

TEAM ID: PNT2022TMD01479

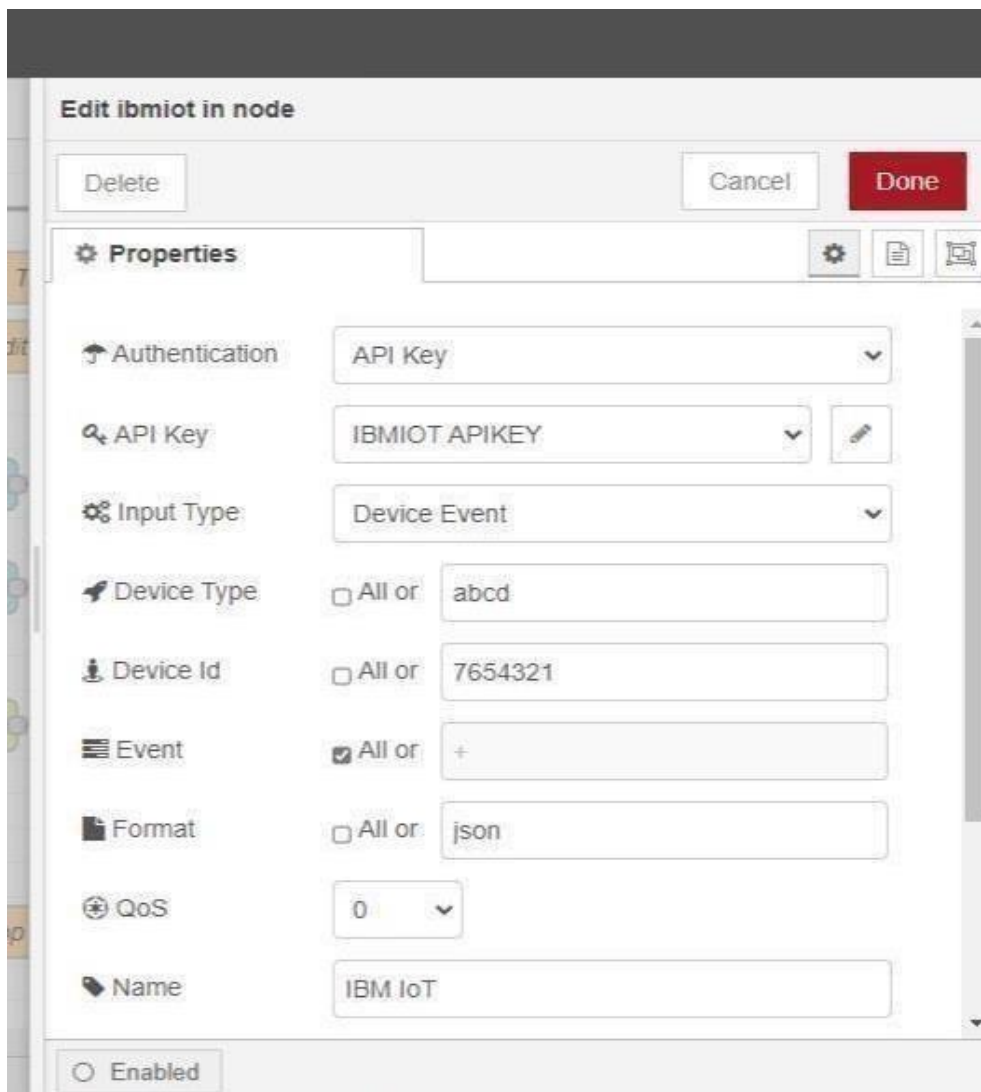
Smart Farmer-IOT Enabled Smart Farming Application

SPRINT DELIVERY – 3

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 title bar is a 'Properties' tab. The configuration fields are as follows:

- Authentication:** API Key (dropdown)
- API Key:** IBMIOT APIKEY (dropdown with a search icon and a pencil icon)
- Input Type:** Device Event (dropdown)
- Device Type:** All or abcd (checkbox and text input)
- Device Id:** All or 7654321 (checkbox and text input)
- Event:** All or + (checkbox and text input)
- Format:** All or json (checkbox and text input)
- QoS:** 0 (dropdown)
- Name:** IBM IoT (text input)

At the bottom, there is a checkbox labeled 'Enabled' which is currently checked.

