SPRINT 4

Project Execution and Testing

Date	13 November 2022
Team ID	PNT2022TMID21140
Project Name	Smart waste management system for metropolitan cities
Points	20

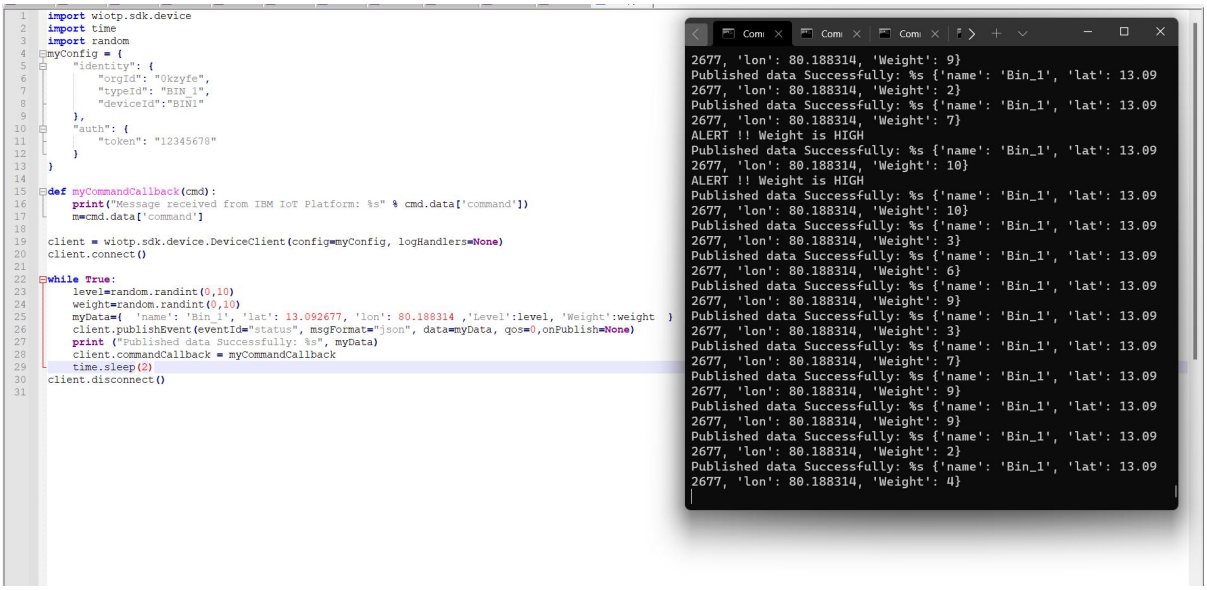
Python Code for Bin 1

```
#Bin 1

import wiotp.sdk.device
import time
import random
myConfig = {
   "identity": {
      "orgId": "0kzyfe",
      "typeId": "BIN_1",
      "deviceId":"BIN1"
   },
   "auth": {
      "token": "12345678"
   }
}

def myCommandCallback(cmd):
   print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
   m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
   level=random.randint(0,10)
   weight=random.randint(0,10)
   myData={  'name': 'Bin_1', 'lat': 13.092677, 'lon': 80.188314 ,'Level':level,
'Weight':weight  }
   client.publishEvent(eventId="status", msgFormat="json", data=myData,
qos=0,onPublish=None)
   print ("Published data Successfully: %s", myData)
```

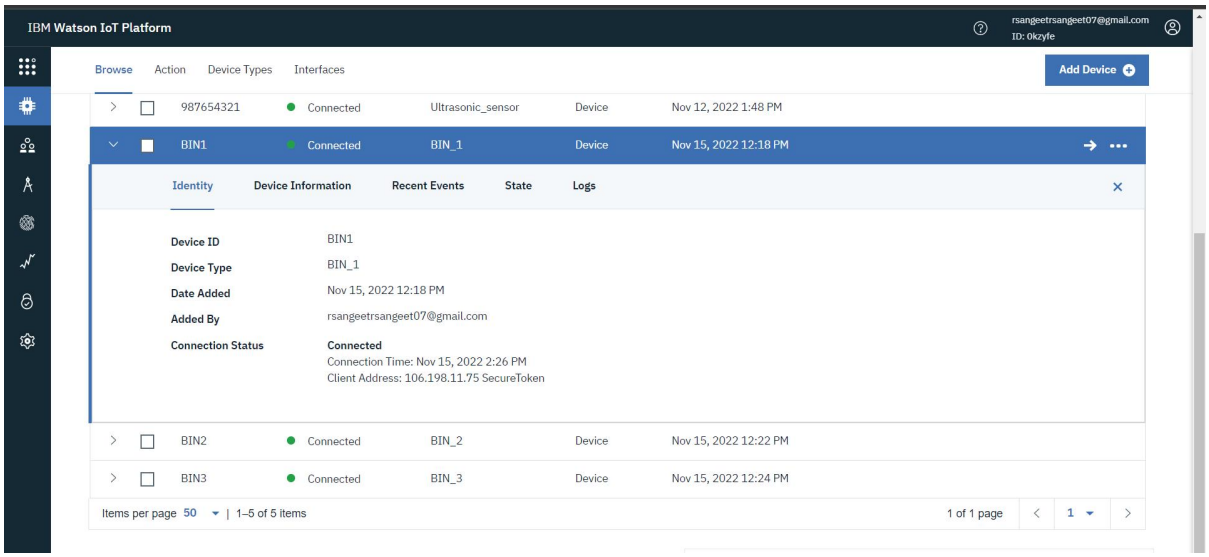
```
    client.commandCallback = myCommandCallback
    time.sleep(2)
client.disconnect()
```

EXECUTION

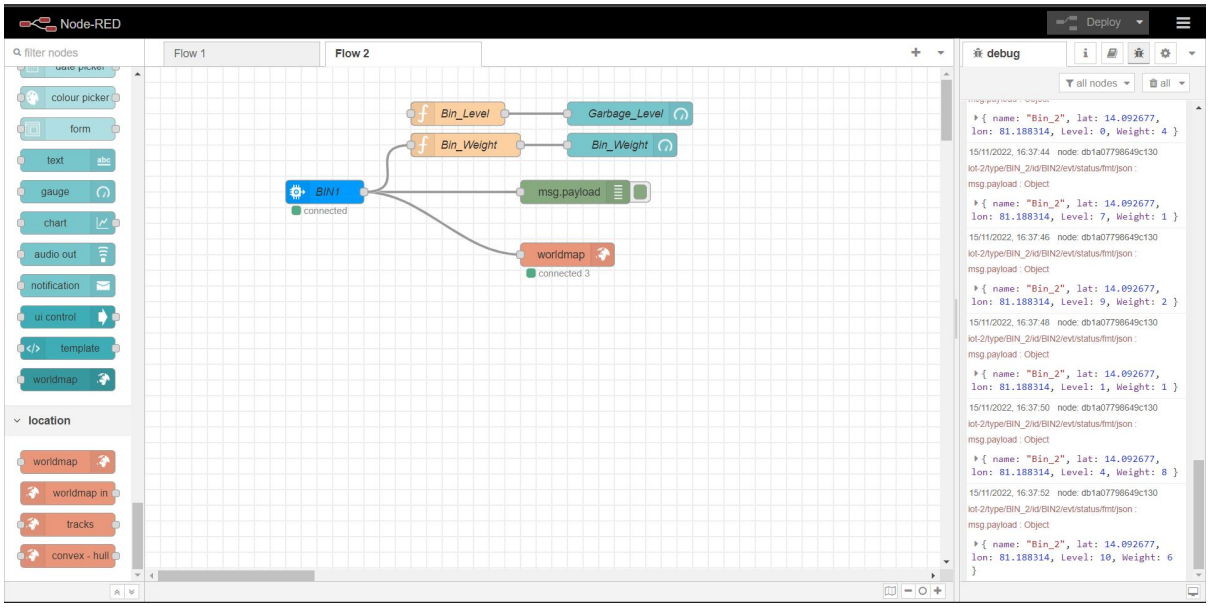
- ✓ Executing the code to find the location of the Trash bin with random latitude and longitude which sends the data to the IBM Watson IOT platform



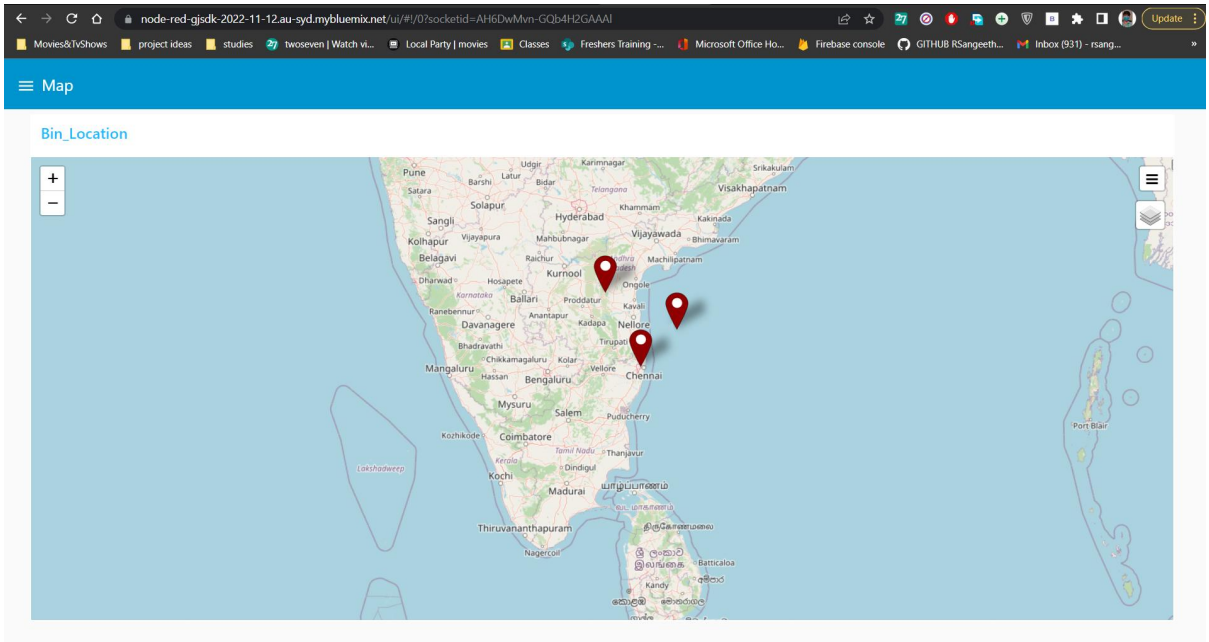
- ✓ The data from the Python IDLE is received by the device created in the IBM Watson IOT platform where the latitude and longitude of bin is shown below



