

SPRINT DELIVERY – 3

Team ID	PNT2022TMID24443
Project Name	Smart Farmer – IOT Enabled Smart Farming Application

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.

Here we add two buttons in UI

The screenshot shows the 'Edit ibmiot in node' configuration window in Node-Red. The window has a title bar 'Edit ibmiot in node' and three buttons: 'Delete', 'Cancel', and 'Done'. Below the buttons is a 'Properties' tab with a settings icon, a document icon, and a preview icon. The configuration fields are as follows:

- Authentication:** API Key (dropdown)
- API Key:** ibmiot1 (text field with a search icon and a pencil icon)
- Input Type:** Device Event (dropdown)
- Device Type:** ☐ All or NodeMCU (text field)
- Device Id:** ☐ All or 12345 (text field)
- Event:** ☒ All or + (text field)
- Format:** ☐ All or json (text field)
- QoS:** 0 (dropdown)
- Name:** IBM IoT (text field)
- Service:** registered (text field)

At the bottom, there is a yellow highlighted box with the text: 'Use the Input Type property to configure this node to receive Events sent by IoT Devices, Commands sent to IoT Devices, Status Messages referring to IoT Devices, or Status Messages referring to'. Below this box is a radio button labeled 'Enabled'.

1 -> for motor on

2 -> for motor off

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

The Java script code for the analysis is:

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

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

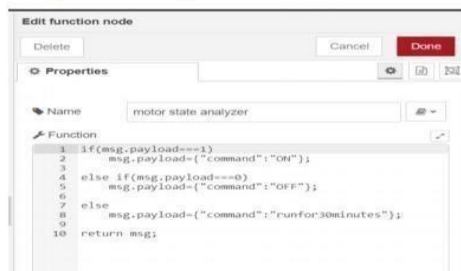
```
else if(msg.payload===0)
```

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

Then we use another function node to parse the data and get the command and represent it visually with text node.

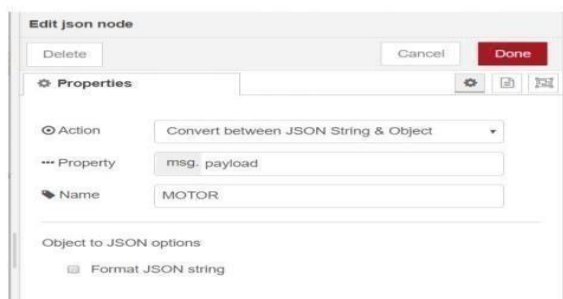
The Java script code for that function node is:

```
var state=msg.payload;  
msg.payload = state.command;  
return msg;
```

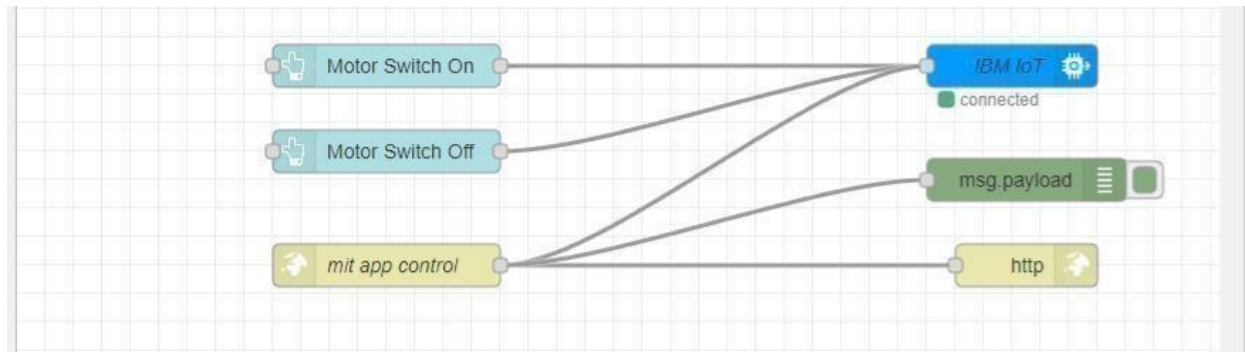


The above images show the java script codes of analyser and state function nodes.

Then we add edit Json node to the conversion between JSON string & object and finally connect it to IBM IoT Out.



Edit JSON node needs to be configured like this



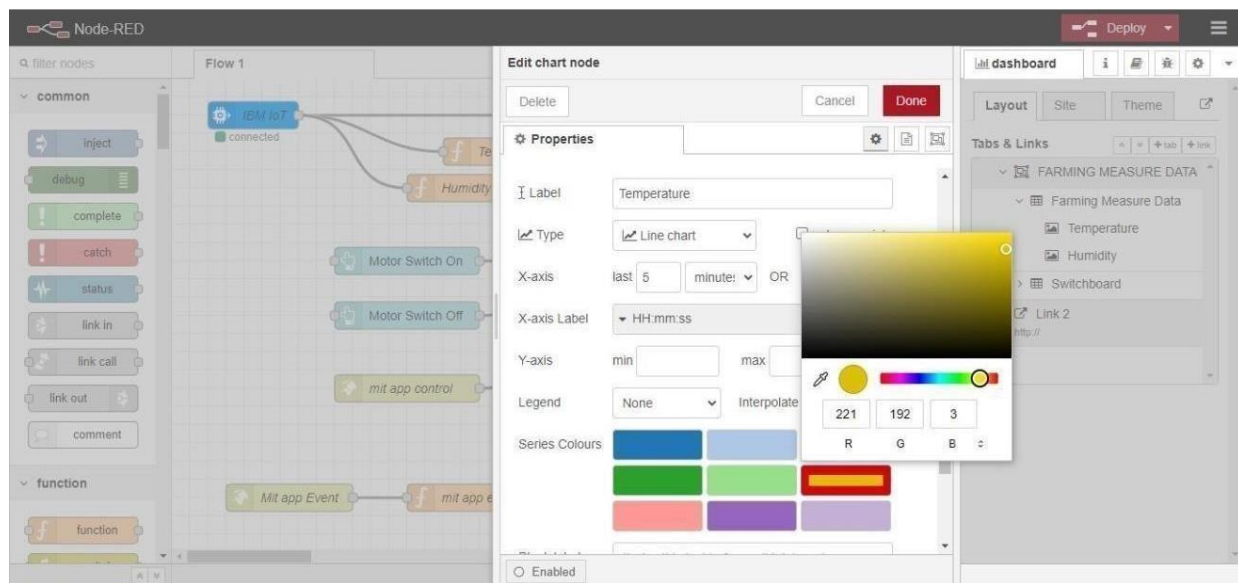
This is the program flow for sending commands to IBM cloud.

Adjusting User Interface

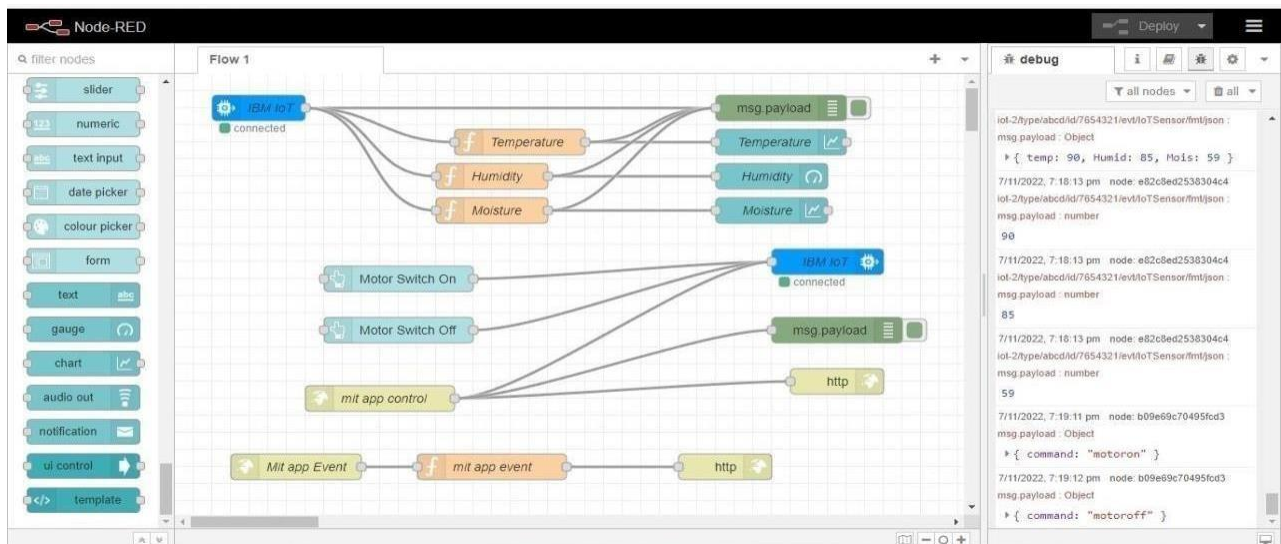
In order to display the parsed JSON data a Node-Red dashboard is created

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.

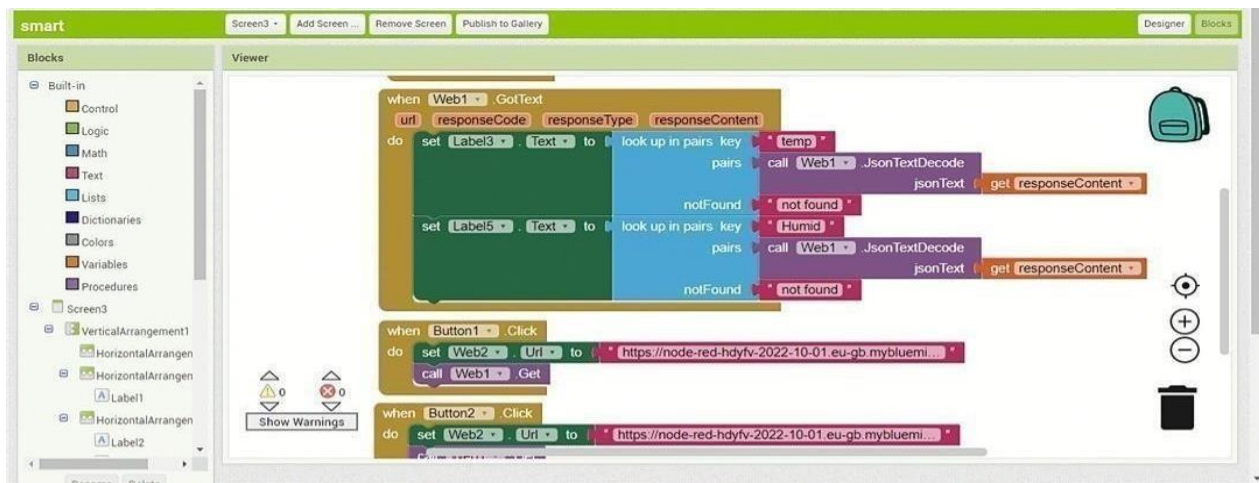
Below images are the Gauge, text and button node configurations.



Complete Program Flow



MOBILE APP WEB : BLOCK DIAGRAM





SCREEN – 1



SCREEN - 2



SCREEN - 3

Web APP UI Home Tab