1 -> for motor on

2 -> for motor off

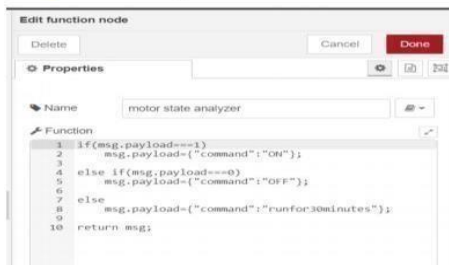
We used a function node to analyse the data received and assign command to each number. The Java script code for the analysis is:

```
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.

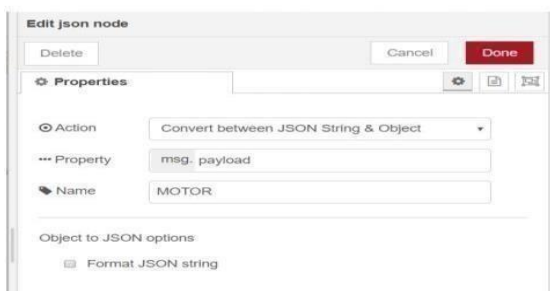
The Java script code for that function node is:

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

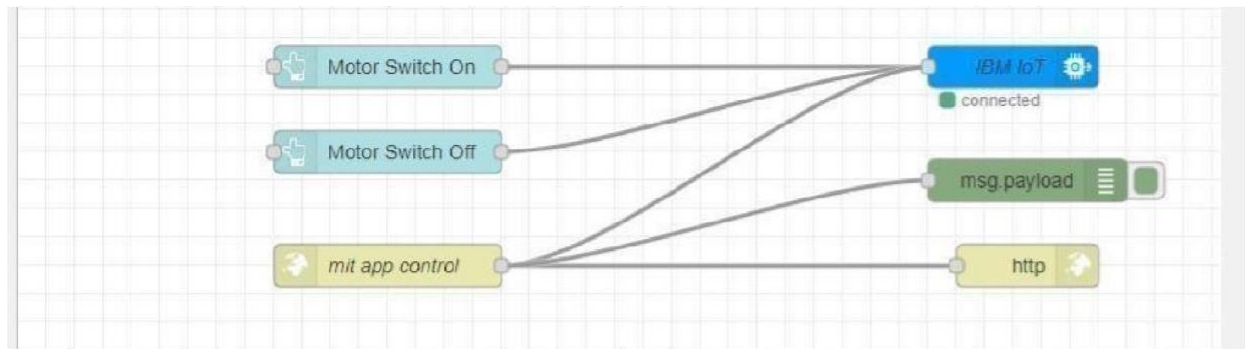


The above images show the java script codes of analyser and state function nodes.

