

## SPRINT – 3

Date	17 November 2022
Team ID	PNT2022TMID44390
Project Name	Smart farmer- IOT enabled smart farming application

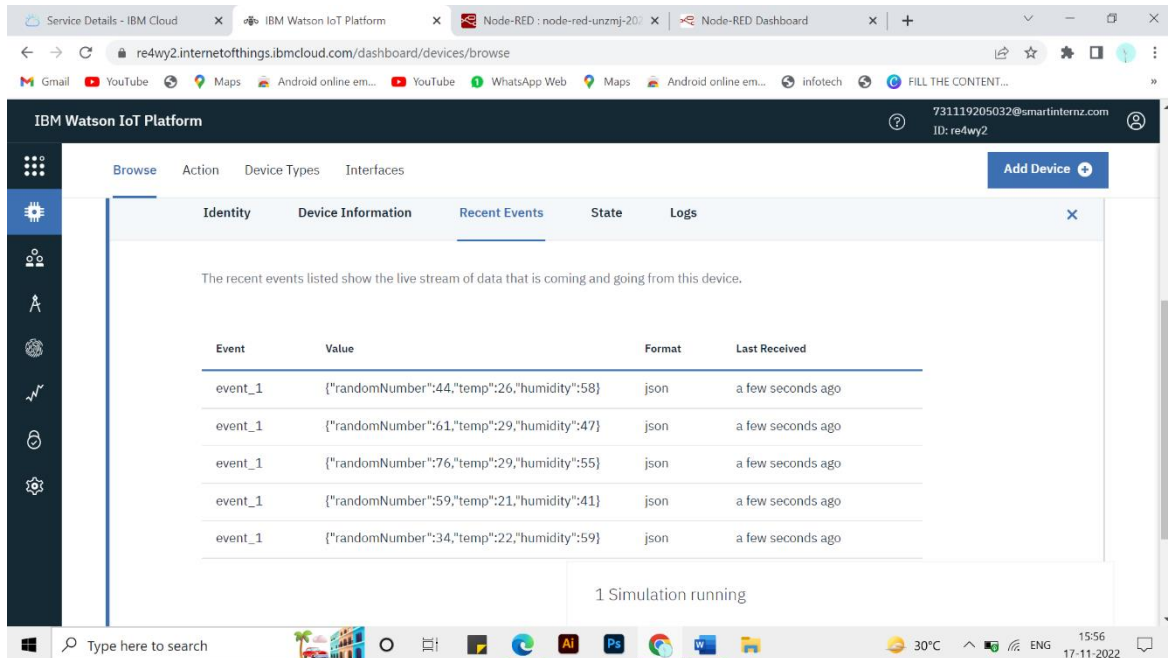
## WEB APPLICATION

**Step 1:** Generate random values of Humidity, Temperature, Soil Moisture are generated from events in the Watson IOT platform.

The screenshot displays the IBM Watson IoT Platform interface. The main page is titled 'Browse Devices' and shows a table with columns for Device ID, Status, and Device Type. A modal window is open, allowing the user to create a new event type. The modal includes fields for 'Event type name' (set to 'event\_1'), 'Schedule' (set to 'Every Minute'), and 'Payload'. The payload is a JSON object with random values for 'randomNumber', 'temp', and 'humidity'.

```
0 {
1   "randomNumber": random(21, 80),
2   "temp": random(20, 30),
3   "humidity": random(40, 60)
4 }
5 }
```

