

Build a Web Application Using Node-RED

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Project Name	Project – 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.

The screenshot shows the 'Edit ibmiot in node' configuration window in Node-RED. The window has a title bar with the text 'Node-RED : node-red-hdyfv-2022' and a close button. Below the title bar is a URL bar showing 'ed/#flow/c7ddb1462b8a000c'. The main content area is titled 'Edit ibmiot in node' and contains several sections: 'Delete', 'Cancel', and 'Done' buttons; a 'Properties' section with a gear icon; and a list of configuration options. The options are: 'Authentication' (API Key), 'API Key' (IBMIOT APIKEY), 'Input Type' (Device Event), 'Device Type' (All or abcd), 'Device Id' (All or 7654321), 'Event' (All or +), 'Format' (All or json), 'QoS' (0), and 'Name' (IBM IoT). At the bottom, there is an 'Enabled' checkbox.

Node-RED : node-red-hdyfv-2022 x +

ed/#flow/c7ddb1462b8a000c

Edit ibmiot in node

Delete Cancel Done

Properties

Authentication API Key

API Key IBMIOT APIKEY

Input Type Device Event

Device Type ☐ All or abcd

Device Id ☐ All or 7654321

Event ☒ All or +

Format ☐ All or json

QoS 0

Name IBM IoT

☐ Enabled

Here we add two buttons in UI

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 analyses is:

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

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

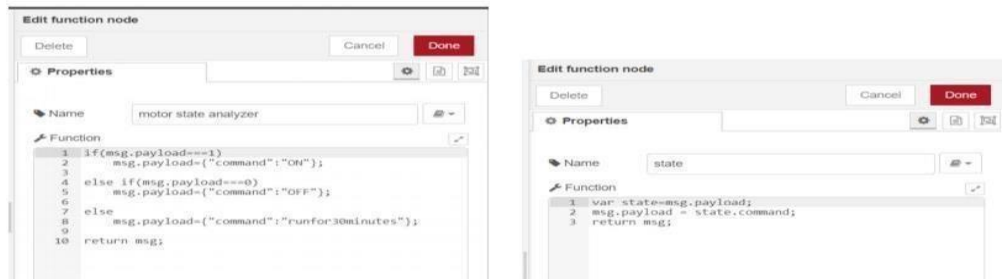
```
else if(msg.payload===0)
```

```
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.

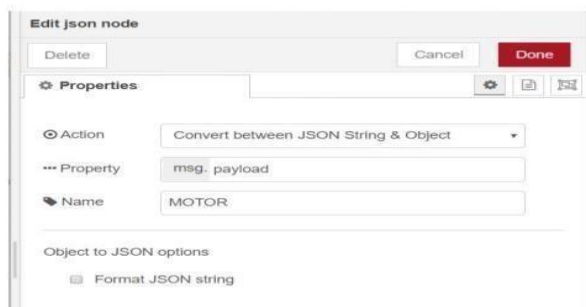
The Java script code for that function node is:

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

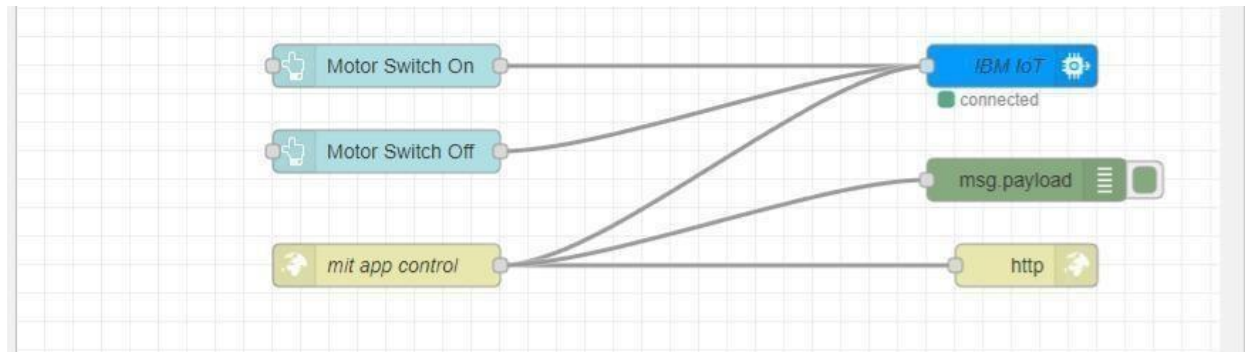