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



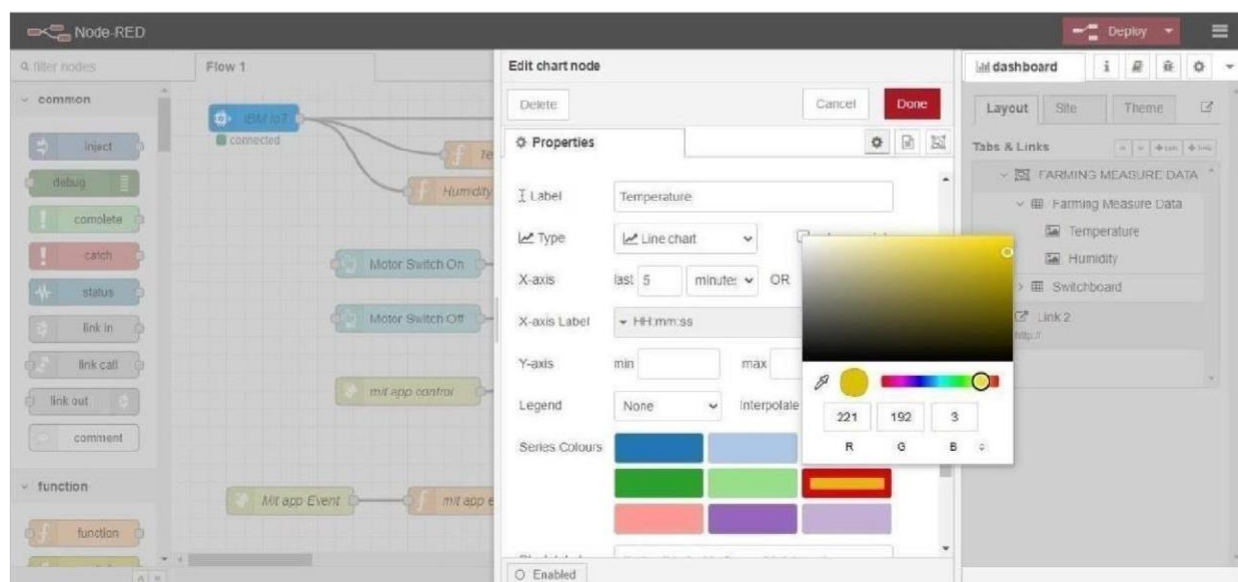
This is the program flow for sending commands to IBM cloud.

Adjusting User Interface

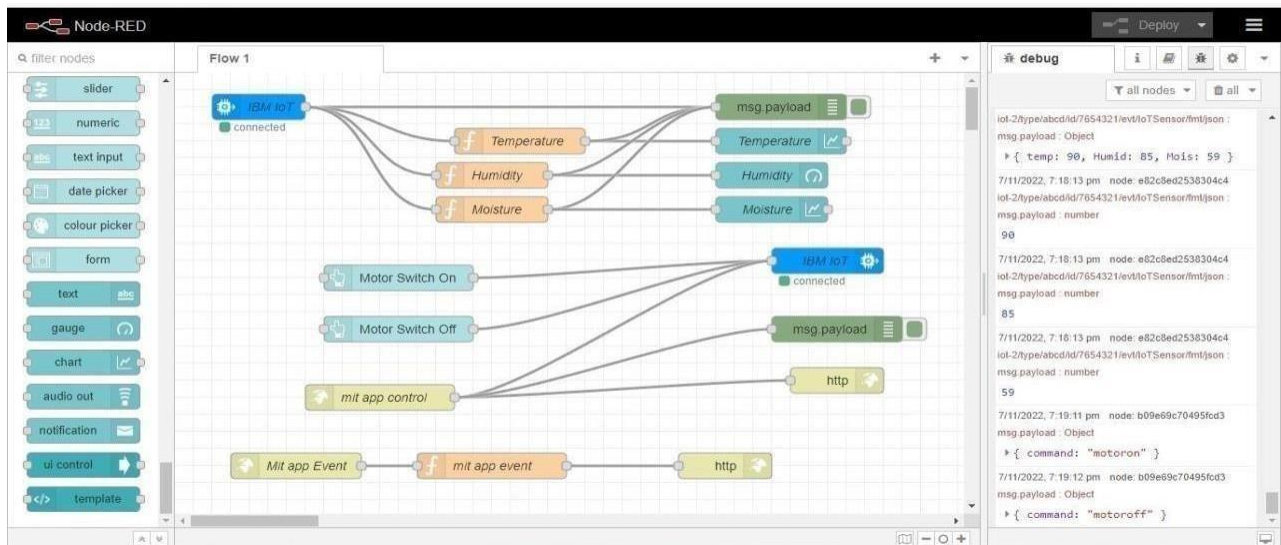
In order to display the parsed JSON data a Node-Red dashboard is created

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.