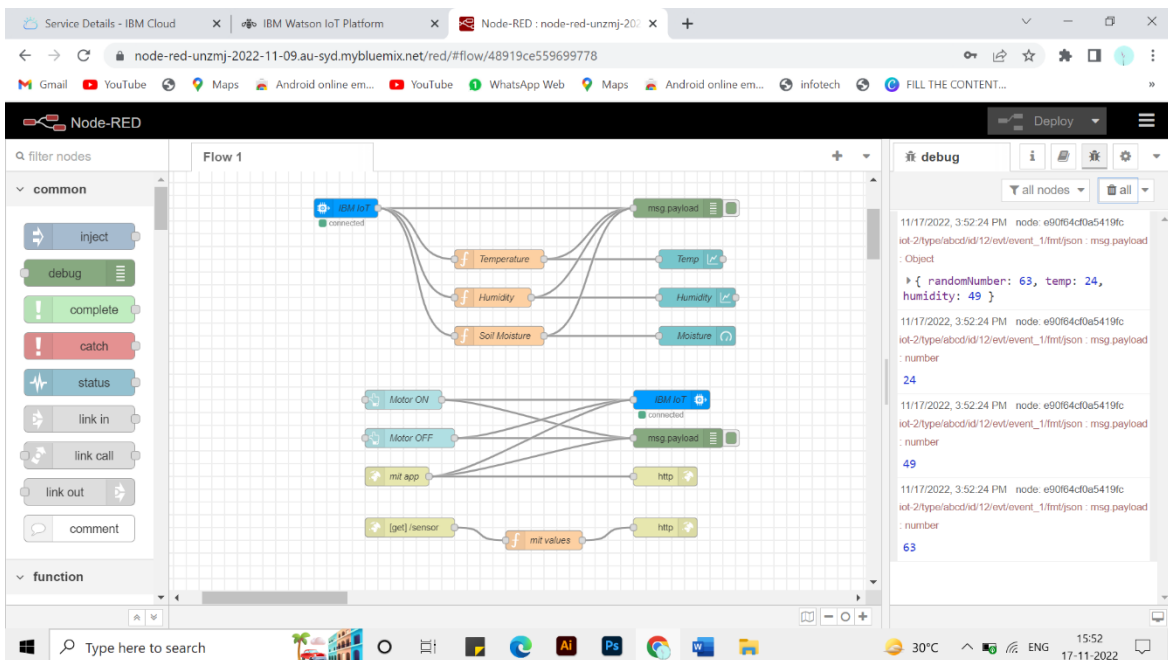
**Step 2:** The values are generated for every minute as payload from events in the form of json format.



The screenshot shows the IBM Watson IoT Platform dashboard. The 'Recent Events' tab is selected, displaying a table of events. The table has four columns: Event, Value, Format, and Last Received. Below the table, it indicates '1 Simulation running'.

Event	Value	Format	Last Received
event_1	{"randomNumber":44,"temp":26,"humidity":58}	json	a few seconds ago
event_1	{"randomNumber":61,"temp":29,"humidity":47}	json	a few seconds ago
event_1	{"randomNumber":76,"temp":29,"humidity":55}	json	a few seconds ago
event_1	{"randomNumber":59,"temp":21,"humidity":41}	json	a few seconds ago
event_1	{"randomNumber":34,"temp":22,"humidity":59}	json	a few seconds ago

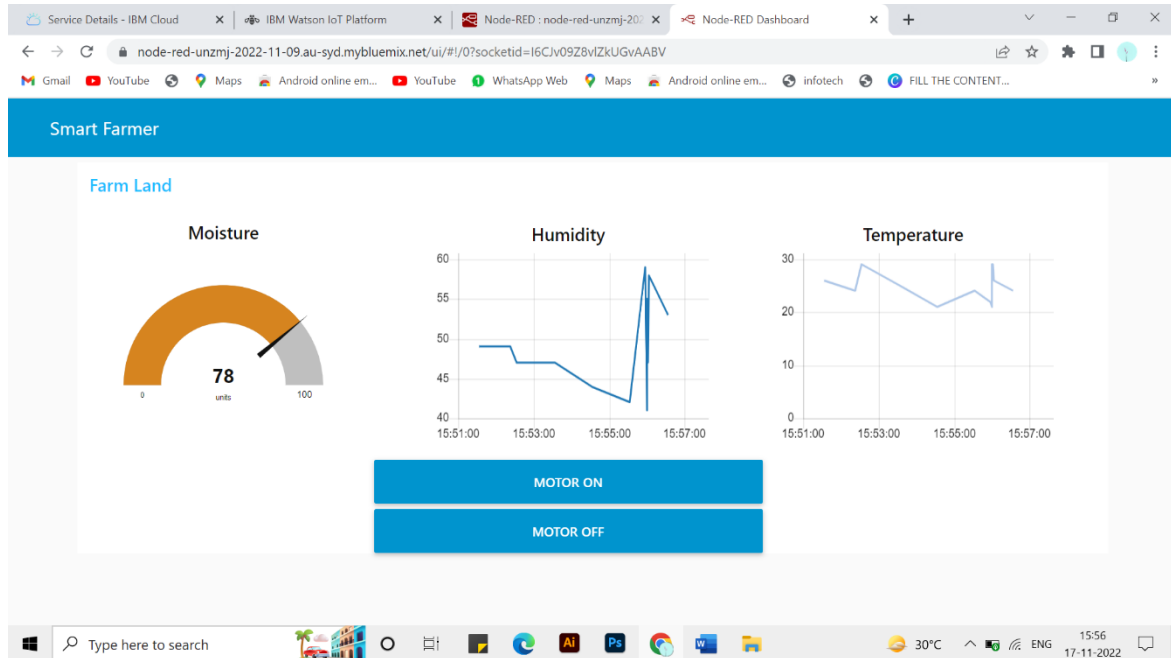
**Step 3:** Node-RED is an editor used to create the flow between the nodes and has to be deployed once the flow has been made. Once deployment is done the editor displays the details of temperature, soil moisture, humidity in the debug section.



