SPRINT – 2

SMART FARMER – IOT ENABLED SMART FARMING APPLICATION

Date	19 NOVEMBER 2022
Team ID	PNT2022TMID04701
Project Name	Smart Farmer-IoT Enabled smart Farming Application

IOT SIMULATOR TO IOT WATSON PLATFORM:

1.Create a device in IBM IOT Watson platform
   Credentials:
   > OrgID   : 639sac
   > Device type: Nodemcu
   > Device ID   : 12345
   > Token   : 1234567890

2.For simulation give the data for temperature, humidity, moisture

3.Create an event and select the device for simulation and run the process and send data to cloud which is visible in recent events of the device.

SIMULATION:

Device Type: Nodemcu

Schedule

1	Every Minute ▼

Payload

Specify the event payload in the editor window or by uploading a

```
0  {
1      "moisture": random(0, 100),
2      "temperature":random(90,110),
3      "humidity":random(60,100)
4  }
```

# SIMULATION RESULT:

Browse   Action   Device Types   Interfaces

Event	Value	Format	Last Received
event_1	{"moisture":97,"temperature":93,"humidity":71}	json	a few seconds ago
event_1	{"moisture":96,"temperature":106,"humidity":81}	json	a few seconds ago
event_1	{"moisture":63,"temperature":98,"humidity":94}	json	a few seconds ago
event_1	{"moisture":47,"temperature":99,"humidity":91}	json	a few seconds ago
event_1	{"moisture":67,"temperature":99,"humidity":74}	json	a few seconds ago

BOARD CREATION:

1. Go to boards and create a new board by giving any name.
2. Inside the board create new card.
3. Choose cards either in the form of line chart, donut etc
4. Send the respective data from the IBM cloud simulation to the card.
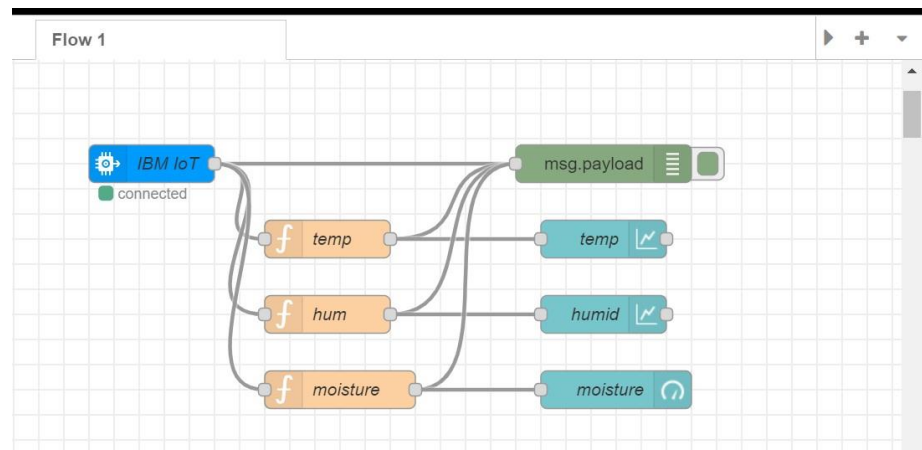5. Then, the respective graphs are obtained for the given data.
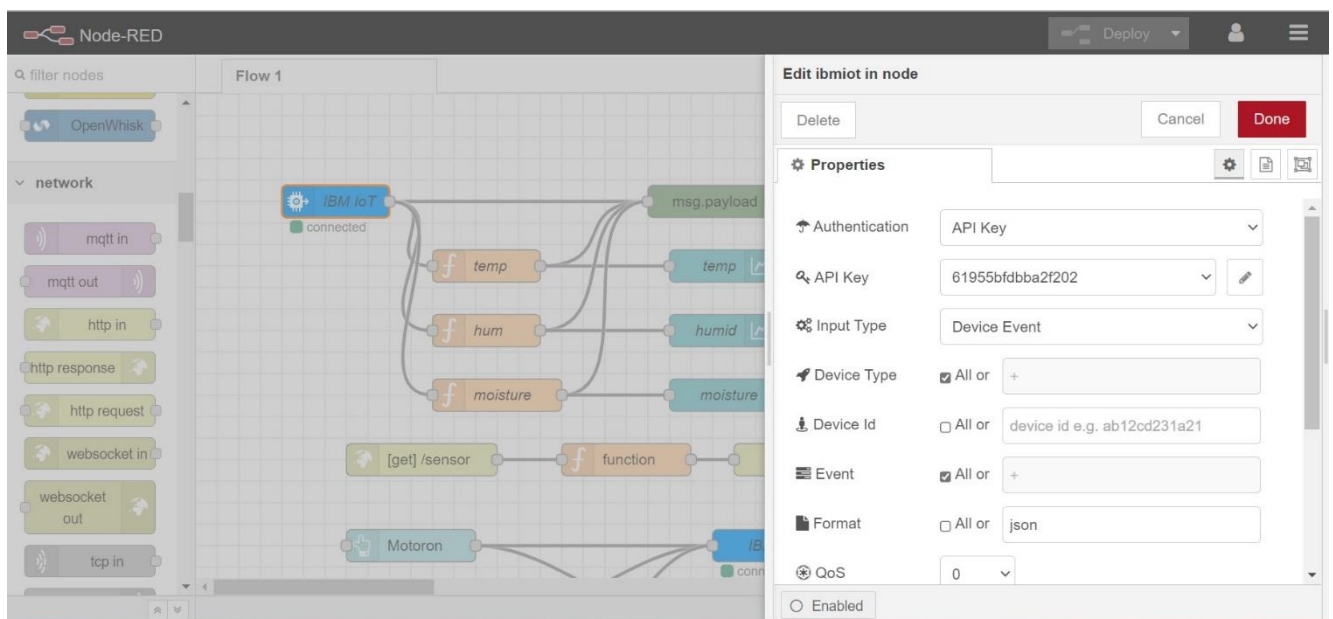
LINE CHART:
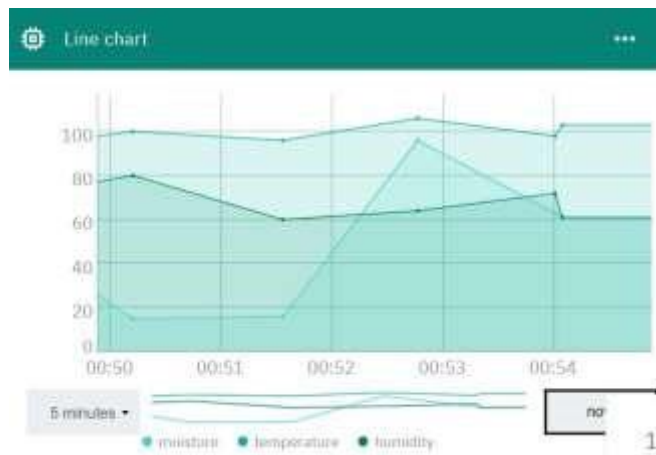
DONUT CHART:

NODE RED CONNECTION:

1. Connect IBM IOT to the IBM Watson Platform using API key and API token
   API key: a-639sac-yo7pymp6pk
   API token: rPqVaDVHeKe0xOXEpd

2. Temperature, Humidity and Moisture are in the form of function
and are connected to chart and gauge.
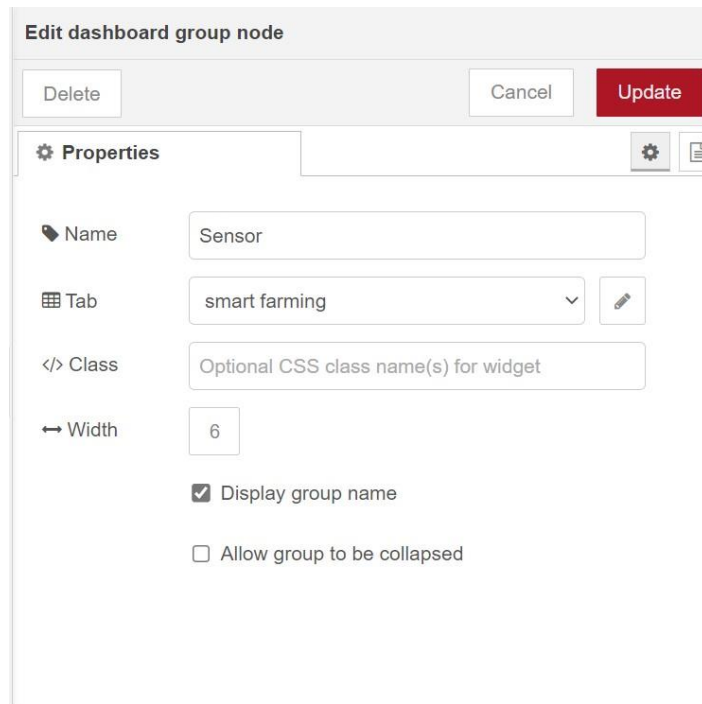   Function code:

```
msg.payload = msg.payload.temperature
```

  This code is written to connect the output of all data to Msg payload.

3.After this separate group must be formed.

       Group: Smart farm

      Tab: Sensor

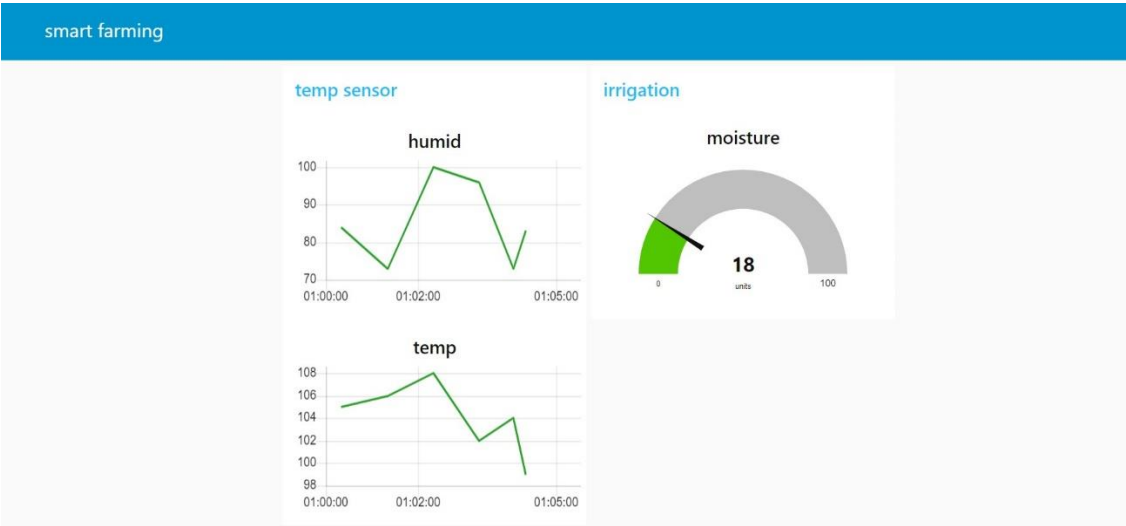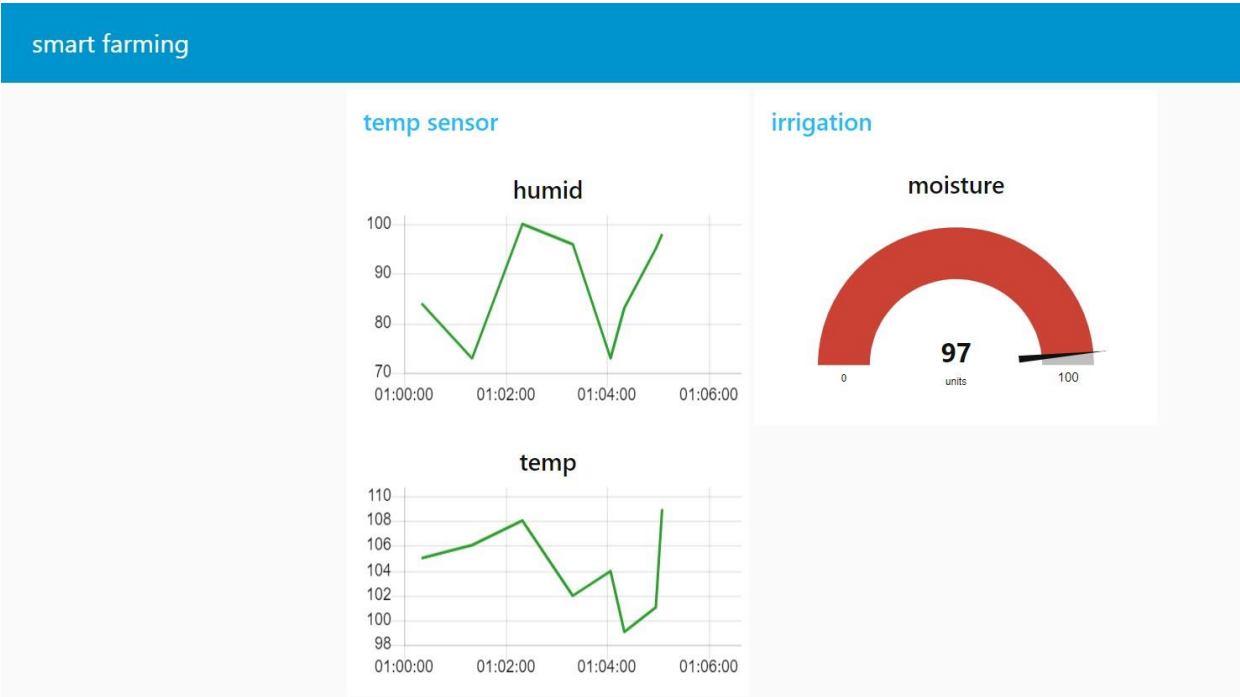   Inside the tab there will be temperature, humidity and moisture.