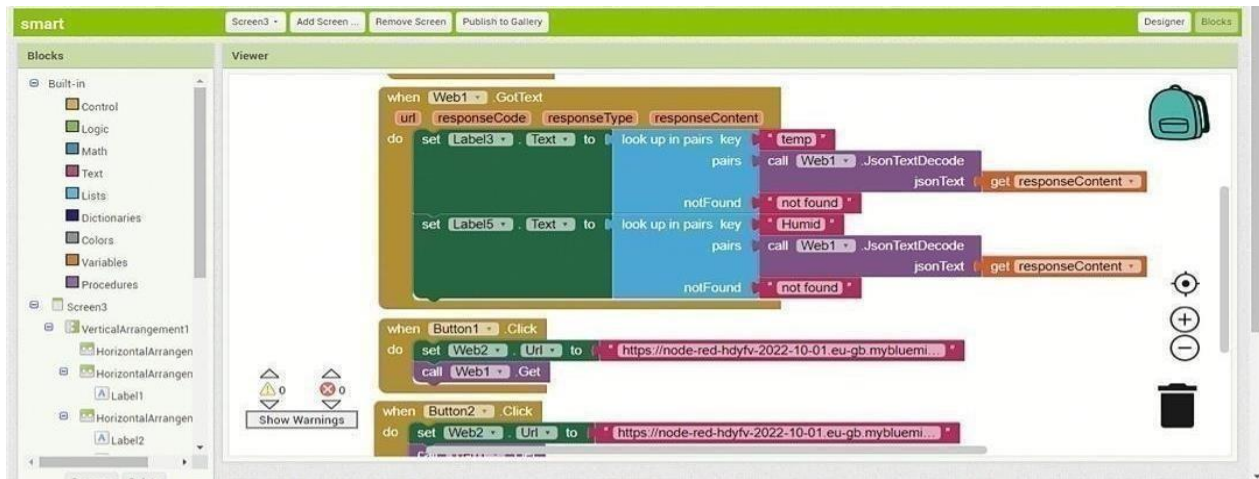
Below images are the Gauge, text and button node configurations.



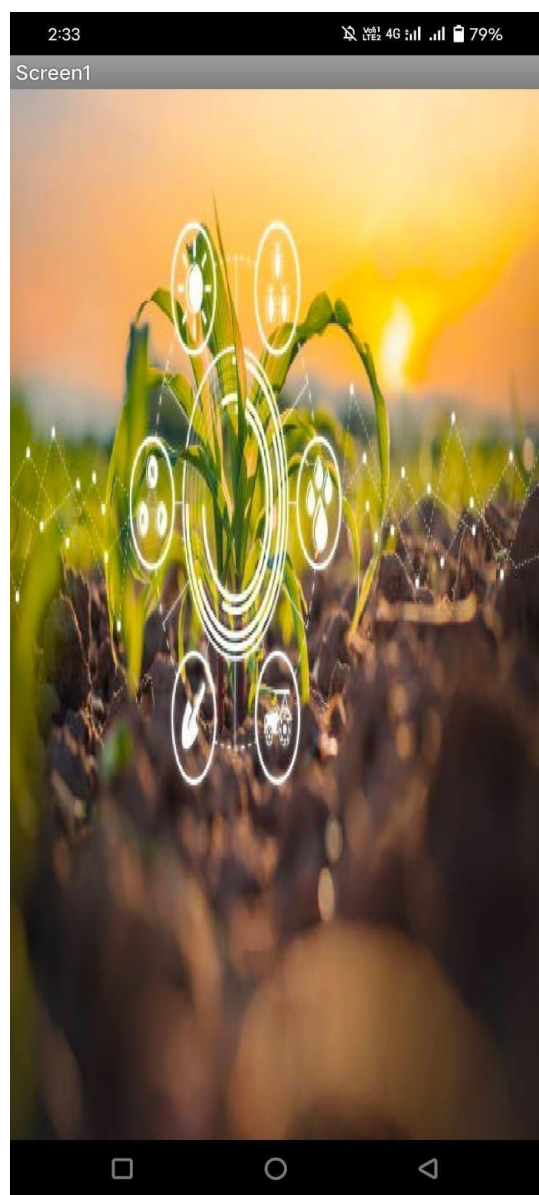
Complete Program Flow



MOBILE APP WEB : BLOCK DIAGRAM