✓ The connections are made between the nodes in Node-RED Services to create web UI of the location



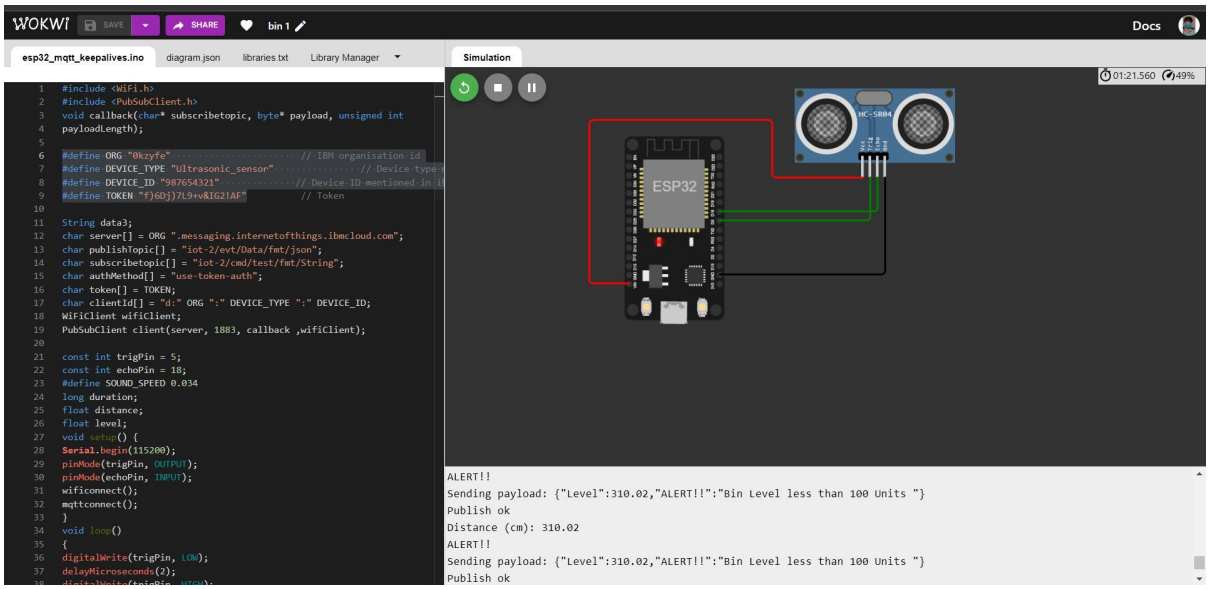
✓ The location of the bin is shown in The World Map



✓ The SENSOR values sent to the IBM Watson IOT platform by two ways:

- From ESP32-Wokwi
- From Python IDLE-Random Values

✓ To send sensor readings from ESP32-Wokwi

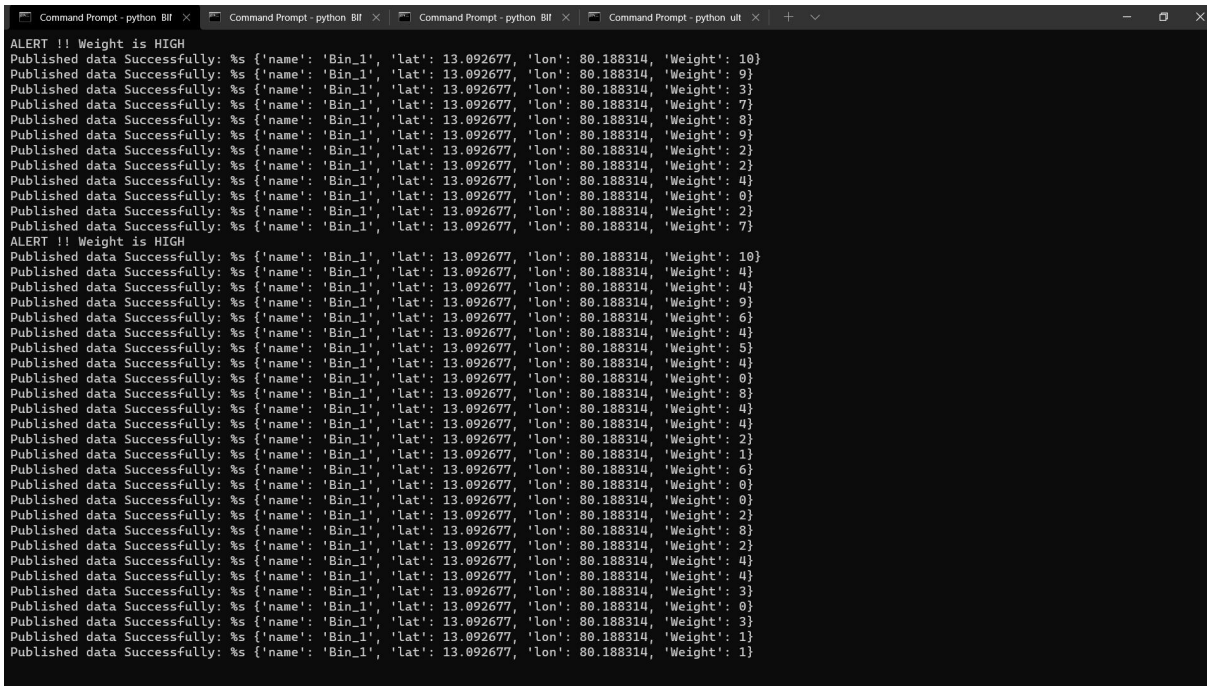


Run The ESP32 code Here : [Wokwi]

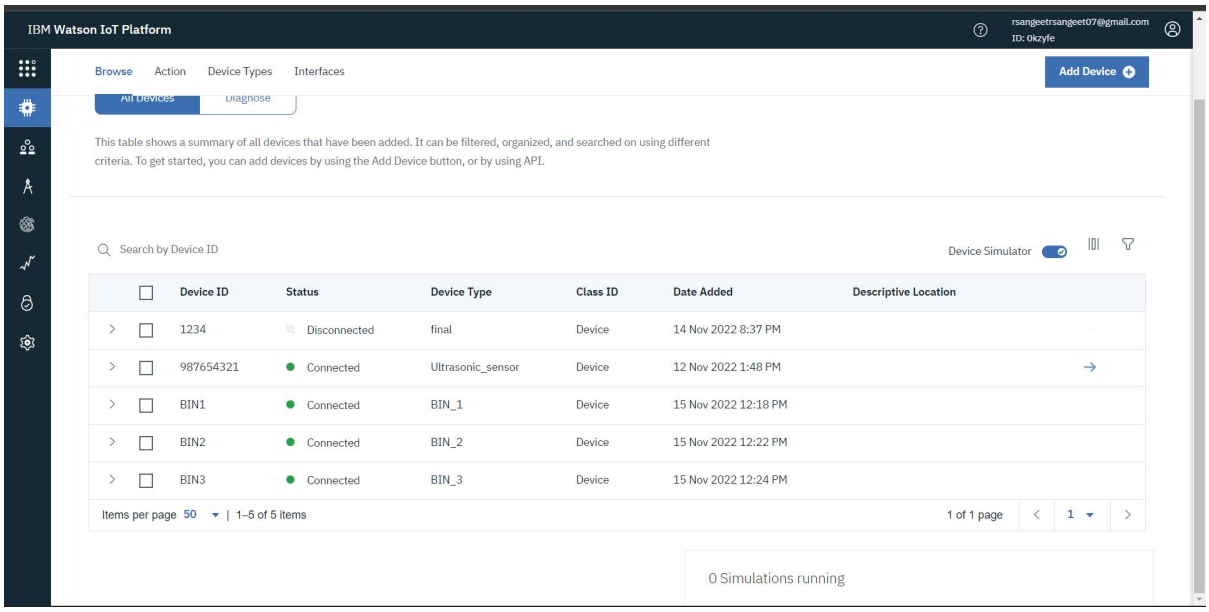
✓ Run the Python using IDLE to send the Random Values of Level and Weight of the Trash in the bin to IBM Watson IOT platform

TESTING

✓ Executing codes for multiple Bins

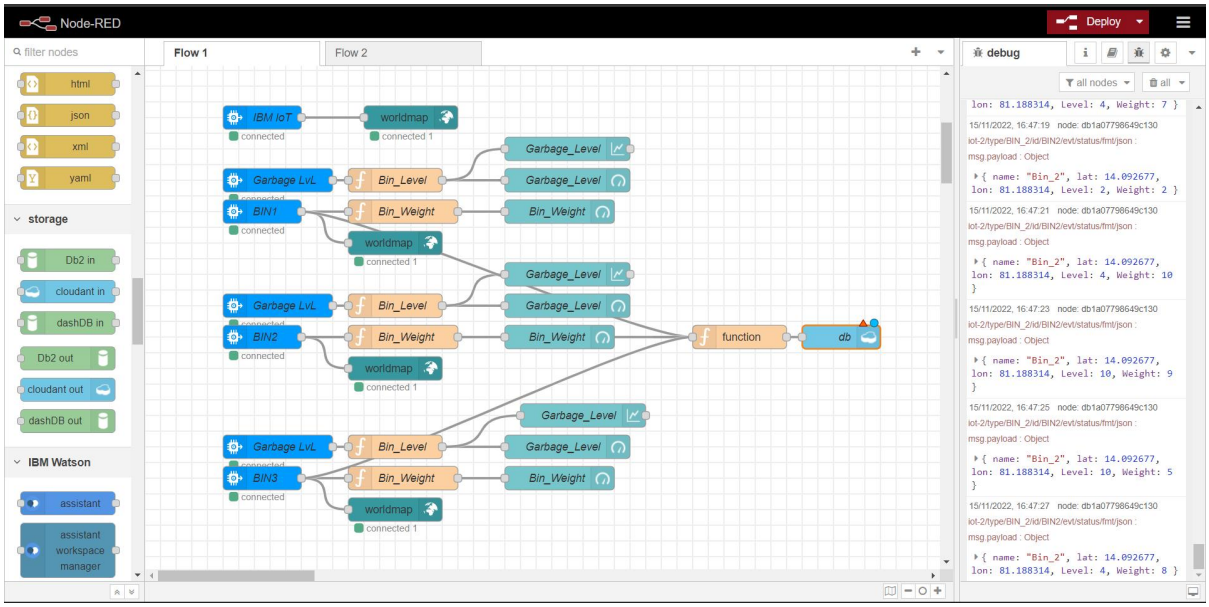


✓ For Example, Three IOT device is create in Watson IOT platform and also connected with the sensor Devices or IDLE . It shows the device is connected

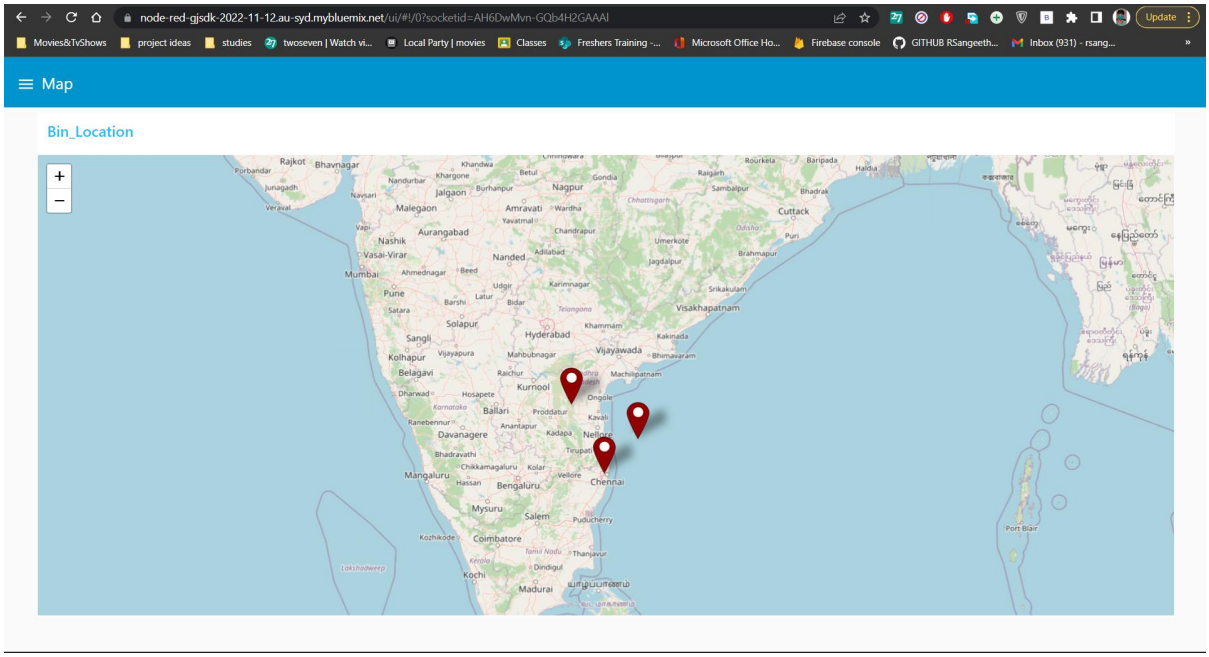


- ✓ The payload received to the IOT device in IBM platform as shown below
- ✓ To Monitor the level and Weight of the bins , the Node-RED platform is used. The Nodes are used to make connections.
- ✓ IBM IOT Node is to receive message from IBM IOT device.
- ✓ Several Functions , Templates , Gauge , Graph Nodes are used to create UI