4.Deploy the connection and go to

      Manage Pallete -> node-red-dashboard -> install

5.After installing the dashboard then go the dashboard.
6.A separate dialog box will be open showing the result of the node-red connection

RESULT:

PYTHON CODE CONNECTION:

      1.Open PYTHON IDLE 3.7.0 and open the file which the python code is already written.

      2.Run the code by giving the device name, device ID, Authentication method and token.

      3.The following result will be obtained after the connection with IBM Watson platform.

```
Python 3.7.0 Shell
File  Edit  Shell  Debug  Options  Window  Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
====== RESTART: C:\Users\priya\OneDrive\Documents\ibm python code 1.py ======
2022-11-19 01:08:34,088   ibmiotf.device.Client       INFO    Connected successfully: d:639sac:Nodemcu:12345
Published Temperature = 80 C Humidity = 95 % Soil moisture = 76 bar to IBM Watson
Published Temperature = 106 C Humidity = 89 % Soil moisture = 96 bar to IBM Watson
Published Temperature = 88 C Humidity = 88 % Soil moisture = 97 bar to IBM Watson
Published Temperature = 99 C Humidity = 87 % Soil moisture = 94 bar to IBM Watson
Published Temperature = 84 C Humidity = 85 % Soil moisture = 96 bar to IBM Watson
Published Temperature = 105 C Humidity = 98 % Soil moisture = 81 bar to IBM Watson
Published Temperature = 107 C Humidity = 86 % Soil moisture = 93 bar to IBM Watson
Published Temperature = 109 C Humidity = 95 % Soil moisture = 76 bar to IBM Watson
Published Temperature = 110 C Humidity = 94 % Soil moisture = 93 bar to IBM Watson
Published Temperature = 81 C Humidity = 87 % Soil moisture = 76 bar to IBM Watson
Published Temperature = 109 C Humidity = 92 % Soil moisture = 78 bar to IBM Watson
Published Temperature = 85 C Humidity = 93 % Soil moisture = 99 bar to IBM Watson
Published Temperature = 88 C Humidity = 84 % Soil moisture = 100 bar to IBM Watson
Published Temperature = 100 C Humidity = 97 % Soil moisture = 75 bar to IBM Watson
Published Temperature = 86 C Humidity = 89 % Soil moisture = 76 bar to IBM Watson
Published Temperature = 110 C Humidity = 84 % Soil moisture = 80 bar to IBM Watson
Published Temperature = 81 C Humidity = 92 % Soil moisture = 80 bar to IBM Watson
```
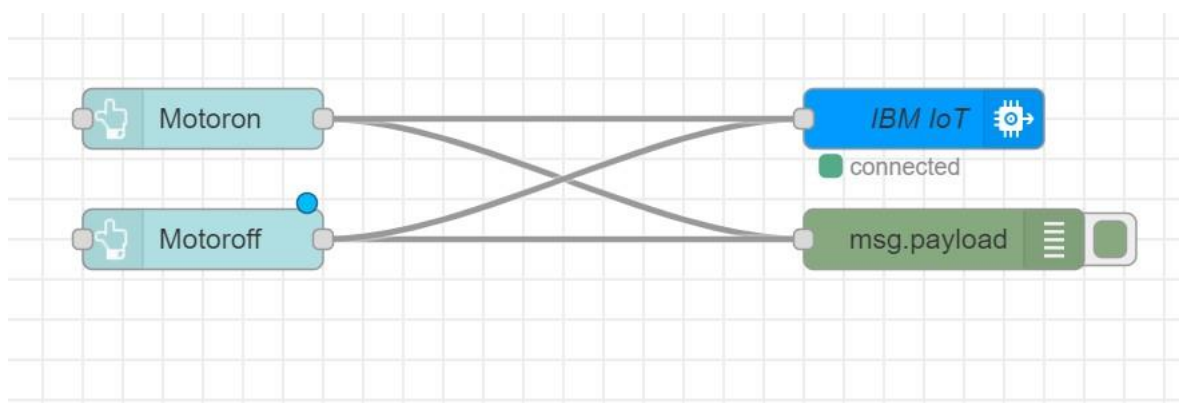
      4.The data given and send in IBM platform is received here.

      5.The device simulator in the IBM cloud is turned off and the data is given through the python code and the
result is obtained in Node-red dashboard.

RESULT:
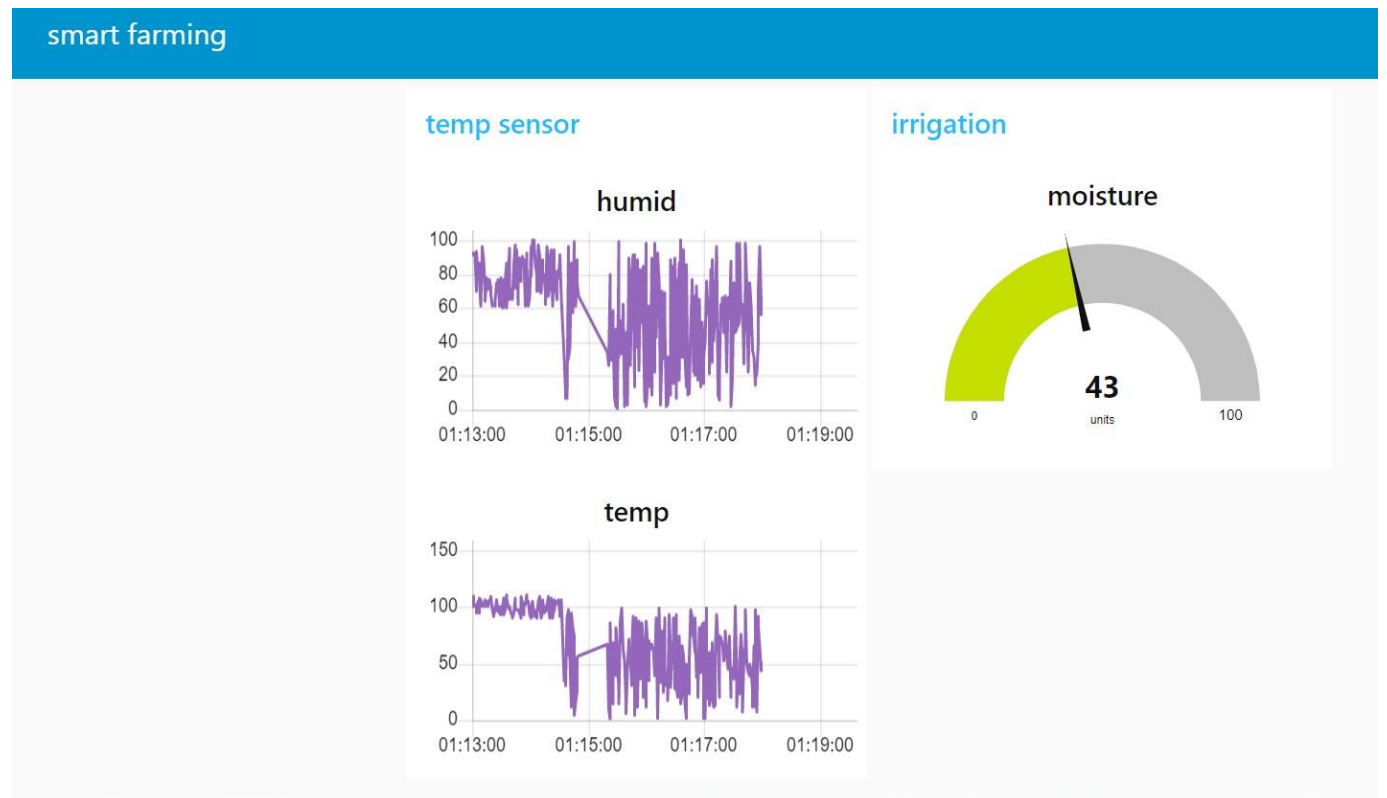
MOTOR CONNECTION:

1.Develop a node-red connection to turn on motor and turn off motor.

2.This new connection is visible in the dashboard as