

SPRINT DELIVERY – 3

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Project Name	Smart Farmer - IoT Enabled Smart Farming Application
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Configuration of Node-Red to send commands to IBM cloud

IBM iot 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 with several nodes: 'soil moisture', 'Humidity', 'Temperture', 'switch', 'http request', '[get] /data', 'function', 'MOTOR ON', and 'MOTOR OFF'. The 'IBM IoT' node is highlighted, and its configuration panel is open on the right. The configuration panel includes fields for Authentication (API Key), API Key (5df638677635108c), Input Type (Device Event), Device Type (All or lot_device), Device Id (All or 12344321), Event (All or +), Format (All or json), QoS (0), Name (IBM IoT), and Service (registered). The 'Enabled' checkbox is checked. The right sidebar shows the 'info' tab with a search bar and a list of flows and subflows. The bottom status bar shows the URL: <https://node-red-mbjqo-2022-11-09.au-syd.mybluemix.net/red/#editor-tab-properties>.

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 analysis is:

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

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

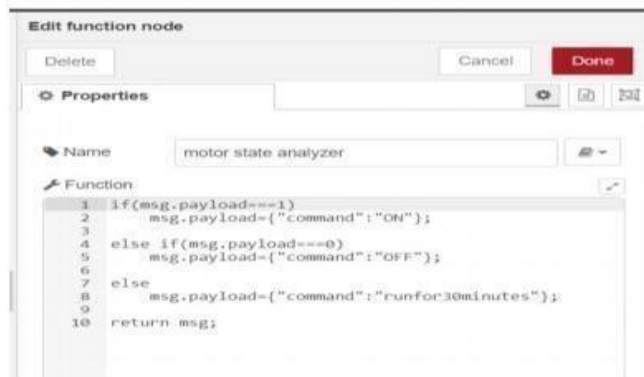
```
if(msg.payload===0)
```

```
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.

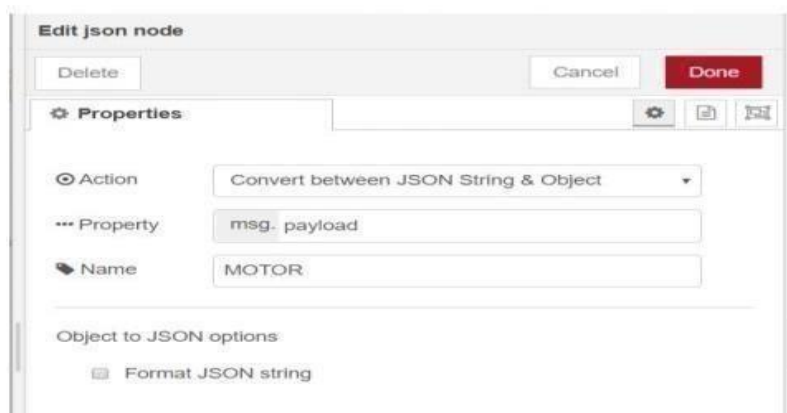
The Java script code for that function node is:

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

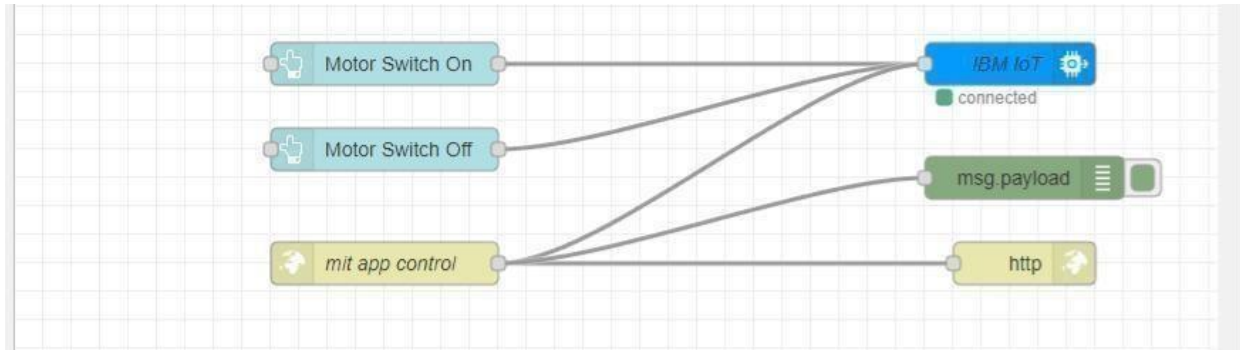


The above images show the java script codes of analyser and state function nodes.

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



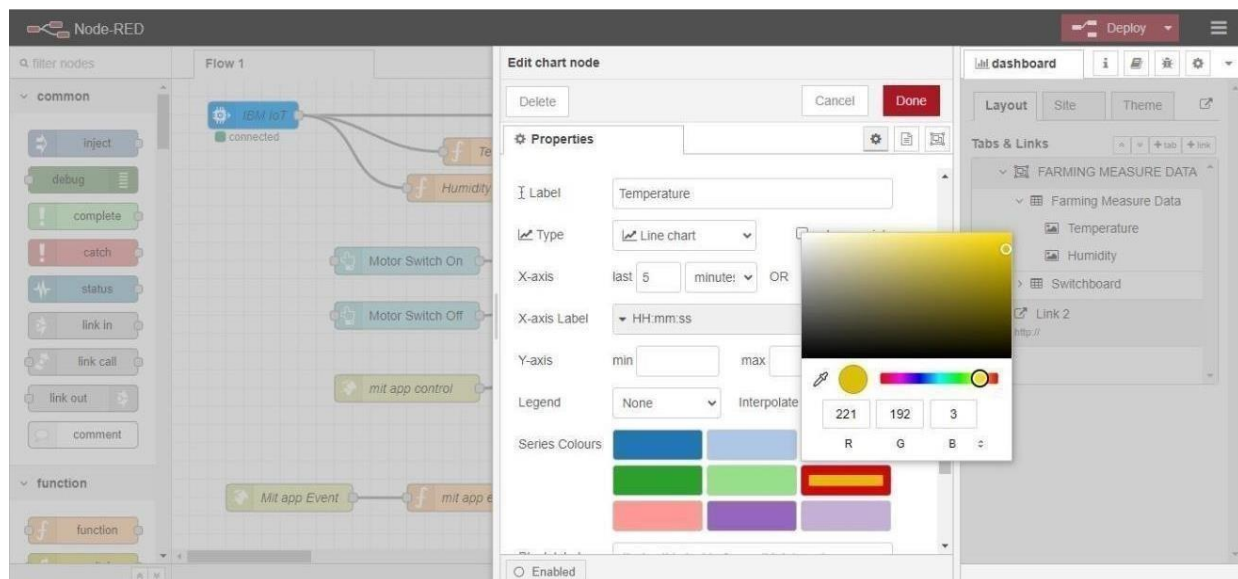
This is the program flow for sending commands to IBM cloud.

