

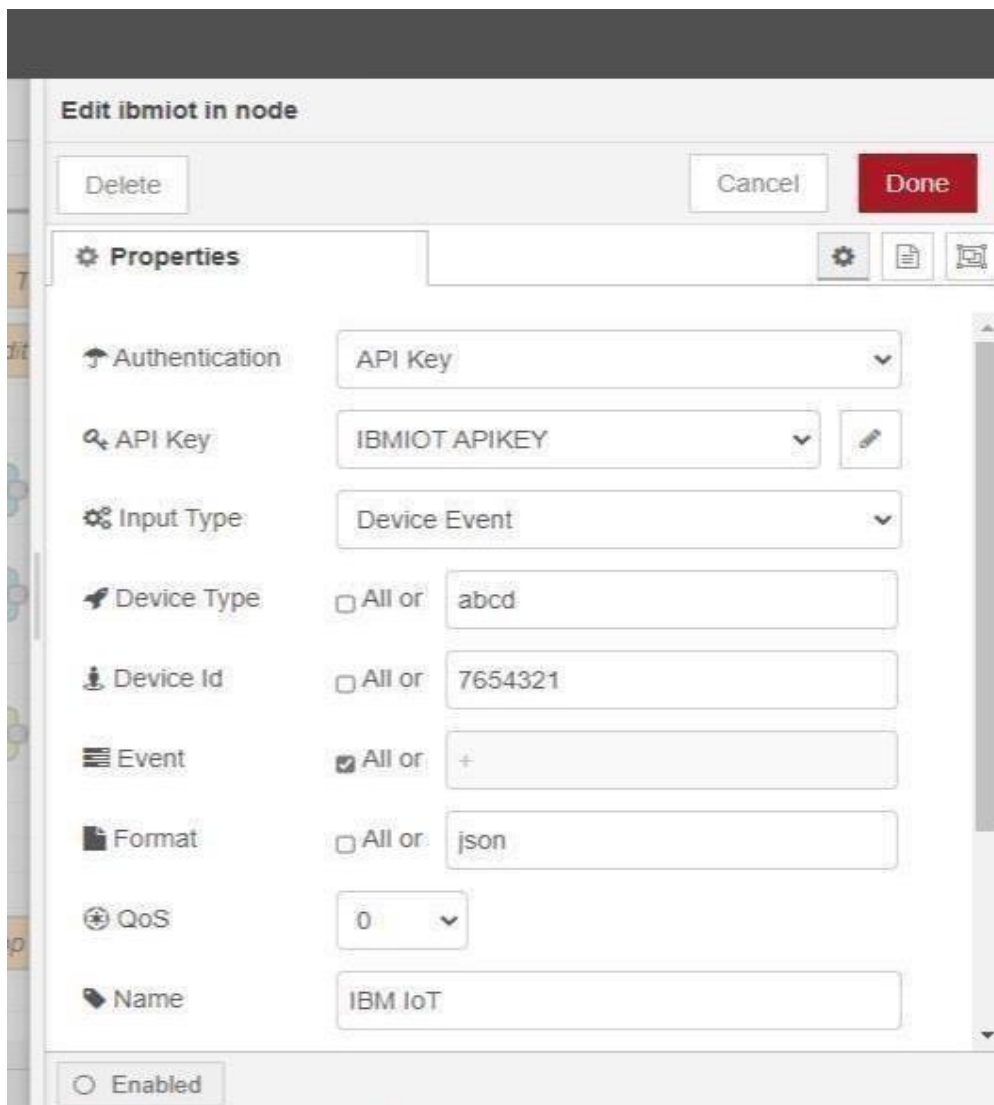
SPRINT DELIVERY – 3

Team ID	PNT2022TMID40860
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.