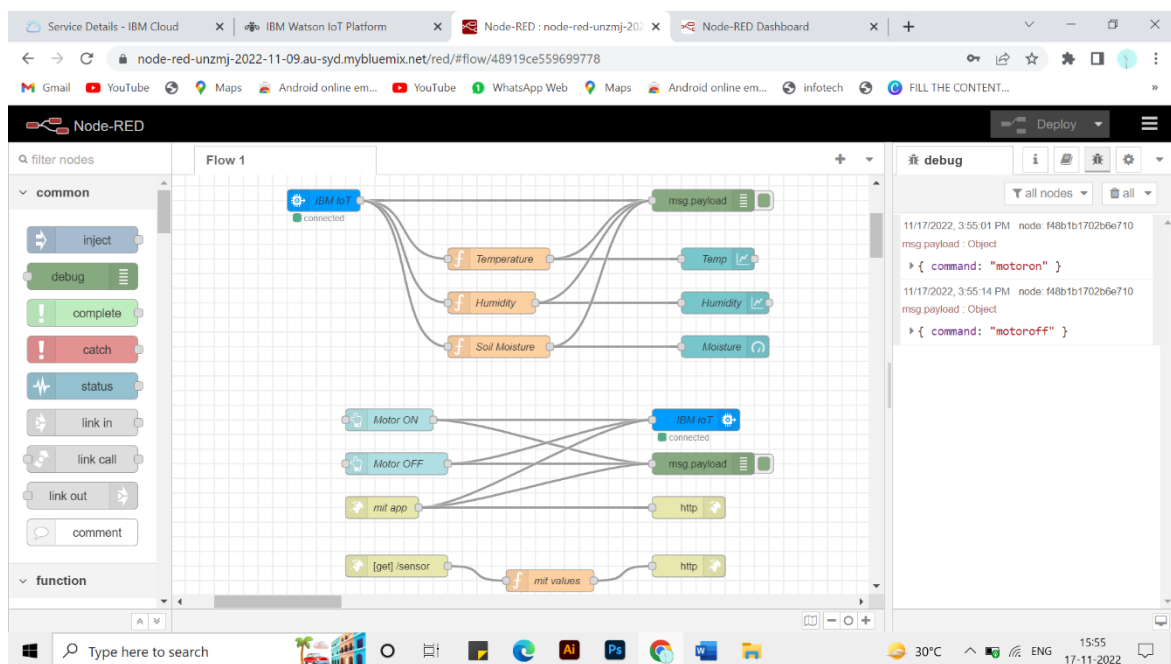
The screenshot shows the Node-RED editor interface. The 'Flow 1' workspace contains a flow diagram with nodes for 'IBM IoT', 'Temperature', 'Humidity', 'Soil Moisture', 'msg payload', 'Motor ON', 'Motor OFF', 'mit app', 'http', and 'mit values'. The 'debug' console on the right displays the following log entries:

```
11/17/2022, 3:52:24 PM node: e90f64cd0e5419fc  
iot-2/type/abcd/12/ev/event_1/fmt/json : msg payload  
: Object  
  {  
    randomNumber: 63,  
    temp: 24,  
    humidity: 49  
  }  
11/17/2022, 3:52:24 PM node: e90f64cd0e5419fc  
iot-2/type/abcd/12/ev/event_1/fmt/json : msg payload  
: number  
  24  
11/17/2022, 3:52:24 PM node: e90f64cd0e5419fc  
iot-2/type/abcd/12/ev/event_1/fmt/json : msg payload  
: number  
  49  
11/17/2022, 3:52:24 PM node: e90f64cd0e5419fc  
iot-2/type/abcd/12/ev/event_1/fmt/json : msg payload  
: number  
  63
```