Adjusting User Interface

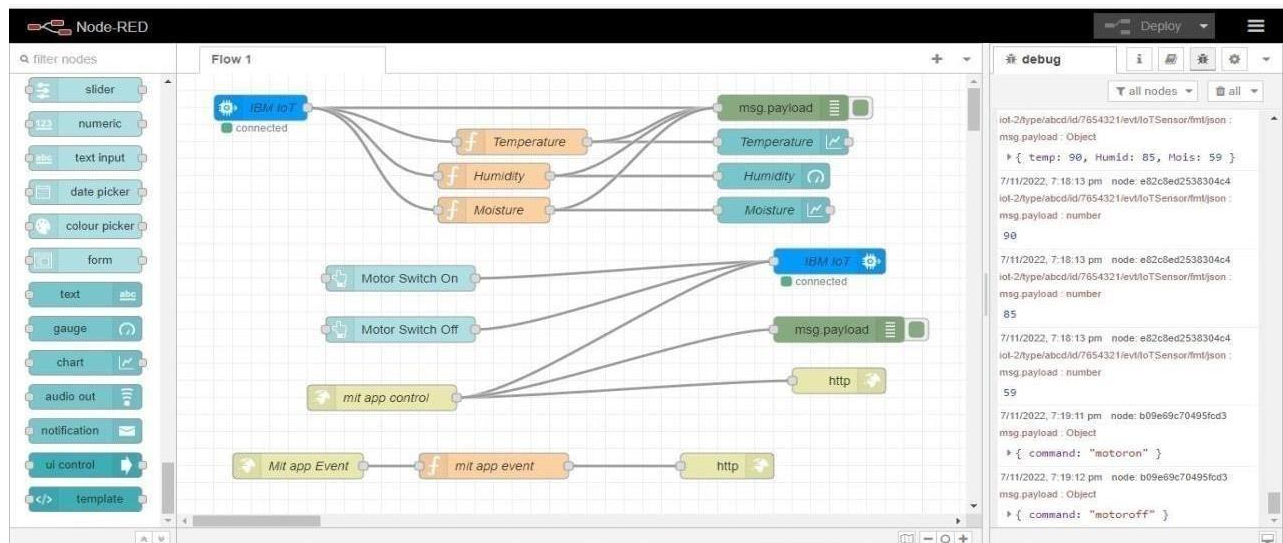
In order to display the parsed JSON data a Node-Red dashboard is created

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.

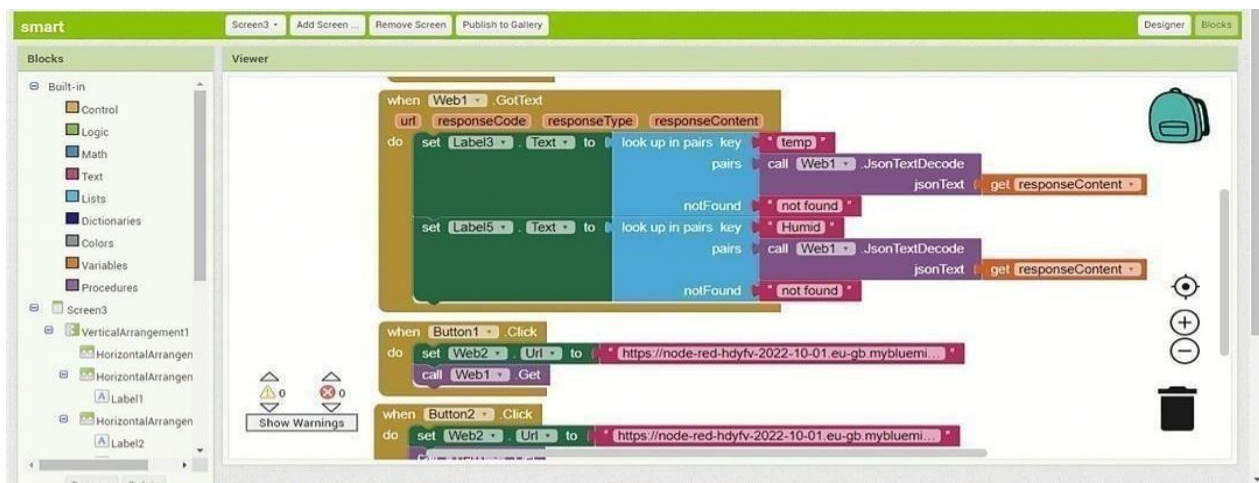
Below images are the Gauge, text and button node configurations.



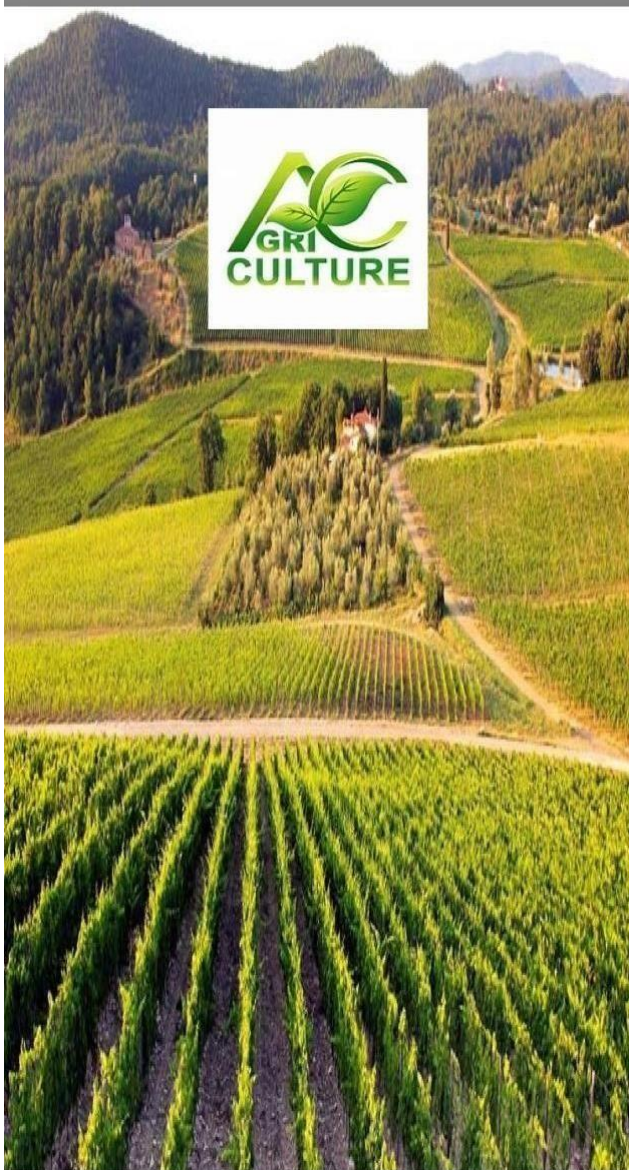
Complete Program Flow



MOBILE APP WEB : BLOCK DIAGRAM:



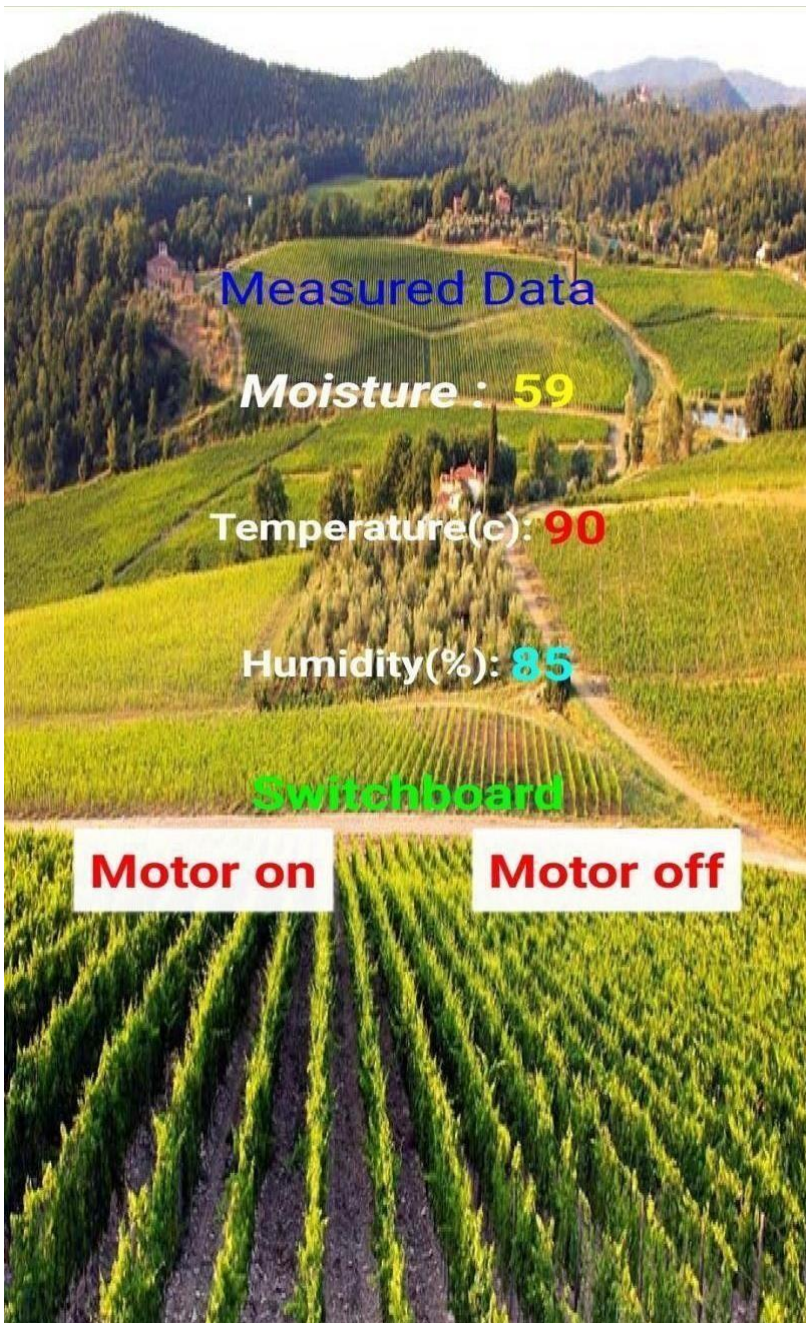
Screen1



SCREEN – 1

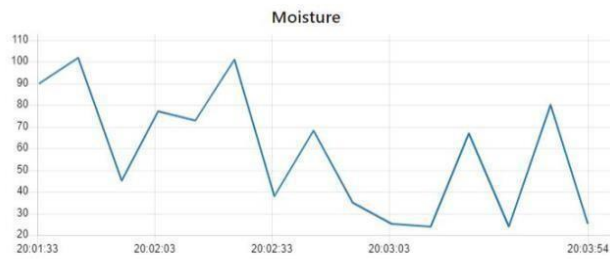


SCREEN - 2



SCREEN - 3

Web APP UI Home Tab



Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF

