Project Delivery Sprint - 2

Date	28 Oct 2022
Team ID	PNT2022TMID04699
Project Name	Smart Farmer - IoT Enabled Smart Farming Application

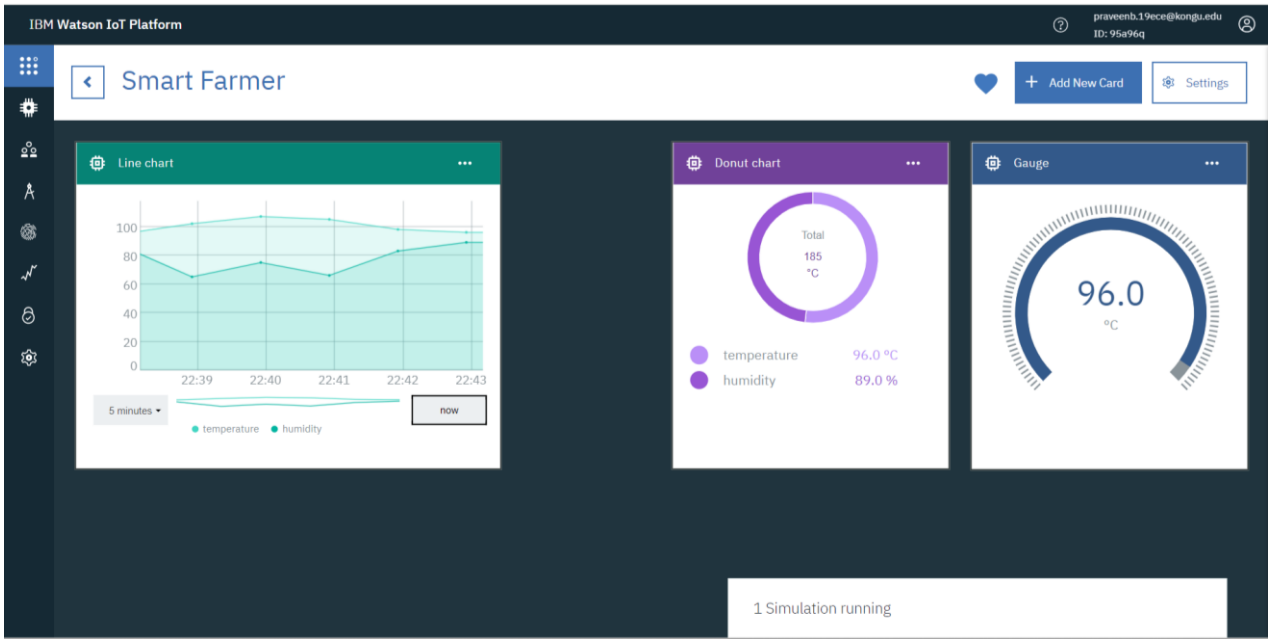
Connecting IOT Simulator to IBM Watson IOT Platform

Give the credentials of your device in IBM WatsonMy

credentials given to simulator are:

organization = "95a96q"
deviceType = "NodeMCu"
deviceId = "123456"
authMethod = "use-token-auth"
authToken = "P123@456"

- You can see the received data in graphs by creating cards in Boards tab
- You will receive the simulator data in cloud



- You can see the received data in Recent Events under your device
- Data received in this format (json)

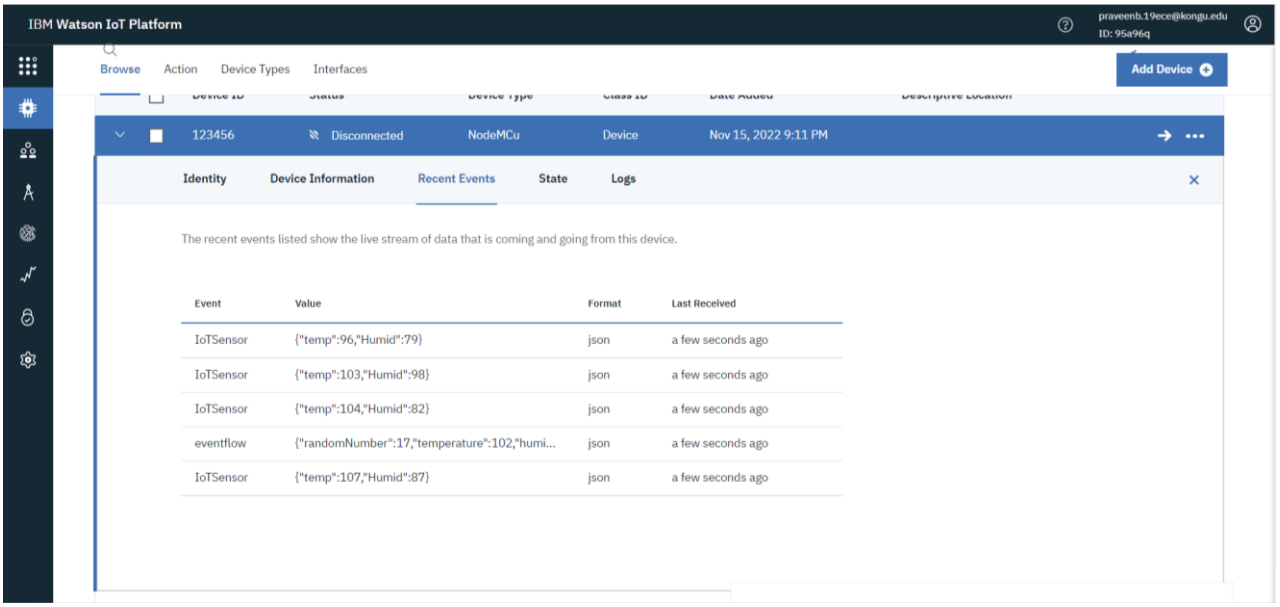
{

"Moisture":89,

"temp":96.0,

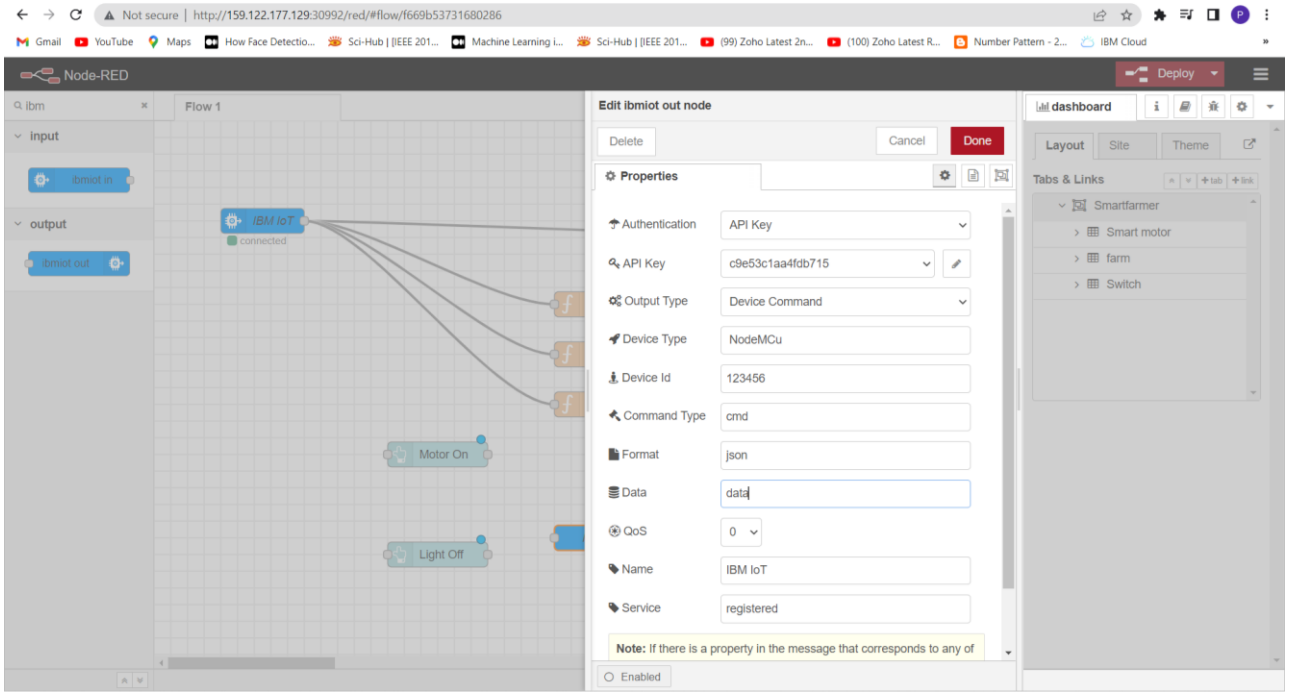
"Humid":89

}



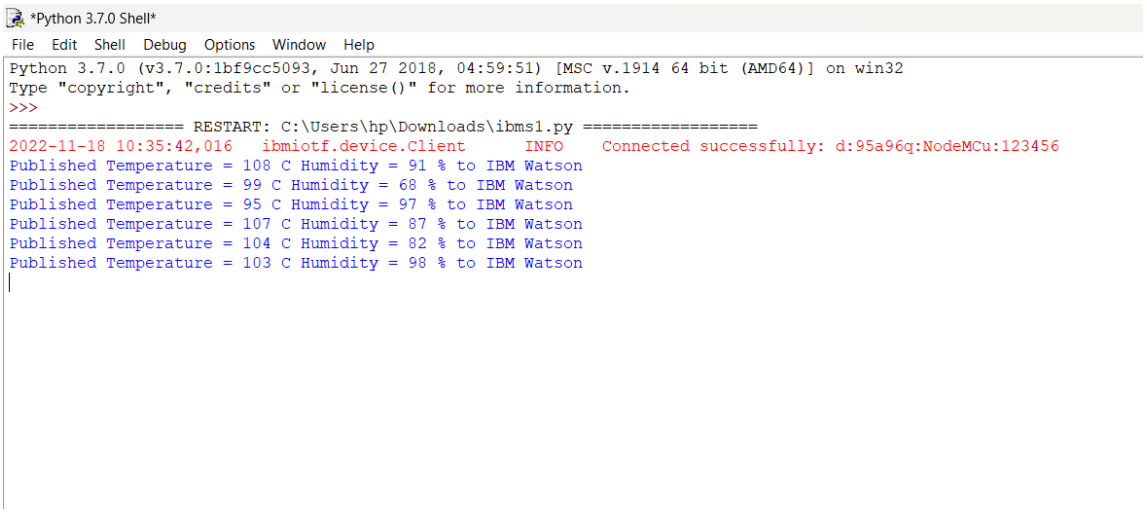
Configuration of Node-Red to collect IBM cloud data

The node IBM IOT App In is added to Node-Red workflow. Then theappropriate device credentials obtained earlier are entered into the node to connect and fetch device telemetry to Node-Red.

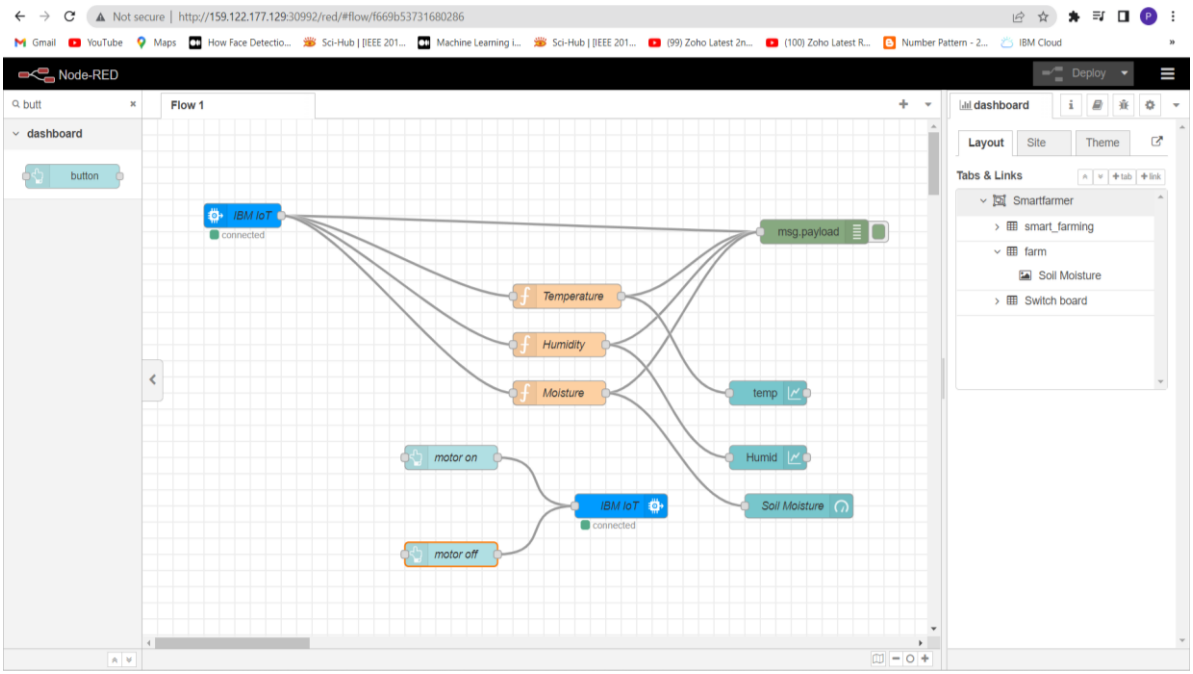


- Once it is connected Node-Red receives data from the device.
- Display the data using debug node for verification.
- Connect function node and write the Java script code to get each reading separately.
- The Java script code for the function node is:
- **msg.payload = msg.payload.temp**
  return msg;
- Finally connect Gauge nodes from dashboard to see the data in UI.

- Data send by the python code



- Data received from the cloud in Node-Red console



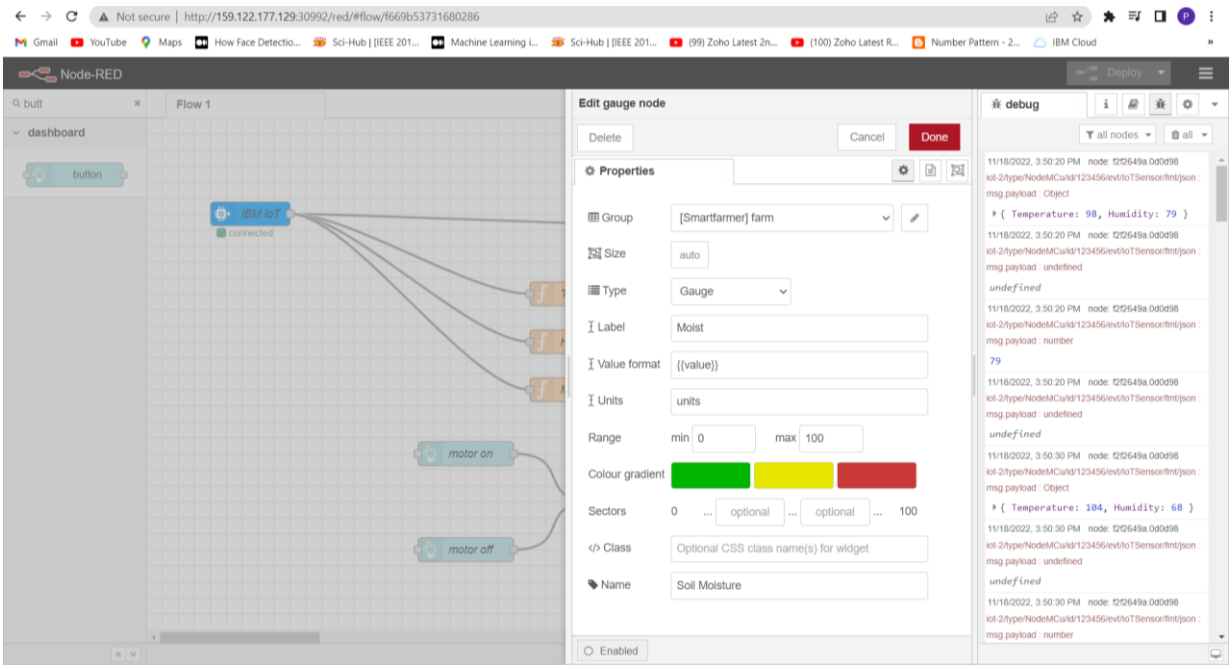
- Nodes connected in following manner to get each reading separately.

Configuration of Node-Red to collect data from Open Weather

- The Node-Red also receive data from the Open Weather API by HTTPGET request. An inject trigger is added to perform HTTP request for every certain interval.
- The link to get open weather API : https://api.openweathermap.org/data/2.5/weather?lat=11.4383197&lon=77.5402674&appid=124d808d2039542453a0b1b05f37e900
- The data we receive from Open Weather after request is in below JSONformat.
- {"coord":{"lon":77.5403,"lat":11.4383},"weather":[{"id":804,"main":"Clouds","description":"overcast clouds","icon":"04d"}],"base":"stations","main":{"temp":300.33,"feels_like":303.19,"temp_min":300.33,"temp_max":300.33,"pressure":1009,"humidity":79,"sea_level":1009,"grnd_level":986},"visibility":10000,"wind":{"speed":2.3,"deg":113,"gust":3.05},"clouds":{"all":97},"dt":1668332957,"sys":{"country":"IN","sunrise":1668300334,"sunset":1668342165},"timezone":19800,"id":1270947,"name":"Gobichettipalayam","cod":200}
- In order to parse the JSON string we use Java script functions and geteach parameters

```
msg.payload = {"temp" : global.get("t") ,
                "Humid" : global.get("h") ,
                "Moisture" : global.get("m")
              }
return msg;
```

- Then we add Gauge and text nodes to represent data visually in UI



- You can the data in the node-red dashboard