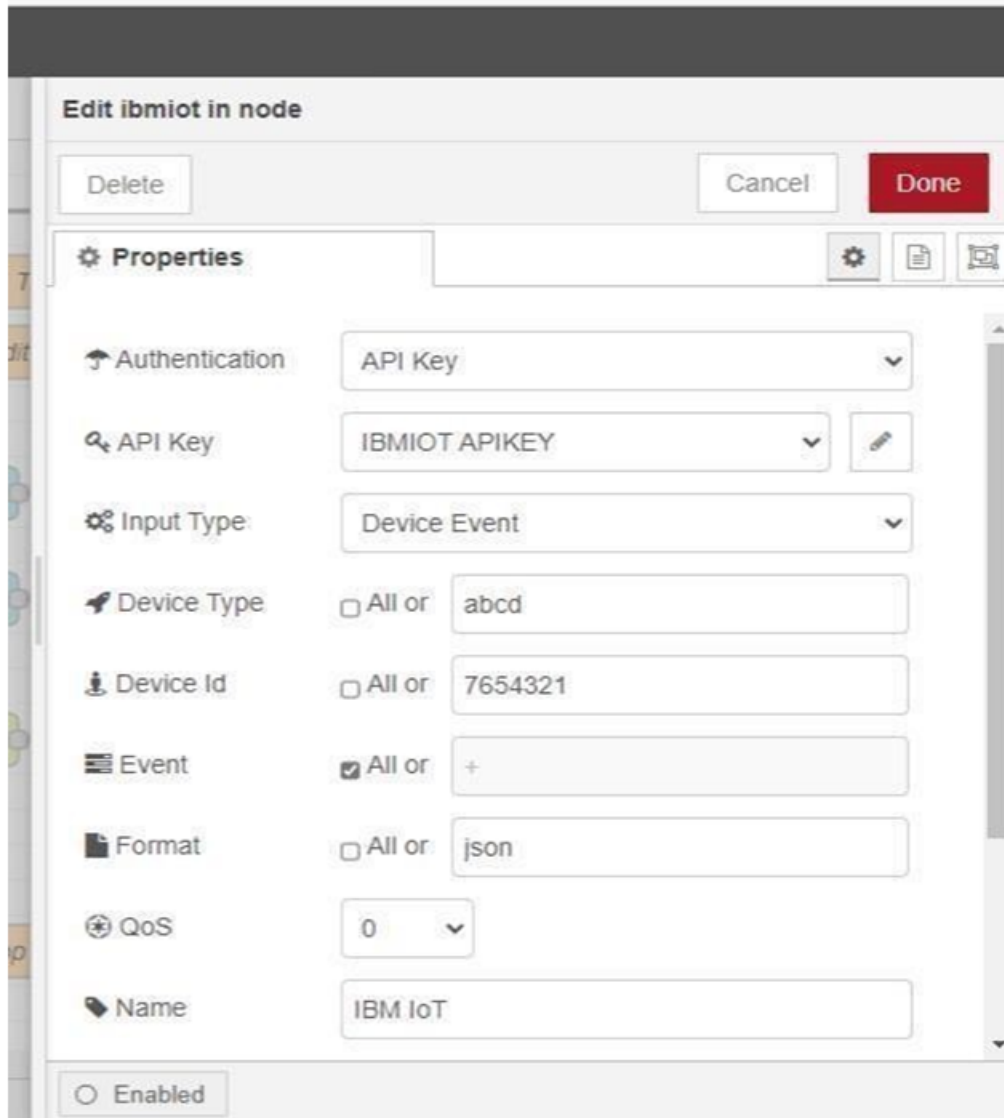


**Project Development
Phase
SPRINT DELIVERY – 3**

Team ID	PNT2022TMID03184
Project Name	IoT Enabled Smart Farming Application
Date	9 November 2022

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. At the top, there are three buttons: 'Delete', 'Cancel', and 'Done'. Below these is a 'Properties' section with a gear icon and three sub-panels: 'Authentication', 'API Key', and 'Input Type'. The 'Authentication' panel has a dropdown menu set to 'API Key'. The 'API Key' panel has a dropdown menu set to 'IBMIOT APIKEY' and a small edit icon. The 'Input Type' panel has a dropdown menu set to 'Device Event'. Below these are several other configuration options: 'Device Type' with a checkbox 'All or' and a text field 'abcd'; 'Device Id' with a checkbox 'All or' and a text field '7654321'; 'Event' with a checked checkbox 'All or' and a text field '+'; 'Format' with a checkbox 'All or' and a text field 'json'; 'QoS' with a dropdown menu set to '0'; and 'Name' with a text field 'IBM IoT'. At the bottom, there is a checkbox 'Enabled' which is currently unchecked.

