

IOT ENABLED SMART FARMING APPLICATION

SPRINT DELIVERY – 3

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5.4 Configuration of Node-Red to send commands to IBM cloud

ibmiot out node I used to send data from Node-Red to IBM Watson device. So, after adding it to the flow we need to configure it with credentials of our Watson device.

The screenshot displays the Node-RED web interface in a browser. The main workspace shows a flow named 'Flow 1' with several nodes: 'inject', 'debug', 'complete', 'catch', 'status', 'link in', 'link call', 'link out', 'comment', 'function', and 'ibmiot out'. The 'ibmiot out' node is selected, and its configuration panel is open on the right. The configuration panel includes fields for 'Authentication' (API Key), 'API Key' (0db169ce0ce3debf), 'Output Type' (Device Command), 'Device Type' (SFTTMS00), 'Device Id' (SFTTMS11), 'Command Type' (command), 'Format' (String), 'Data' (1), and 'QoS' (0). The 'Enabled' checkbox is checked. A 'debug' panel on the right shows a log of messages, including temperature, humidity, and moisture data.

Here we add two buttons in UI

1 -> for Light on

2 -> for Light off

We used a function node to analyse the data received and assign command to each number.

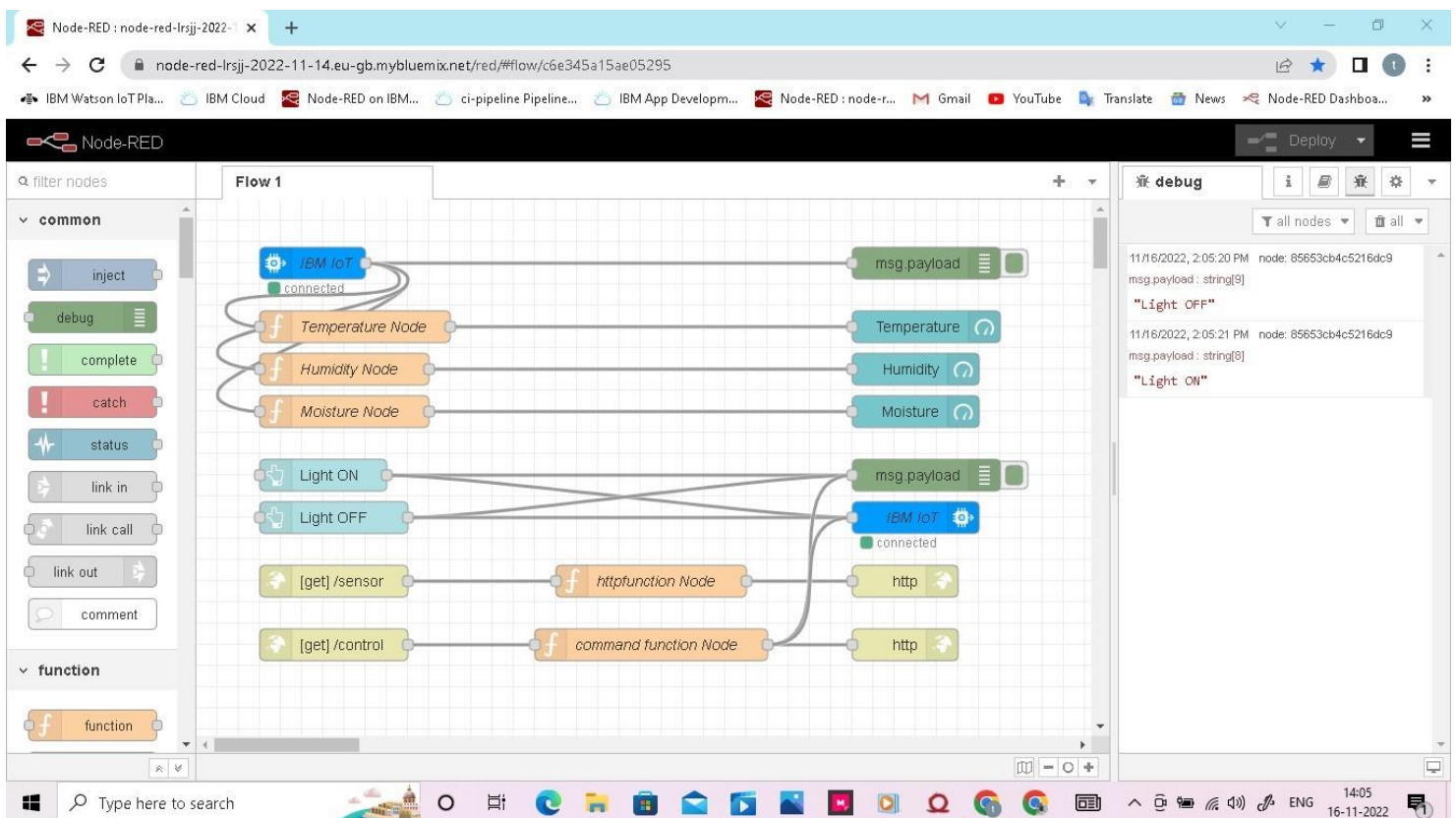
The Java script code for the analyses is:

```
if(msg.payload===1)
```

```
msg.payload={"command": "ON"};
```

```
else if(msg.payload===0)
```

```
msg.payload={"command": "OFF"};
```