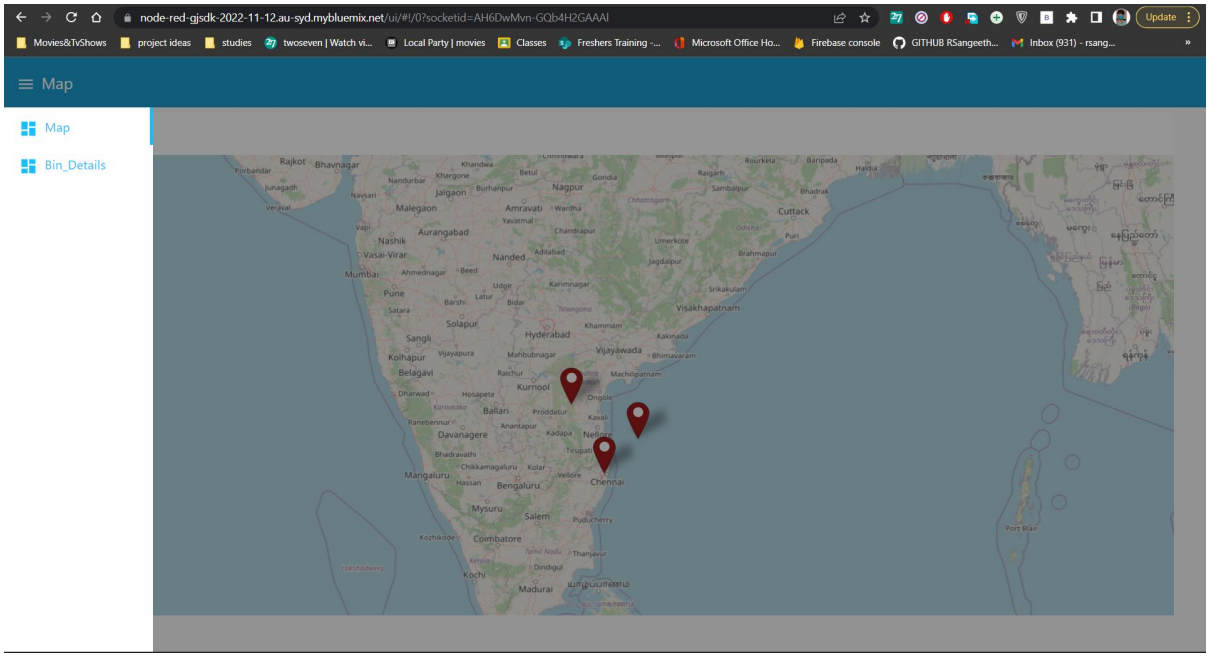
Web UI : Smart Waste Management



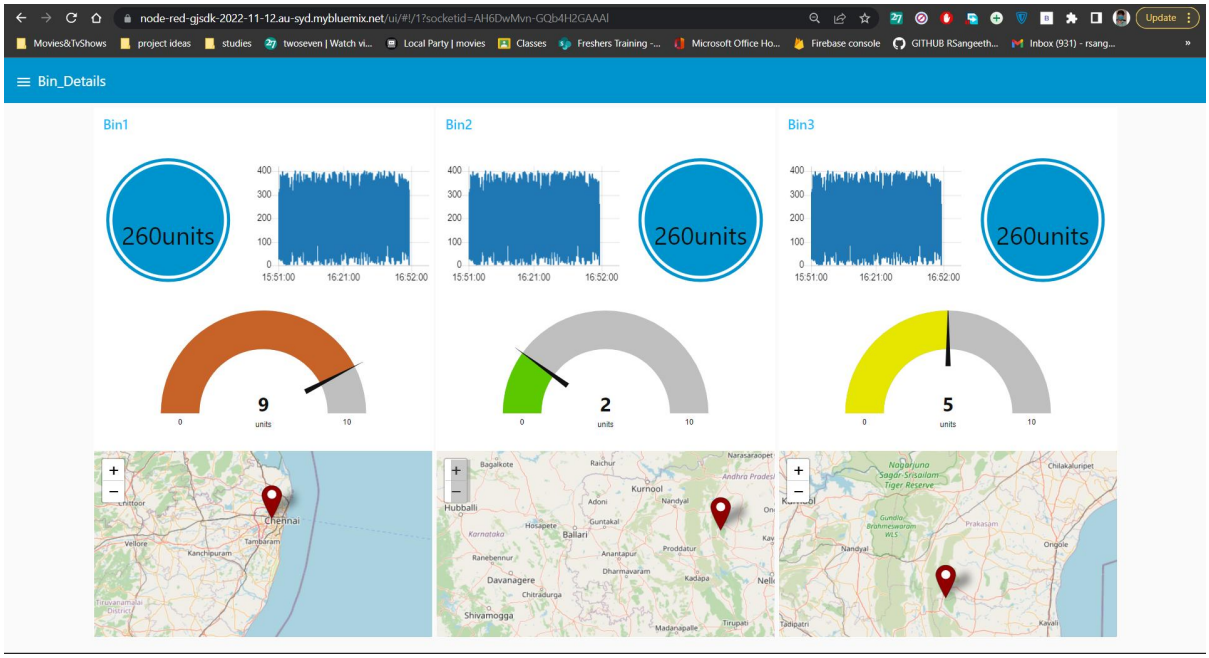
- ✓ The Web UI is created using Node-RED services , The Dashboard is used to Navigate between the Number of Bins

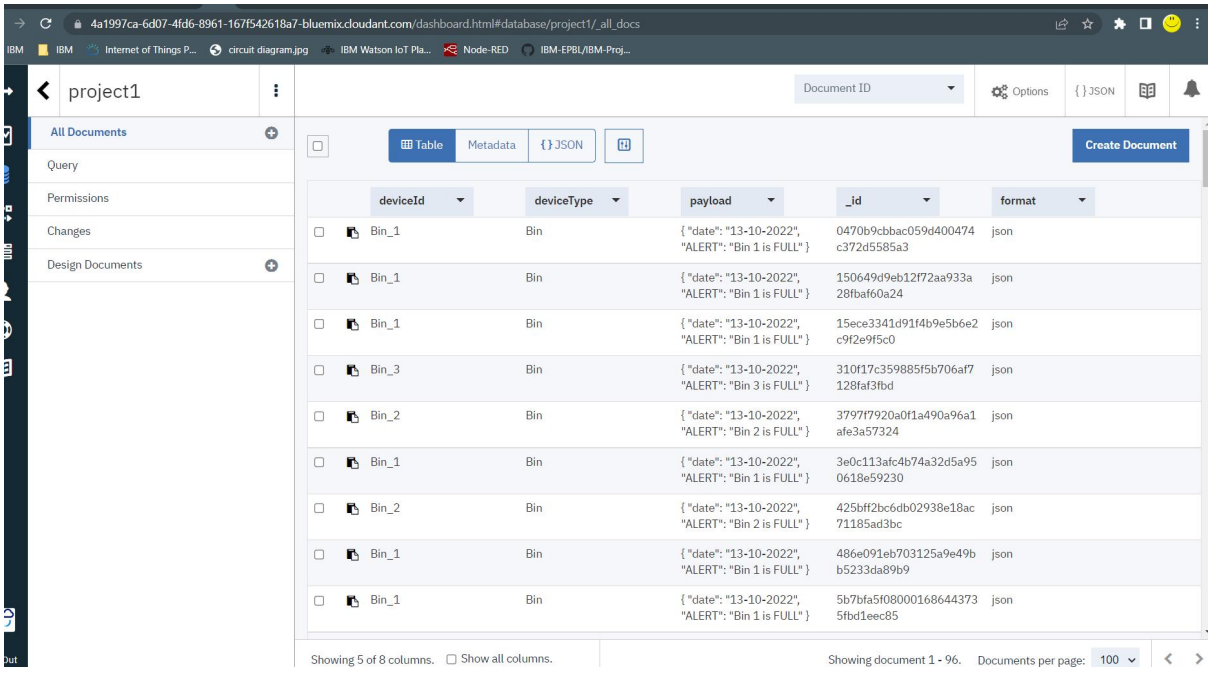


- ✓ The UI is used to monitor the garbage by weight and Level of the Trash as shown Below.
- ✓ The previous Level of the bins can also be viewed using the chart

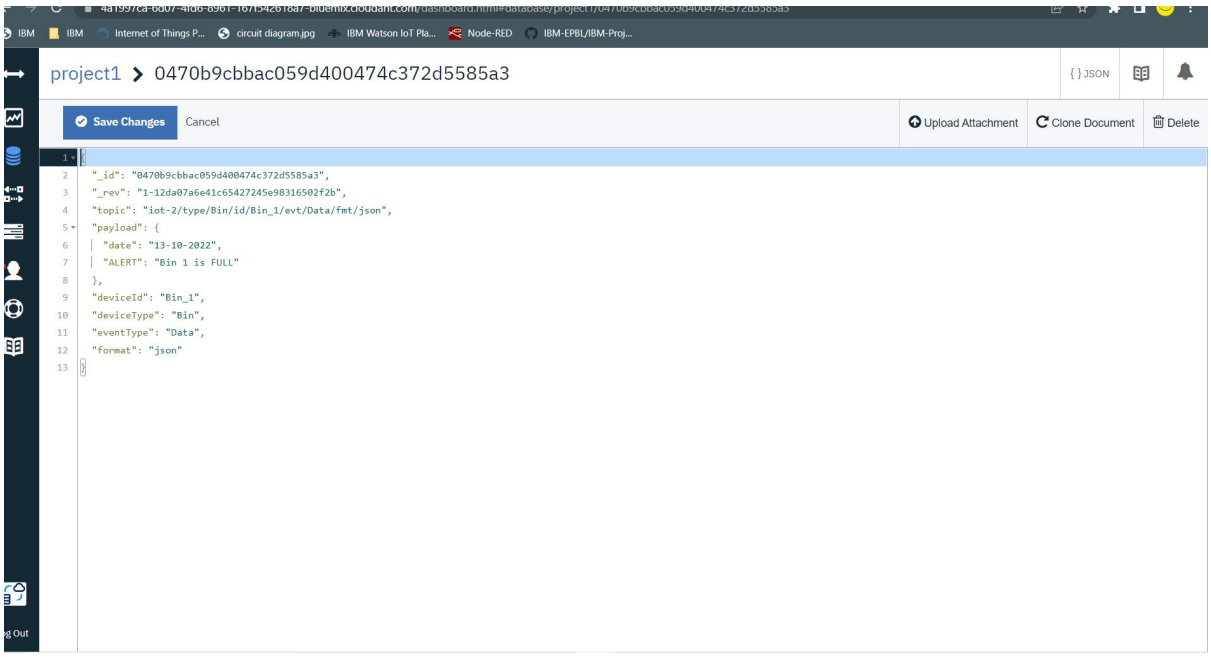


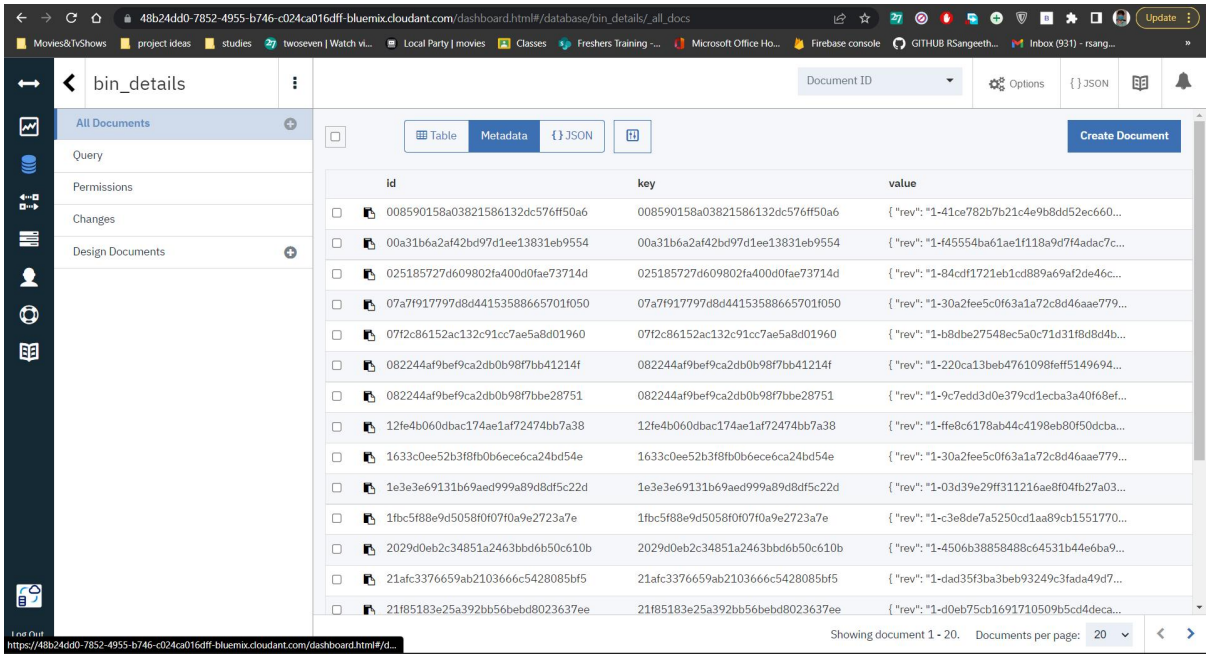
- ✓ If the level of the Trash is FULL or the Weight of the Trash is MAXIMUM , The ALERT message is Displayed





✓ The Message stored in cloud contains Bin details , Date and The ALERT message


project1 > 0470b9cbbac059d400474c372d5585a3
{ } JSON
Save Changes
Cancel
Upload Attachment
Clone Document
Delete
{
"_id": "0470b9cbbac059d400474c372d5585a3",
"_rev": "1-12da07a6e41c65427245e98316502f2b",
"topic": "iot-2/type/Bin/id/Bin_1/evt/Data/fmt/json",
"payload": {
"date": "13-10-2022",
"ALERT": "Bin 1 is FULL"
},
"deviceId": "Bin_1",
"deviceType": "Bin",
"eventType": "Data",
"format": "json"
}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Changes
Design Documents
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Options
{ } JSON
Table
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{ } JSON
Create Document
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