Here we add two buttons in UI



The screenshot shows the 'Edit ibmiot in node' configuration window. At the top, there are 'Delete', 'Cancel', and 'Done' buttons. Below is a 'Properties' section with a settings icon. The configuration fields are as follows:

Property	Value
Authentication	API Key
API Key	IBMIOT APIKEY
Input Type	Device Event
Device Type	<input type="checkbox"/> All or abcd
Device Id	<input type="checkbox"/> All or 7654321
Event	<input checked="" type="checkbox"/> All or +
Format	<input type="checkbox"/> All or json
QoS	0
Name	IBM IoT

At the bottom, there is an 'Enabled' checkbox which is currently unchecked.

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"};
```

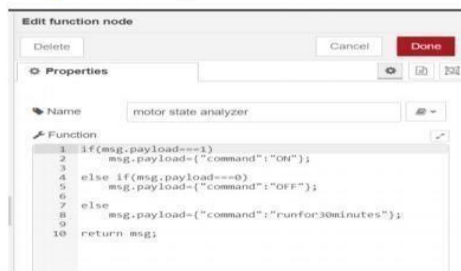
```
else if(msg.payload===0)
```

```
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.

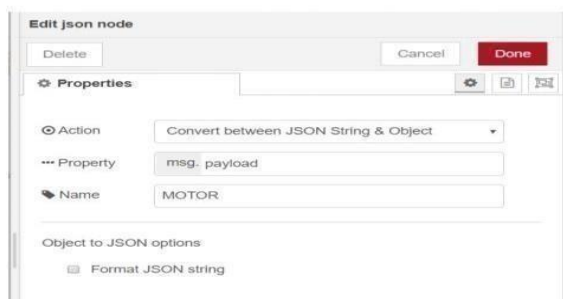
The Java script code for that function node is:

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

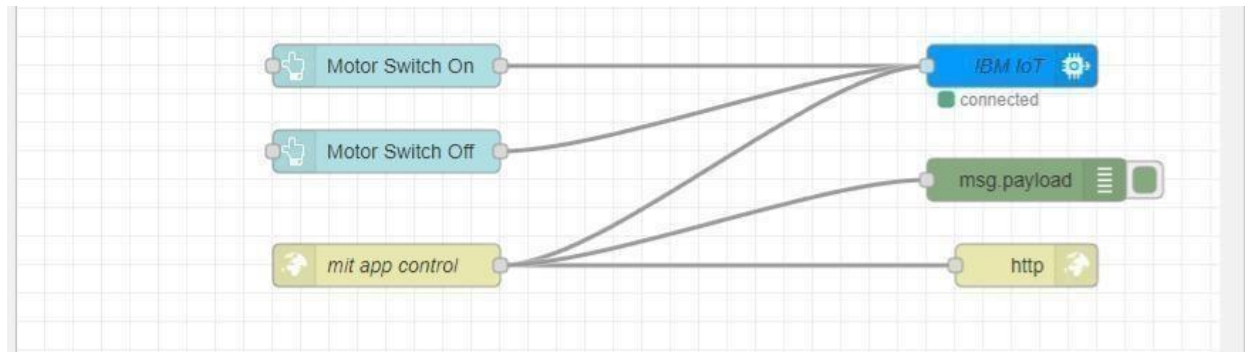


The above images show the java script codes of analyser and state function nodes.