The above images show the java script codes of analyser and state function nodes.

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



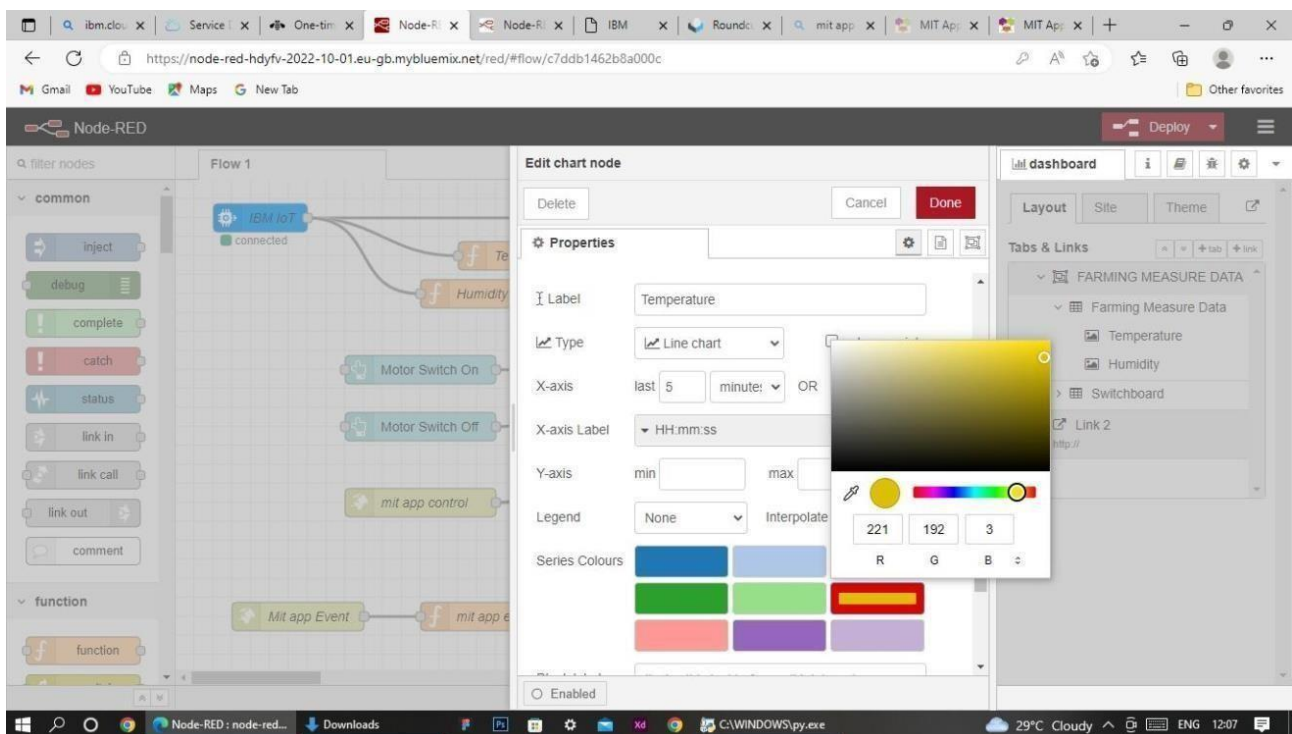
This is the program flow for sending commands to IBM cloud.

Adjusting User Interface

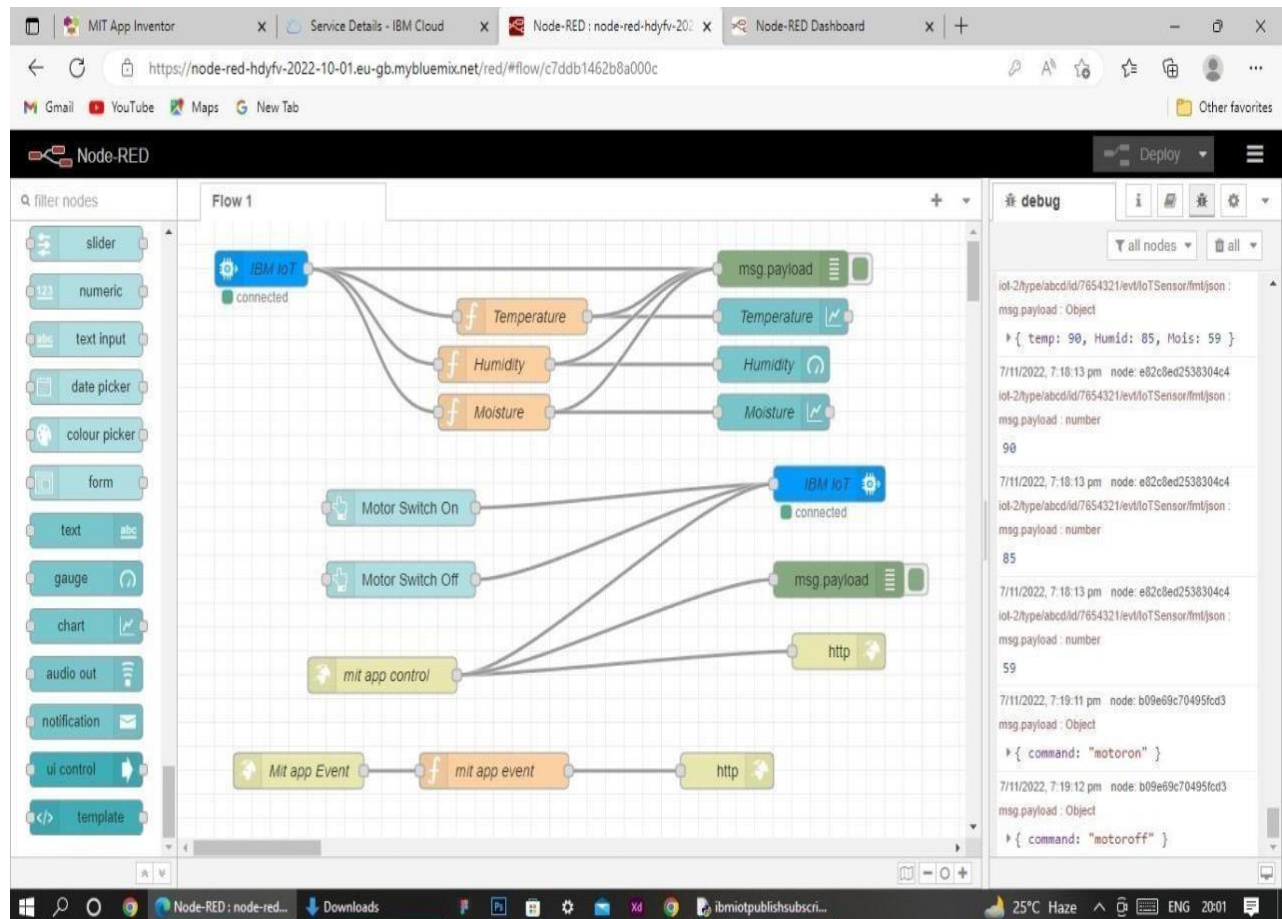
In order to display the parsed JSON data a Node-Red dashboard is created

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



Web APP UI Home Tab