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"};
```

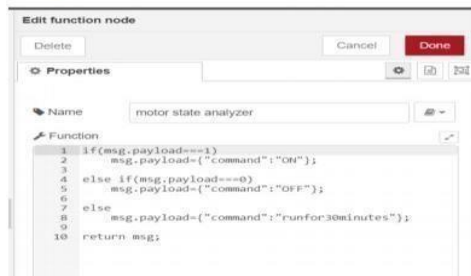
```
else if(msg.payload===0)
```

```
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.

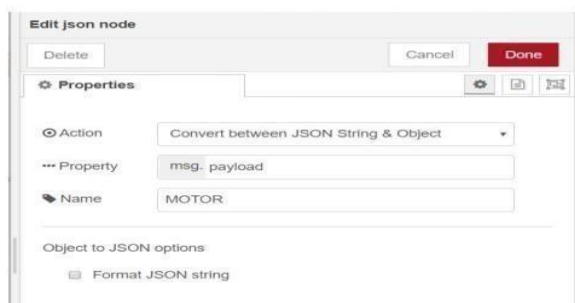
The Java script code for that function node is:

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

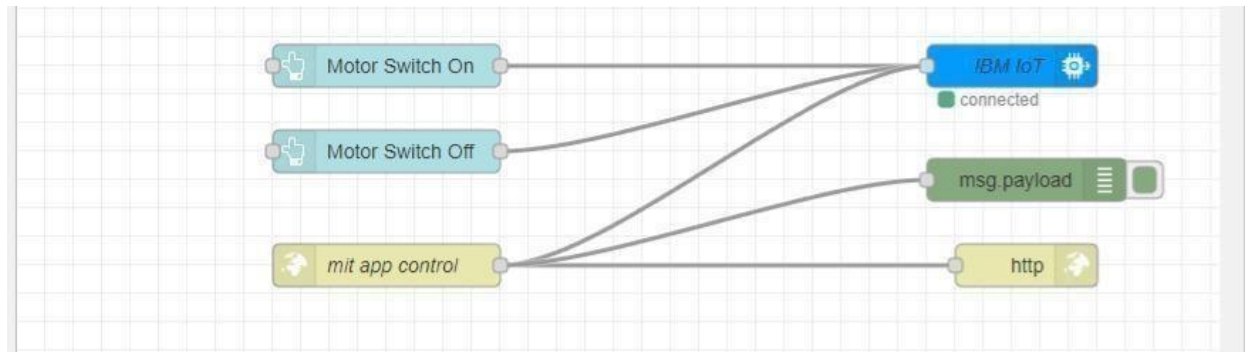


The above images show the java script codes of analyser and state function nodes.

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



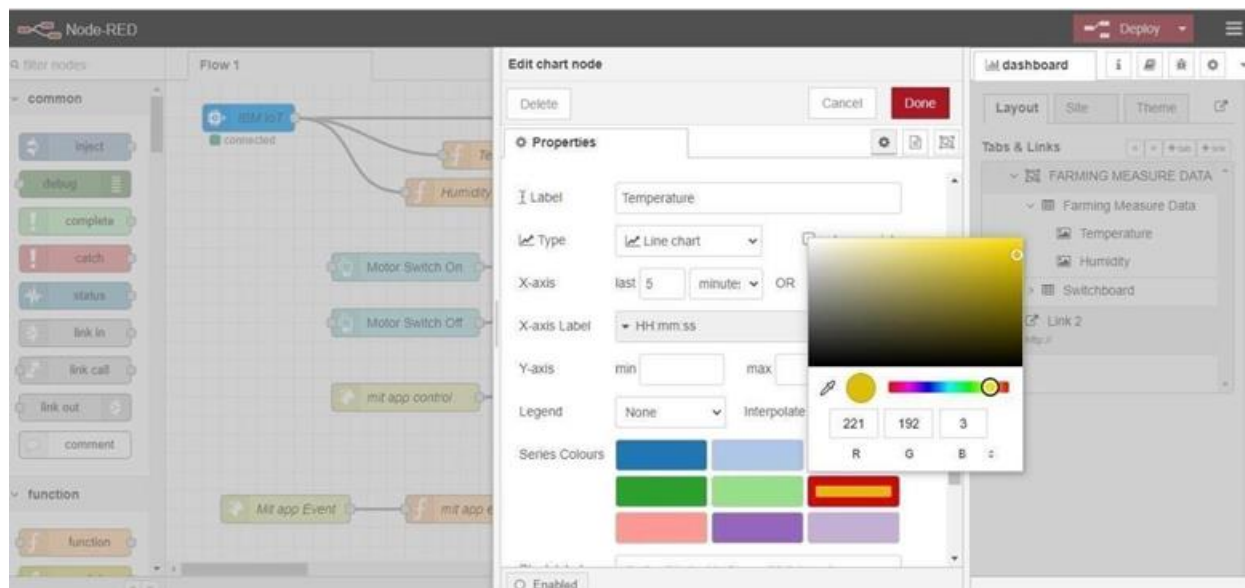
This is the program flow for sending commands to IBM cloud.

Adjusting User Interface

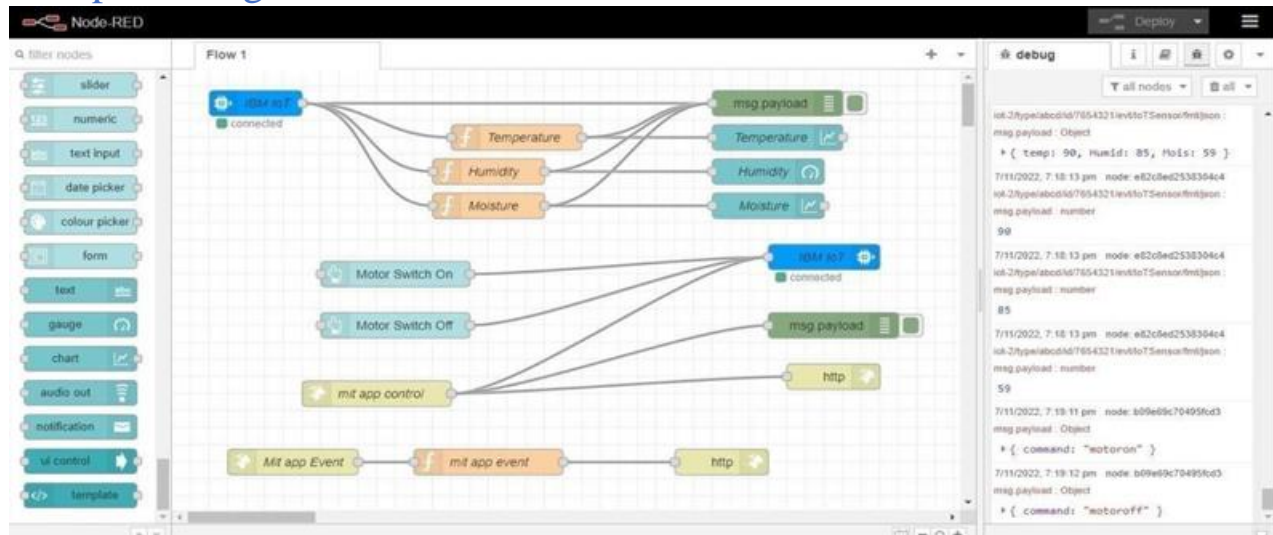
In order to display the parsed JSON data a Node-Red dashboard is created