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



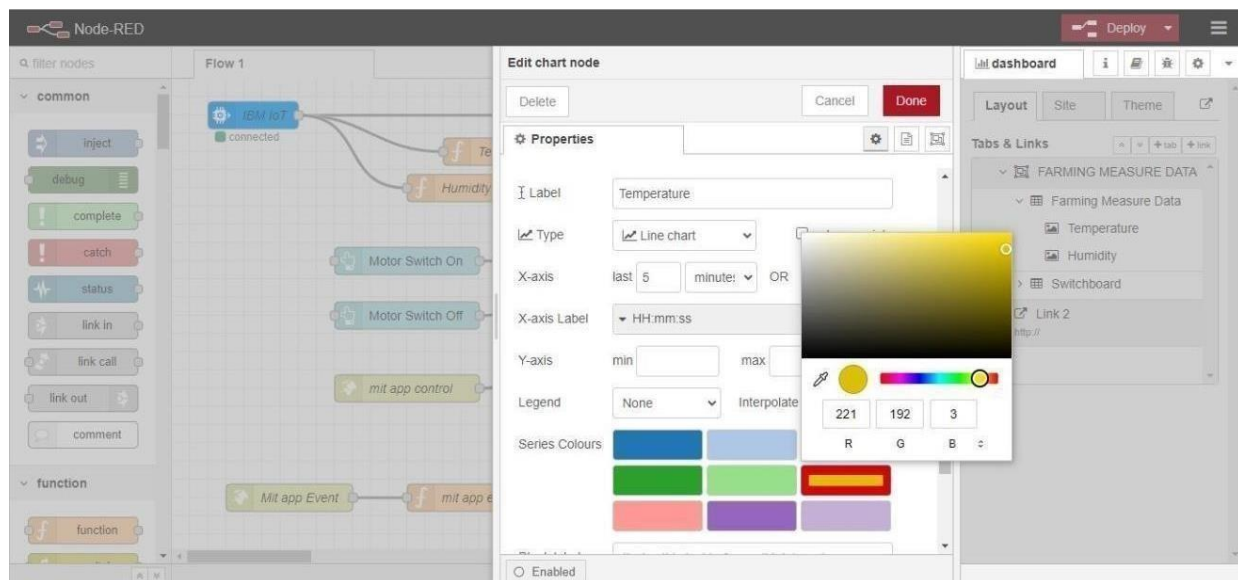
This is the program flow for sending commands to IBM cloud.

Adjusting User Interface

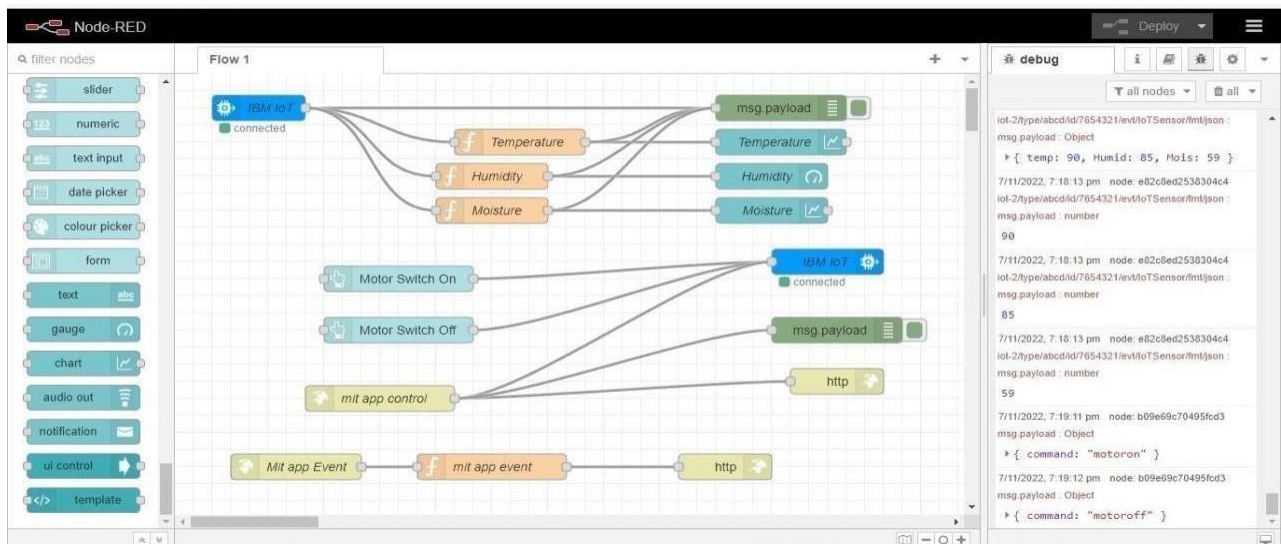
In order to display the parsed JSON data a Node-Red dashboard is created

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.