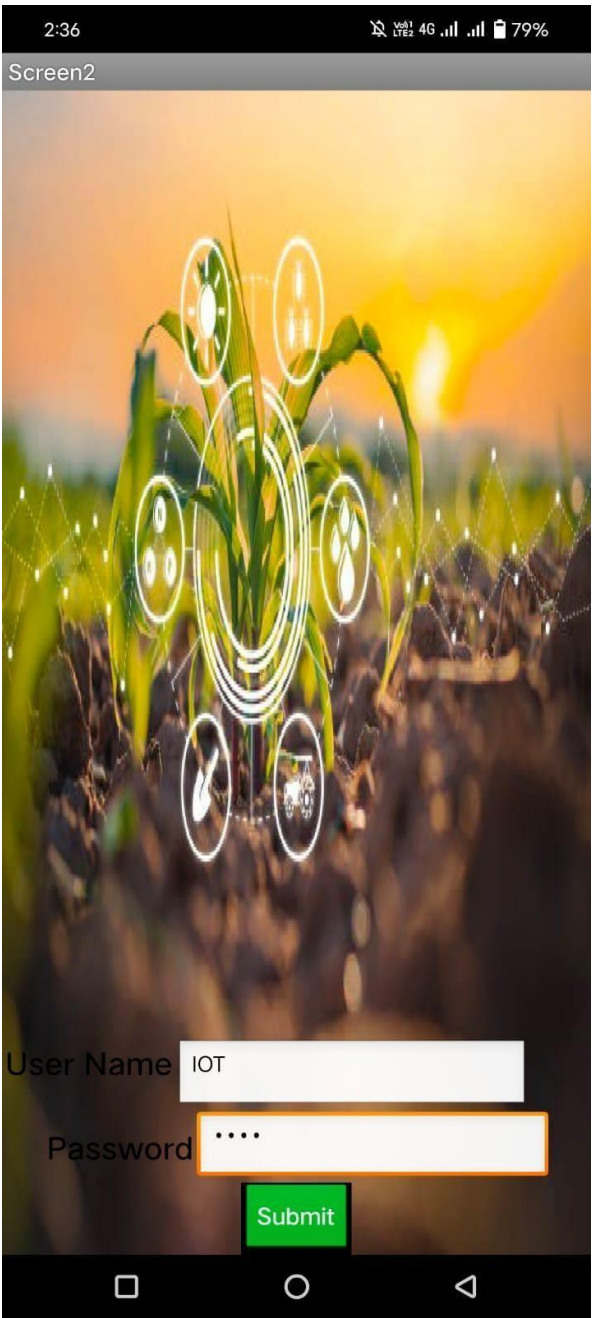
SCREEN – 1



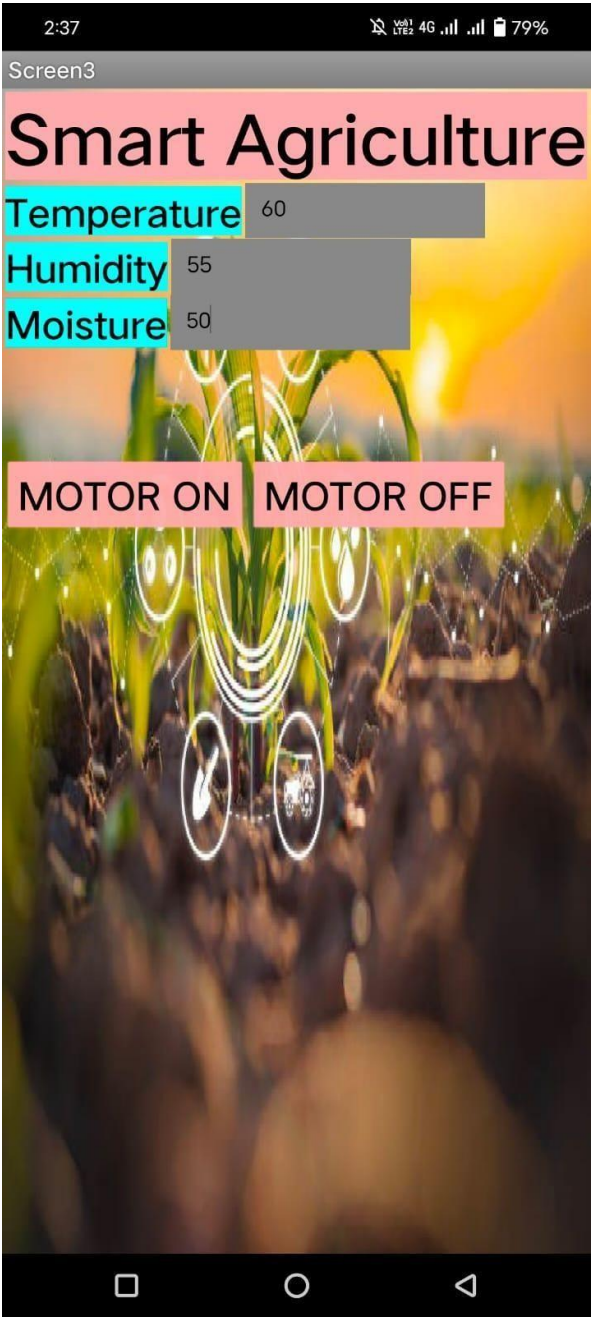
SCREEN – 2



SCREEN – 3



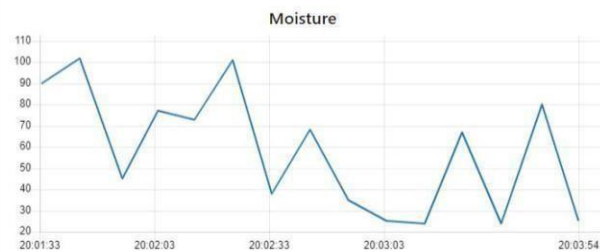
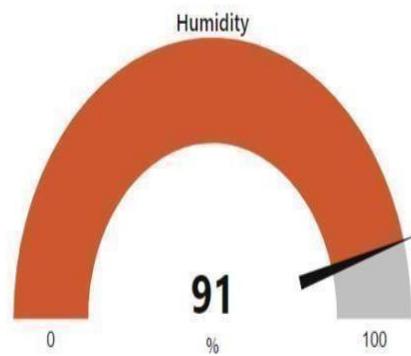
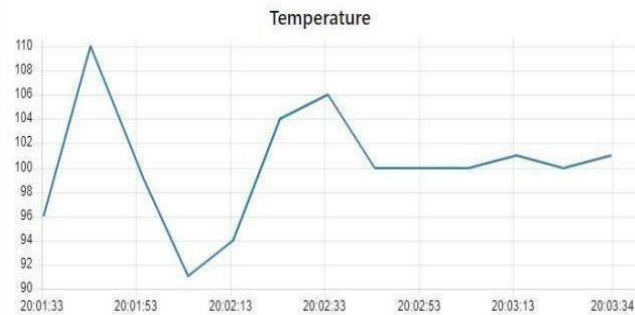
SCREEN - 4



Web APP UI Home Tab

≡ FARMING MEASURE DATA

Farming Measure Data



Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF