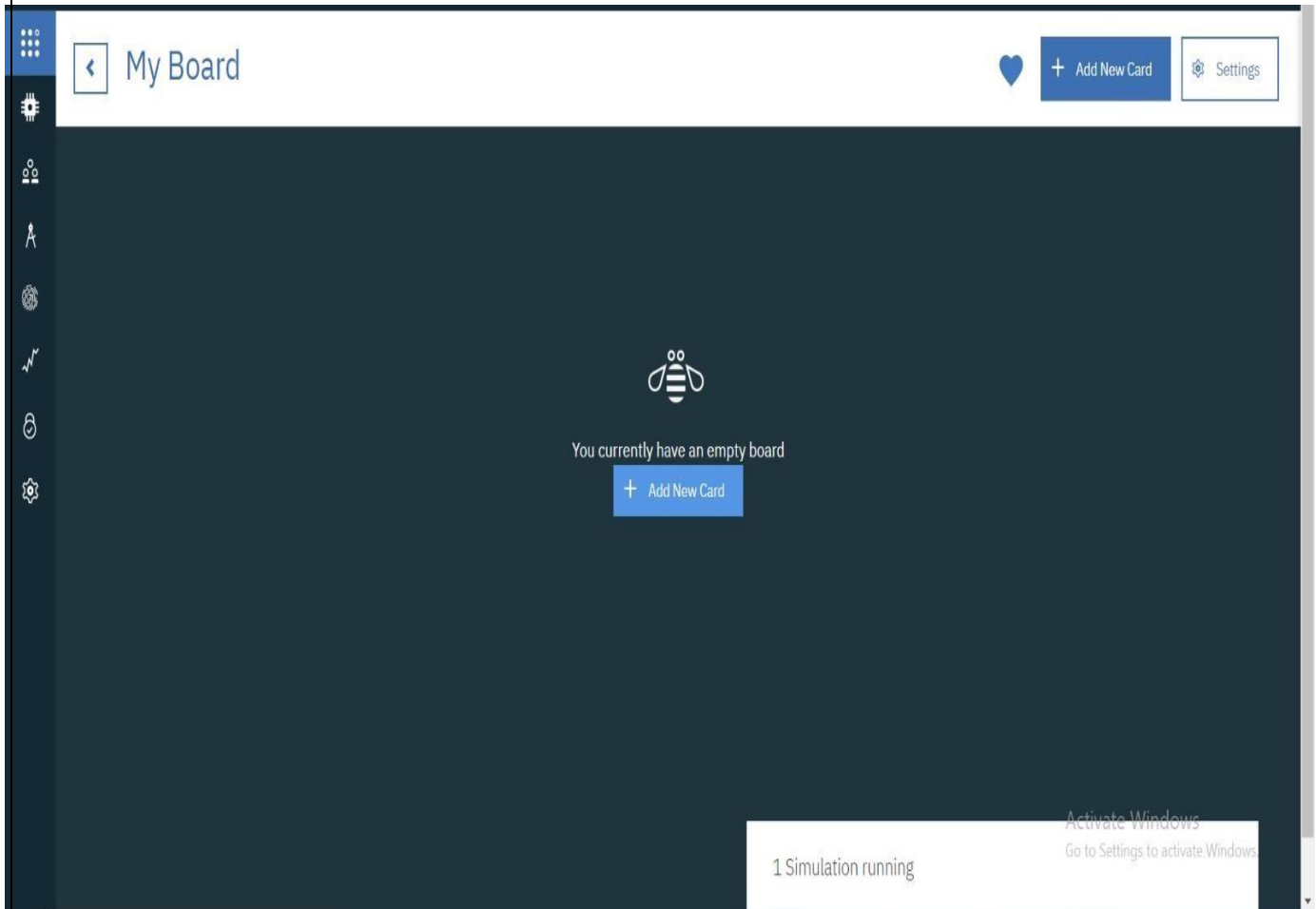⭘ Click on Create a new board to create a board .

The given below window appears give a name and description to your board as shown in the window below.
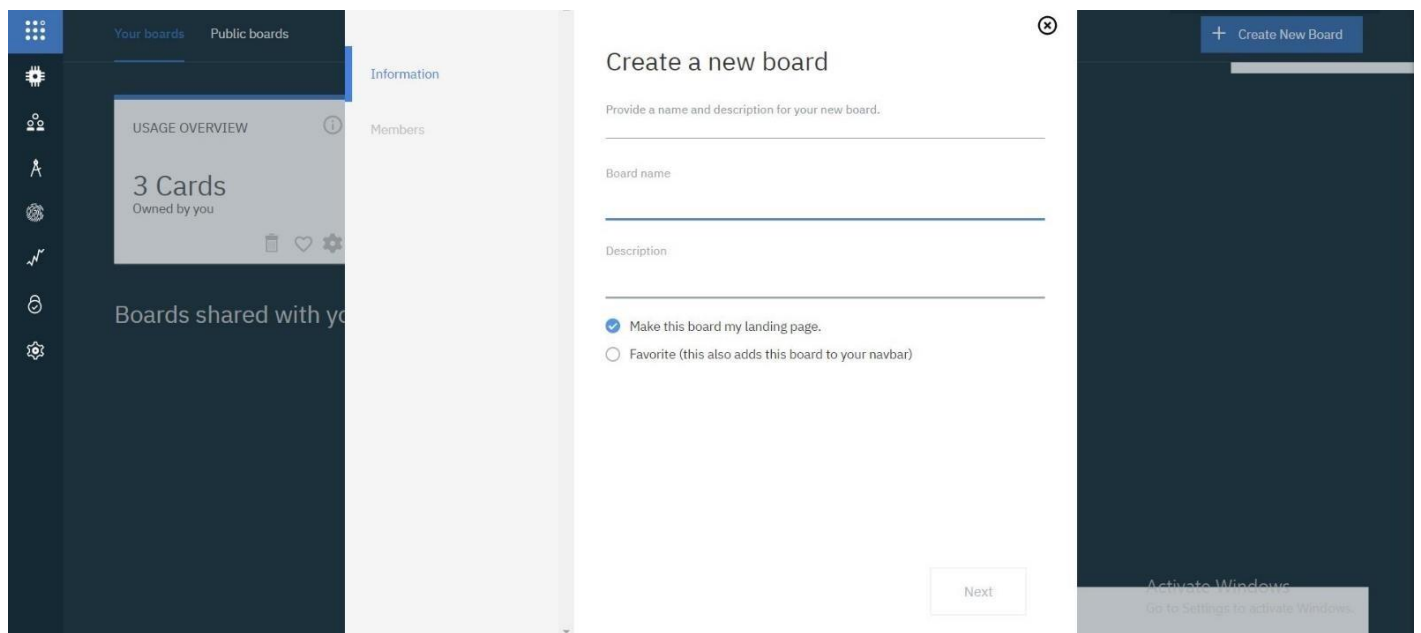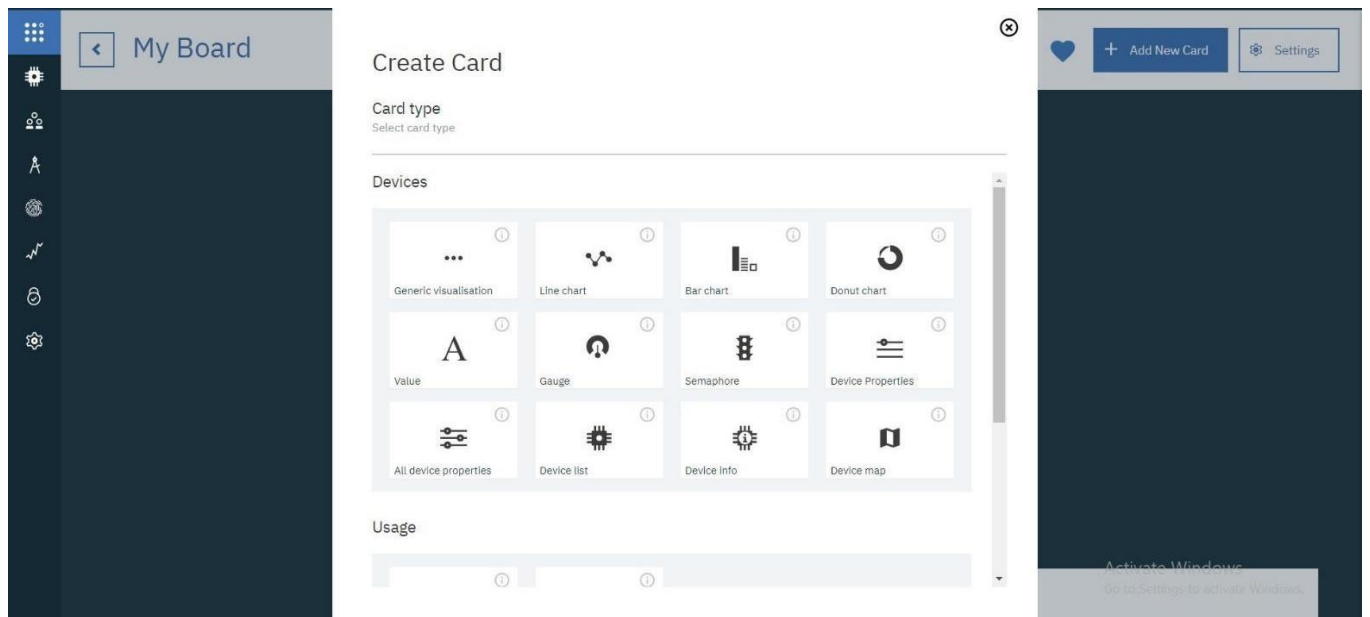
o Then click on Next you get the below window then again click on Submit

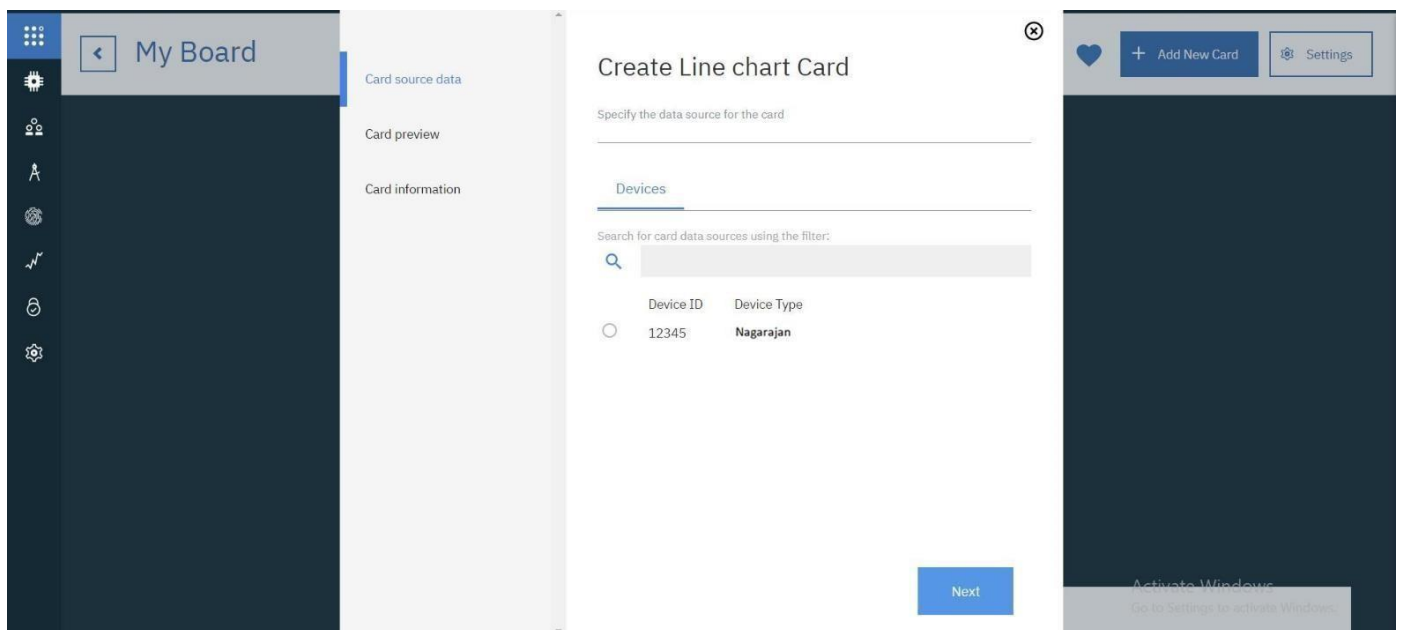o Then double click on your boards name which you have created.
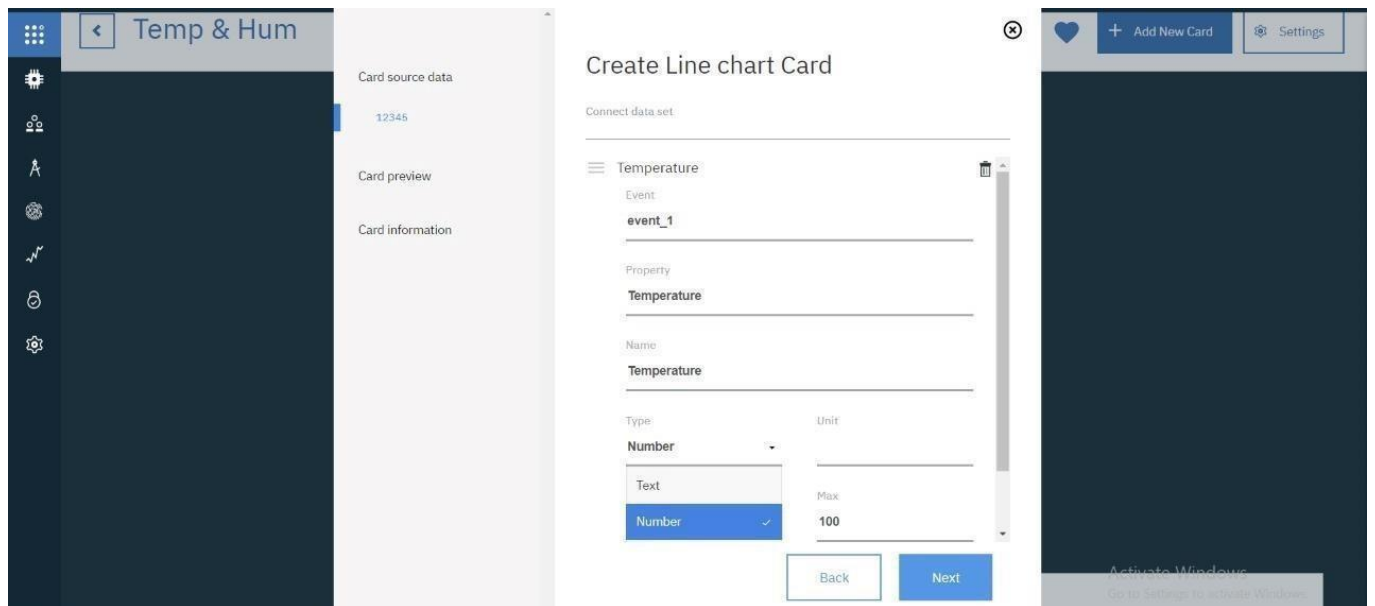
O Click on Add New Card

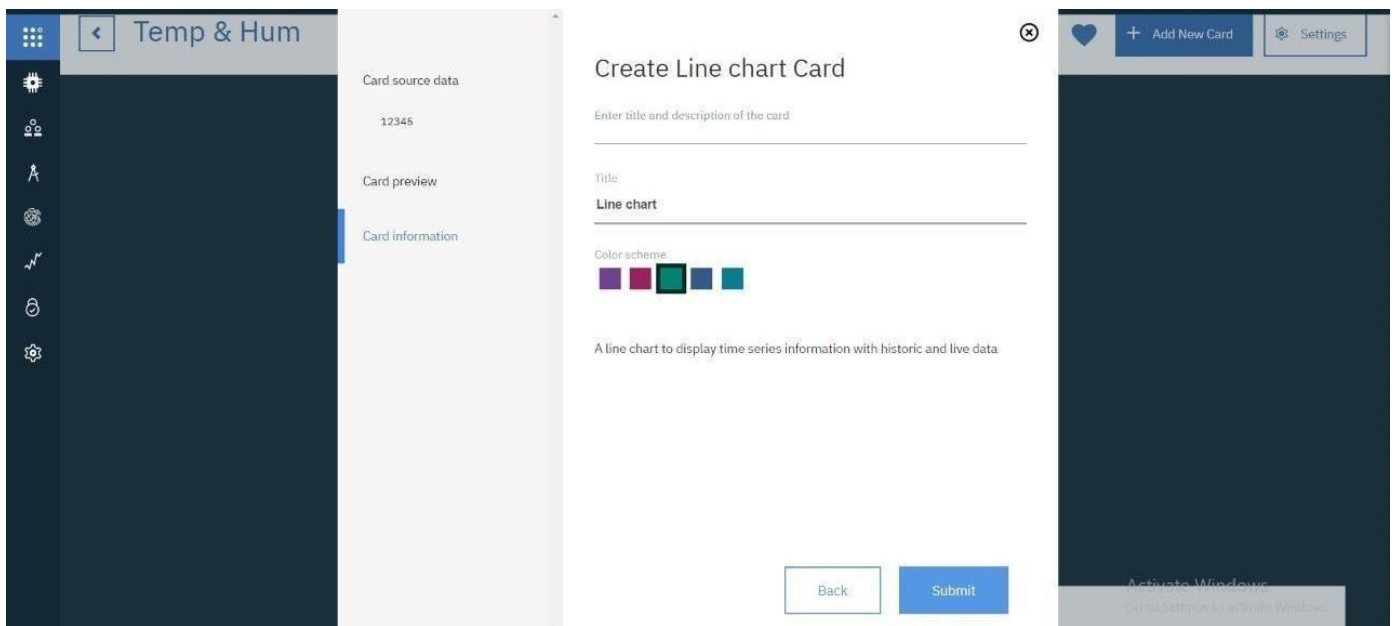Select the type of Graph u want accordingly and click next

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

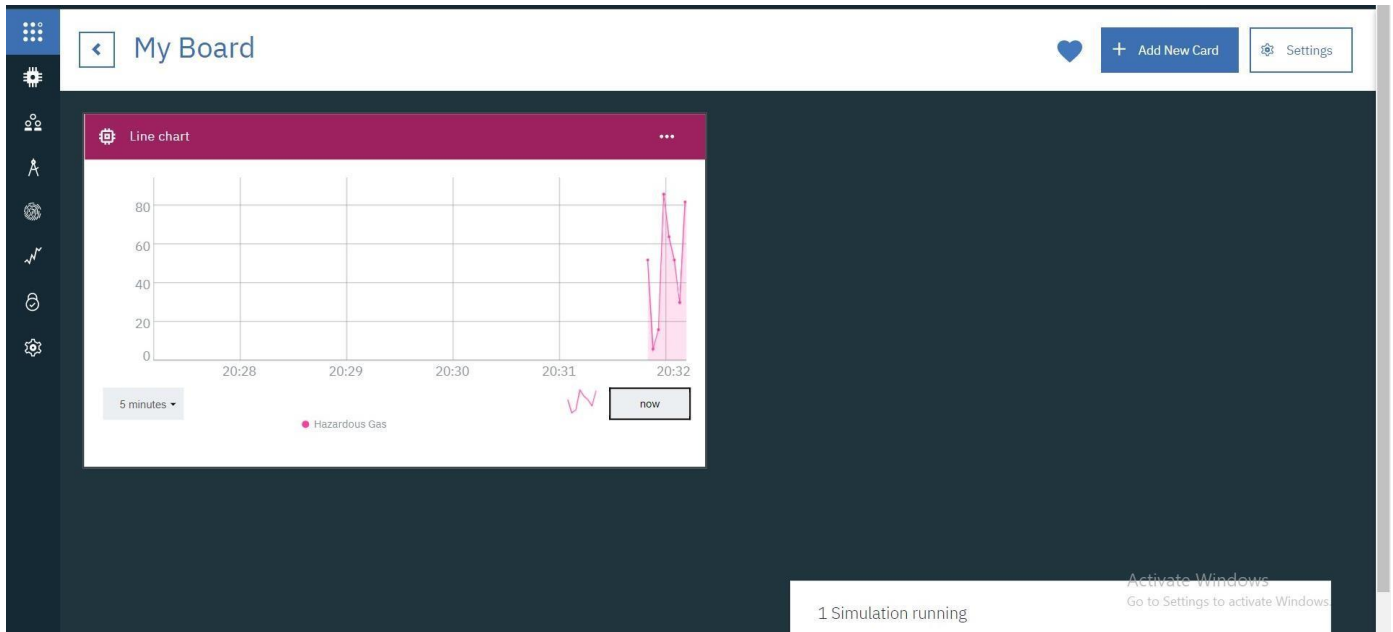- Select the event, properly to be visualized on your graph and click next. In my case it is humidity

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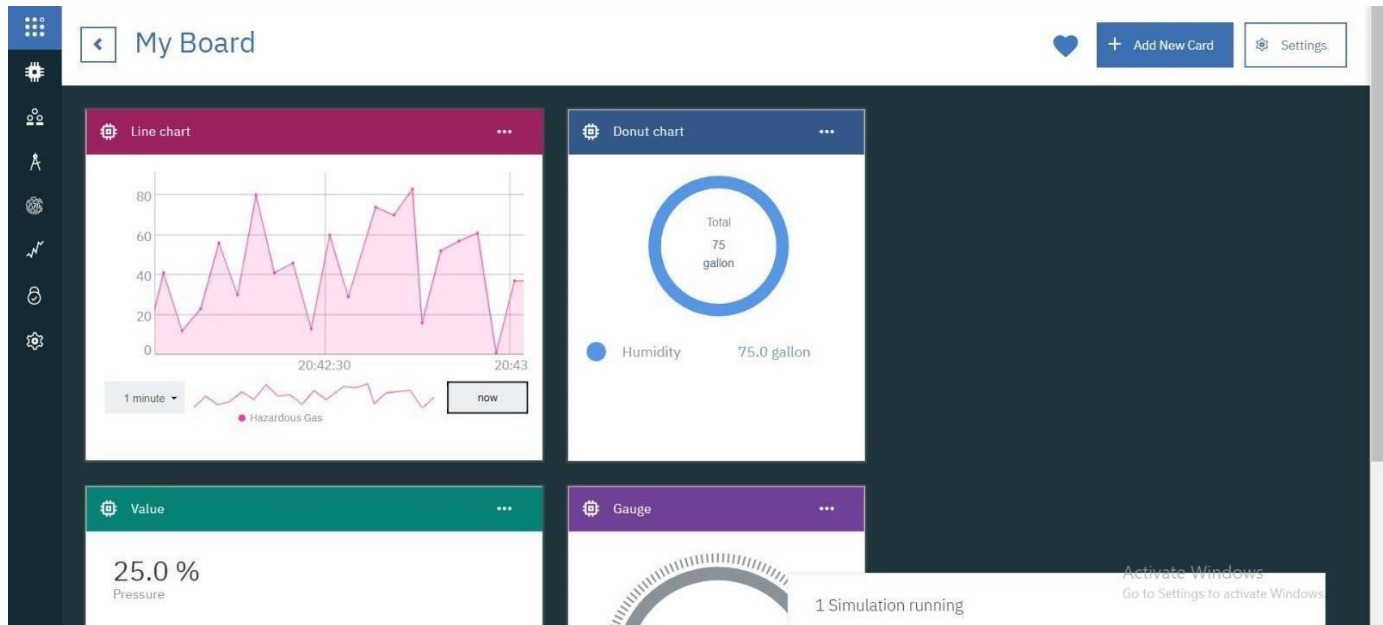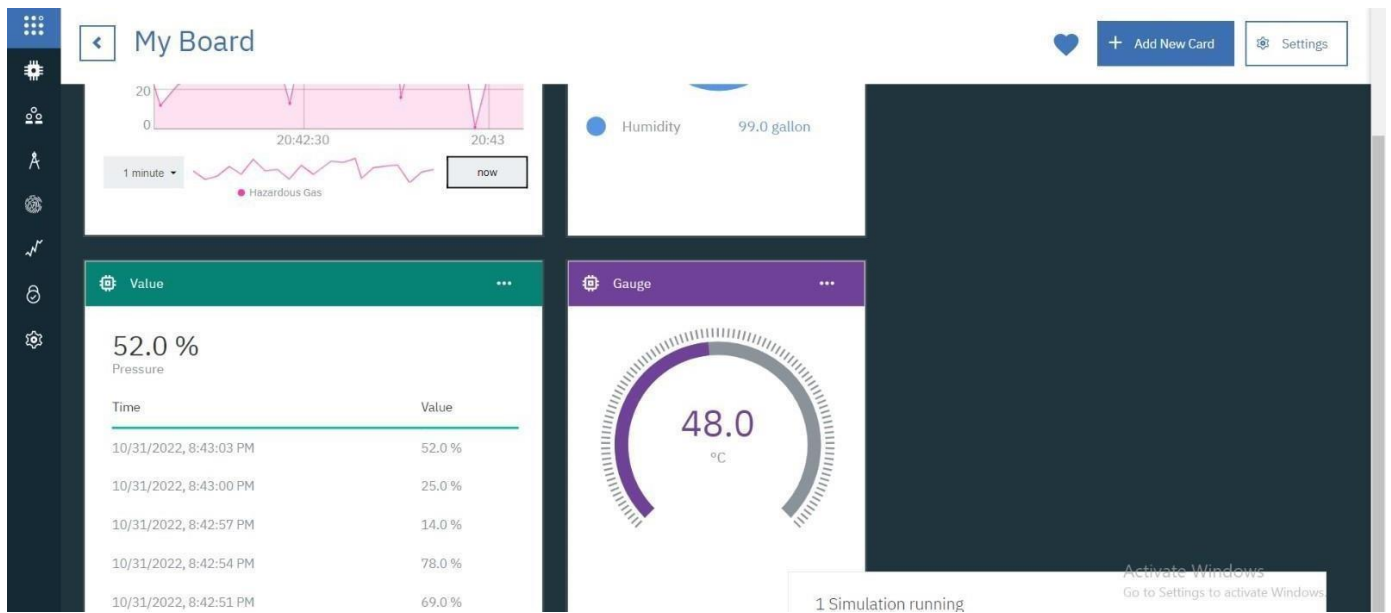

- Here is the graph

O 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.