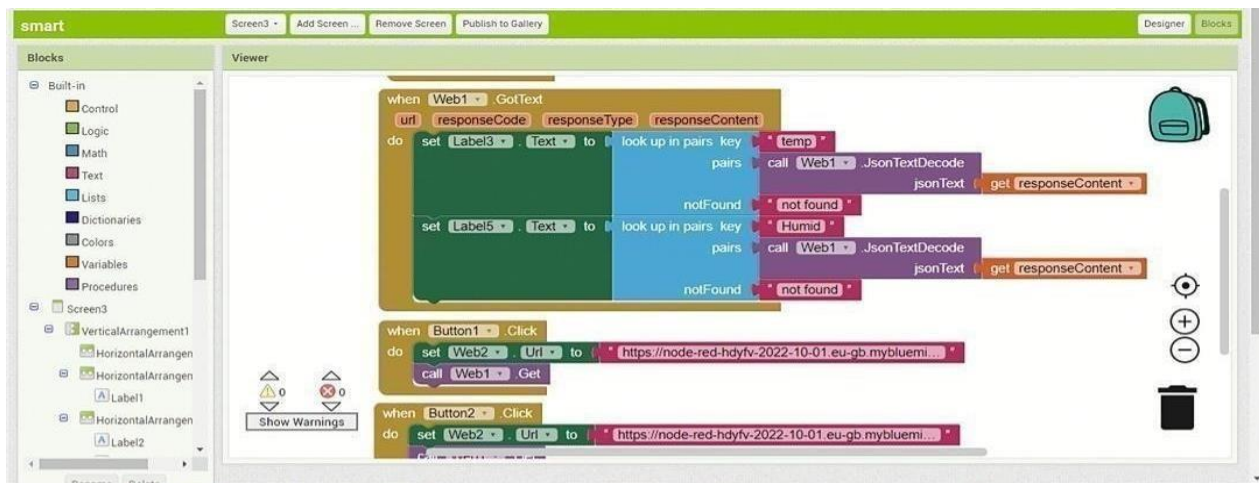
Below images are the Gauge, text and button node configurations.



Complete Program Flow



MOBILE APP WEB : BLOCK DIAGRAM



Sign in



User Name

Password

Login

Create Account



User



Smart Farmers

Temperature

70 - 75

45.2



Humidity

60 - 70

52.6

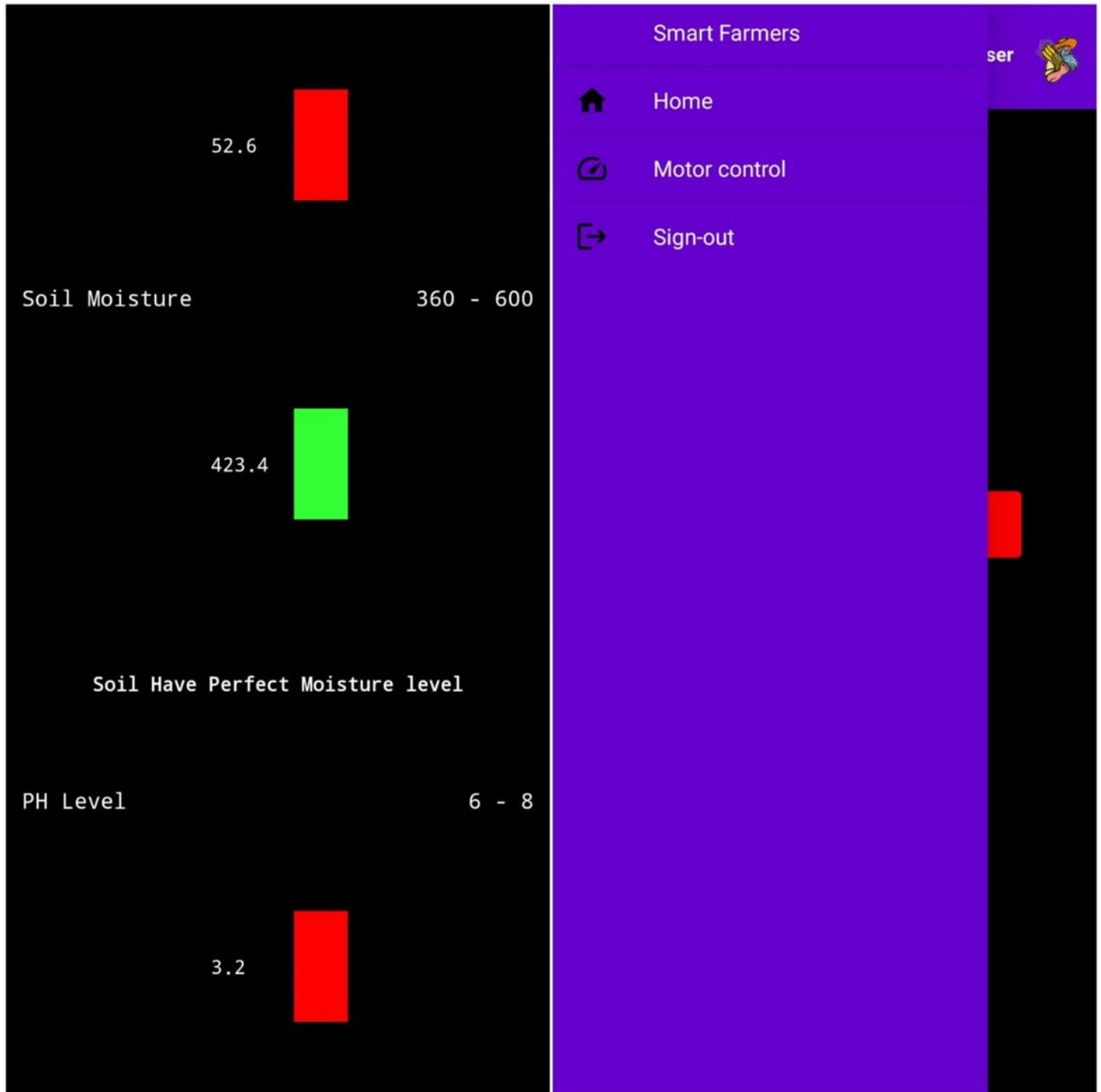


Soil Moisture

360 - 600

423.4





52.6



Soil Moisture

360 - 600

423.4



Soil Have Perfect Moisture level

PH Level

6 - 8

3.2



Smart Farmers

ser



Home



Motor control



Sign-out



User



Smart Farmers

Motor Control

Manual

On

off

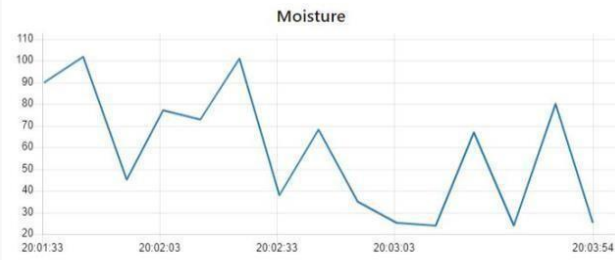


User



Smart Farmers

Sign - out

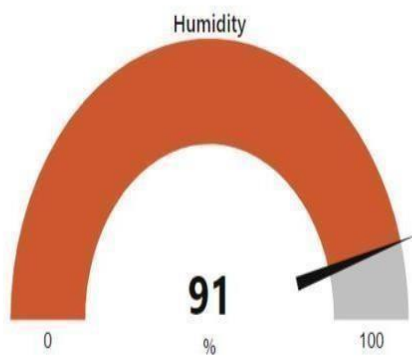


Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF

Web APP UI Hom



≡ FARMING MEASURE DATA

Farming Measure Data