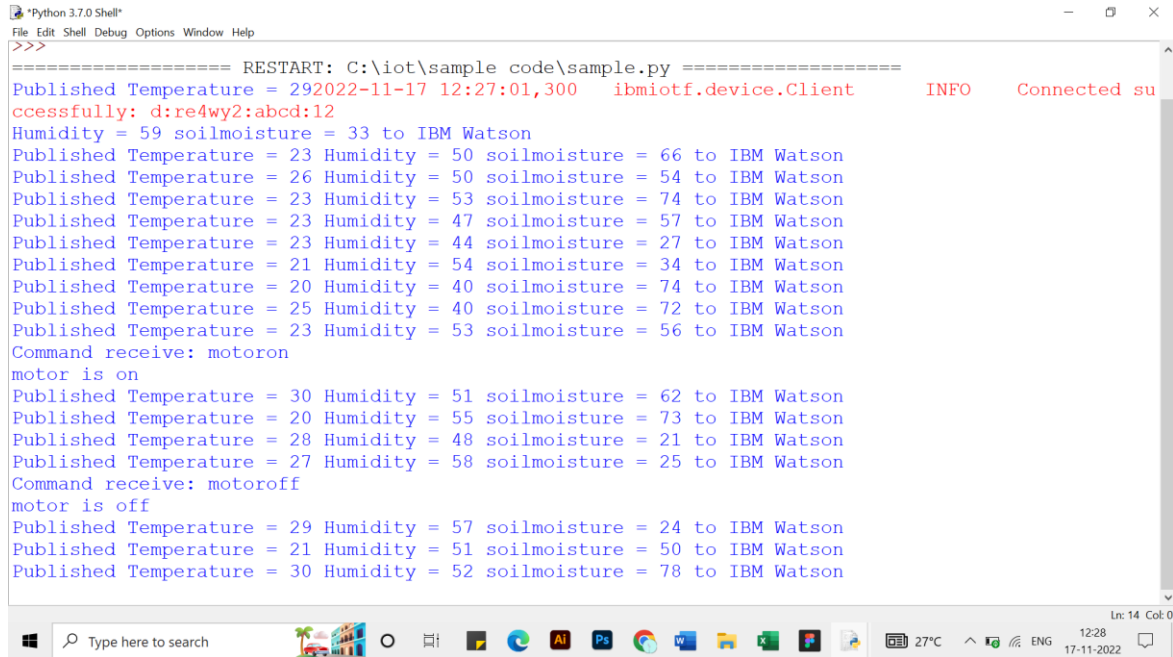
**Step 4:** The **Smart Farmer** dashboard is viewed once the deployment is completed where we can able to view the graphs of Humidity and Temperature. Gauge is used to view the moisture.



**Step 5:** When the **Motor ON** button is clicked the we receive the output as “**motoron**” and **Motor OFF** button is clicked we receive the output as “**motoroff**”. And these output are received in the debug section of the editor.



**Step 6:** The output is also received in the **python code editor** when the buttons are clicked in the dashboard and random values are also generated.



```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
>>>
===== RESTART: C:\iot\sample code\sample.py =====
Published Temperature = 29 Humidity = 50 soilmoisture = 66 to IBM Watson
Published Temperature = 26 Humidity = 53 soilmoisture = 74 to IBM Watson
Published Temperature = 23 Humidity = 47 soilmoisture = 57 to IBM Watson
Published Temperature = 23 Humidity = 44 soilmoisture = 27 to IBM Watson
Published Temperature = 21 Humidity = 54 soilmoisture = 34 to IBM Watson
Published Temperature = 20 Humidity = 40 soilmoisture = 74 to IBM Watson
Published Temperature = 25 Humidity = 40 soilmoisture = 72 to IBM Watson
Published Temperature = 23 Humidity = 53 soilmoisture = 56 to IBM Watson
Command receive: motoron
motor is on
Published Temperature = 30 Humidity = 51 soilmoisture = 62 to IBM Watson
Published Temperature = 20 Humidity = 55 soilmoisture = 73 to IBM Watson
Published Temperature = 28 Humidity = 48 soilmoisture = 21 to IBM Watson
Published Temperature = 27 Humidity = 58 soilmoisture = 25 to IBM Watson
Command receive: motoroff
motor is off
Published Temperature = 29 Humidity = 57 soilmoisture = 24 to IBM Watson
Published Temperature = 21 Humidity = 51 soilmoisture = 50 to IBM Watson
Published Temperature = 30 Humidity = 52 soilmoisture = 78 to IBM Watson
```