This is the program flow for sending commands to IBM cloud.

5.5 Adjusting User Interface

In order to display the parsed JSON data a Node-Red dashboard is created

Here we are using Gauges, text and button nodes to display in the UI and helps to monitor the parameters and control the farm equipment.

Below images are the Gauge, text and button node configurations.

The screenshot displays the Node-RED web interface in a browser. The top navigation bar includes links to IBM Watson IoT Platform, Service Details - IBM Cloud, and the current flow: Node-RED : node-red-lrsjj-2022-11-14. The main workspace shows a flow titled 'Flow 1' with the following nodes: an 'IBM IoT' node (connected), followed by 'Temperature Node', 'Humidity Node', and 'Moisture Node'. These are connected to 'Light ON' and 'Light OFF' nodes, which then connect to '[get] /sensor' and '[get] /control' nodes. The left sidebar shows the 'common' and 'function' node palettes. The right sidebar features the 'Edit gauge node' configuration panel and a 'debug' console.

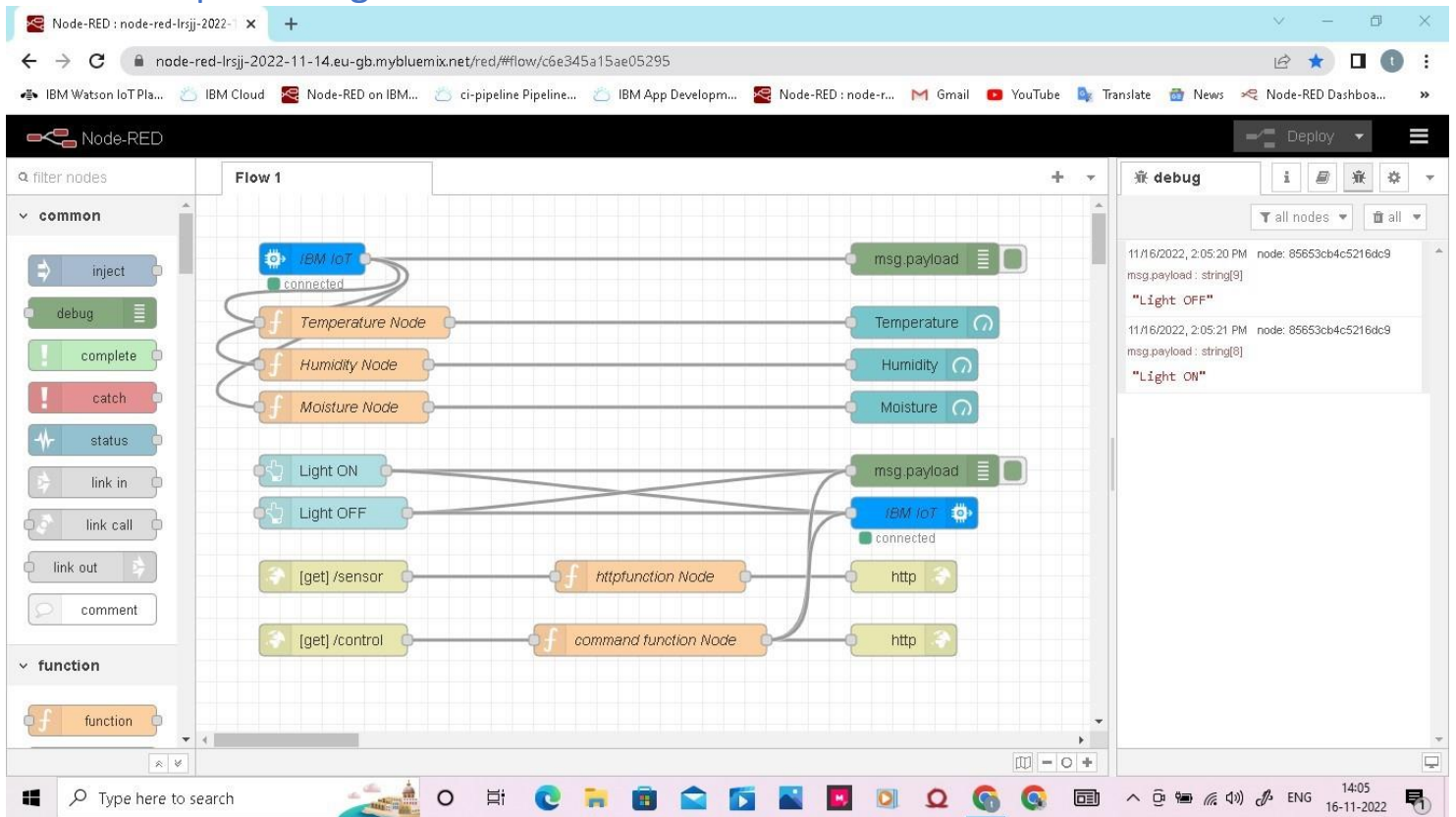
Edit gauge node configuration:

- Group: [Control] Weather Monitoring
- Size: auto
- Type: Donut
- Label: Moisture
- Value format: {{value}}
- Units: g.kg-1
- Range: min 0, max 100
- Colour gradient: [Teal gradient bar]
- Sectors: 0, optional, optional, 100
- Enabled: ☐