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

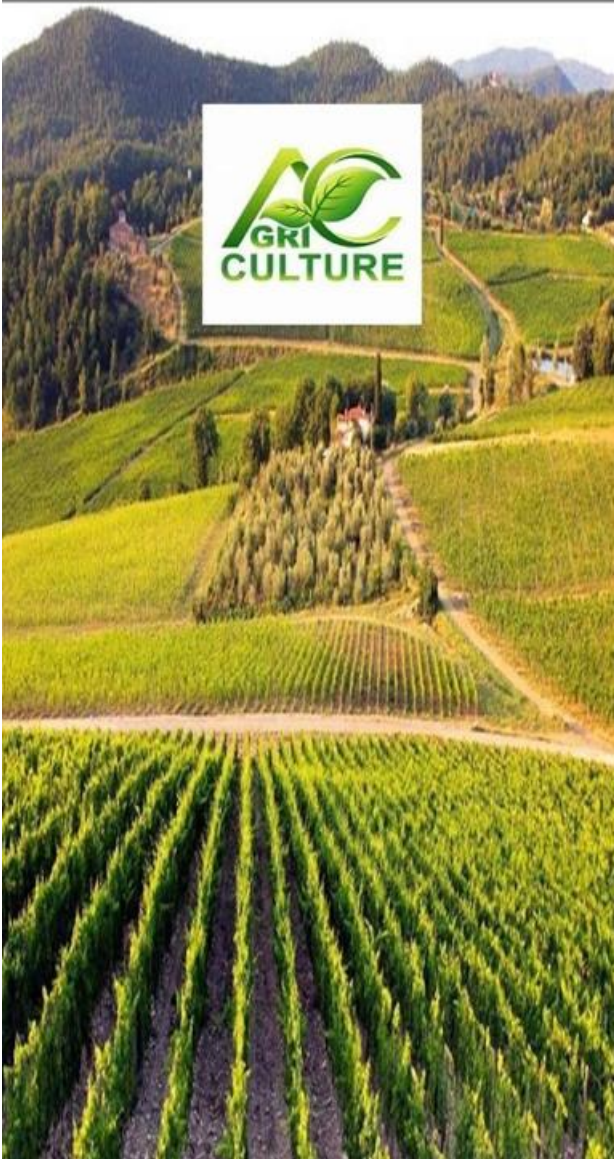


MOBILE APP WEB :



BLOCK DIAGRAM

Screen1

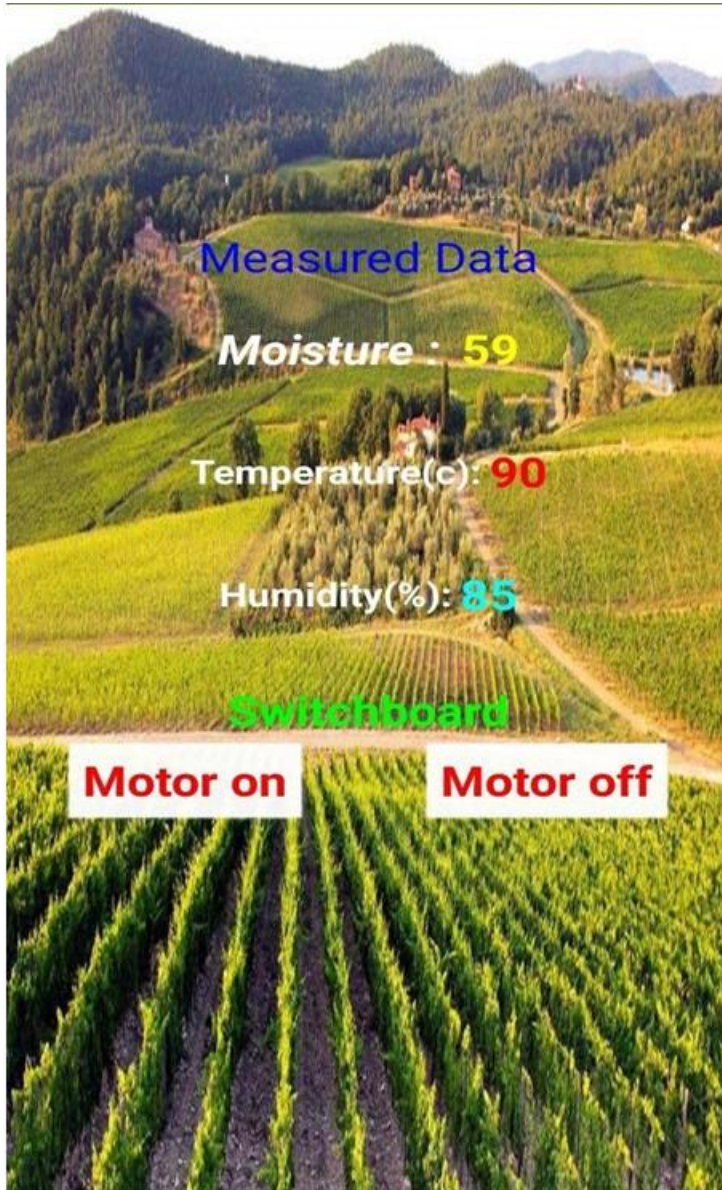


SCREEN – 1



SCREEN - 2

SCREEN - 3



Web APP UI Home Tab