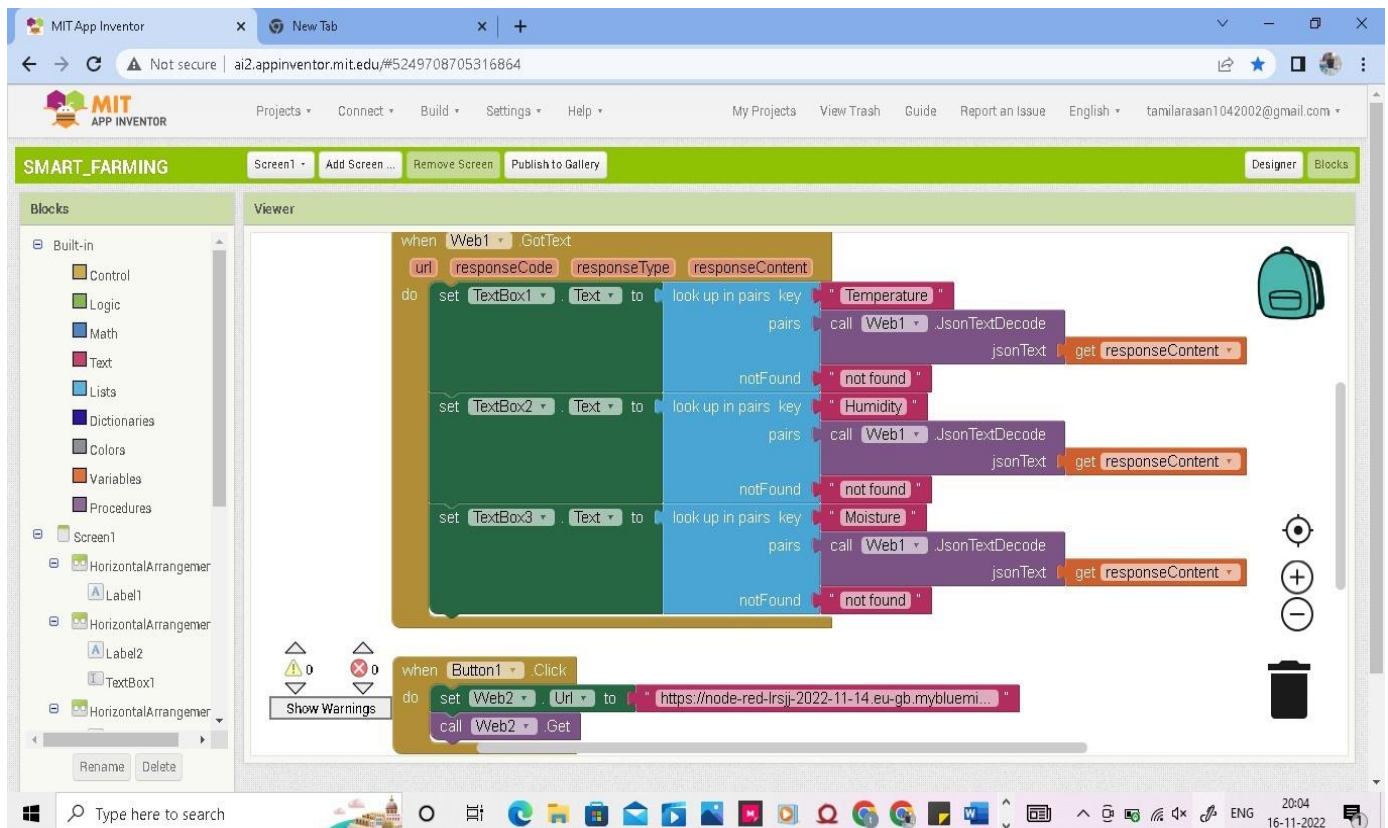
Debug console output:

```
{ Temperature: 26, Humidity: 39, Moisture: 2 }
11/16/2022, 7:30:52 PM node: 0761723fccf938de
iot-2aType/SFTTMS000Id/SFTTMS11/evt/event_1/fmt/json :
msg.payload : Object
{ Temperature: 89, Humidity: 68, Moisture: 27 }
11/16/2022, 7:30:55 PM node: 0761723fccf938de
iot-2aType/SFTTMS000Id/SFTTMS11/evt/event_1/fmt/json :
msg.payload : Object
{ Temperature: 86, Humidity: 52, Moisture: 64 }
11/16/2022, 7:30:58 PM node: 0761723fccf938de
iot-2aType/SFTTMS000Id/SFTTMS11/evt/event_1/fmt/json :
msg.payload : Object
{ Temperature: 85, Humidity: 55, Moisture: 86 }
11/16/2022, 7:31:01 PM node: 0761723fccf938de
iot-2aType/SFTTMS000Id/SFTTMS11/evt/event_1/fmt/json :
msg.payload : Object
{ Temperature: 17, Humidity: 33, Moisture: 12 }
```

Complete Program Flow



MOBILE APP WEB :



BLOCK DIAGRAM

2:05

3.00 KB/S 4G 33%

Screen1

SMART FARMING

<i>Temperature</i>	<input type="text" value="3"/>
<i>Humidity</i>	<input type="text" value="12"/>
<i>Moisture</i>	<input type="text" value="45"/>

CONTROL

Light ON

Light OFF

Web APP UI Home Tab

