

SPRINT DELIVERY – 3

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Project Name	IoT Enabled Smart Farming Application
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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' tab with a settings icon, a document icon, and a preview icon. The configuration fields are as follows:

- Authentication:** A dropdown menu set to 'API Key'.
- API Key:** A text field containing 'IBMIOT APIKEY' with a search icon on the left and a refresh icon on the right.
- Input Type:** A dropdown menu set to 'Device Event'.
- Device Type:** A checkbox labeled 'All or' followed by a text field containing 'abcd'.
- Device Id:** A checkbox labeled 'All or' followed by a text field containing '7654321'.
- Event:** A checkbox labeled 'All or' (which is checked) followed by a text field containing '+'.
- Format:** A checkbox labeled 'All or' followed by a text field containing 'json'.
- QoS:** A dropdown menu set to '0'.
- Name:** A text field containing 'IBM IoT'.

At the bottom left, 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"};
```

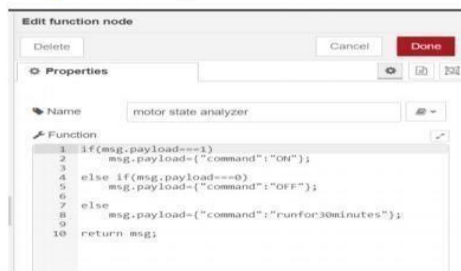
```
else if(msg.payload===0)
```

```
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.

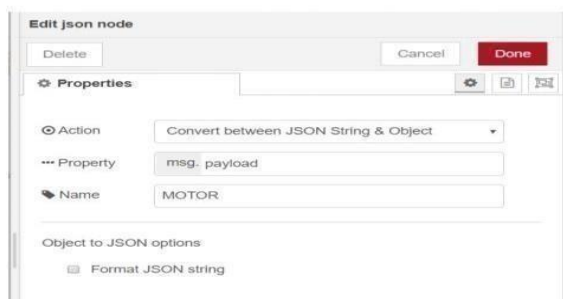
The Java script code for that function node is:

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

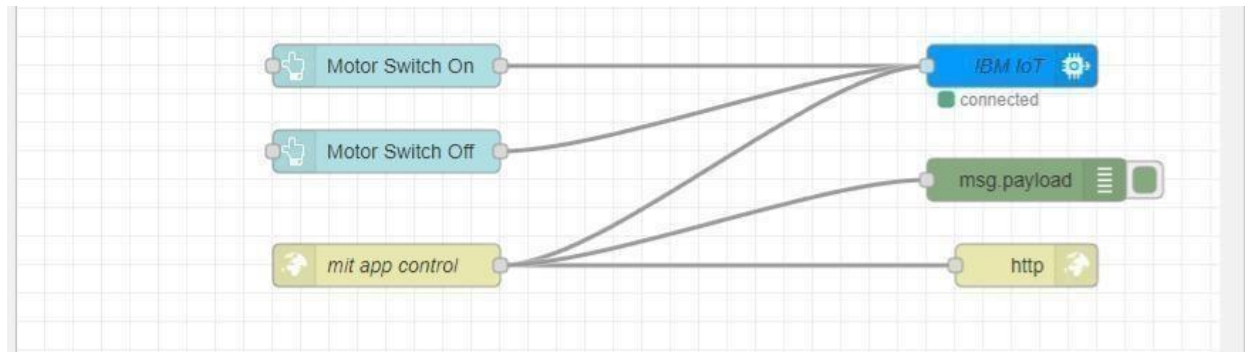


The above images show the java script codes of analyser and state function nodes.

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



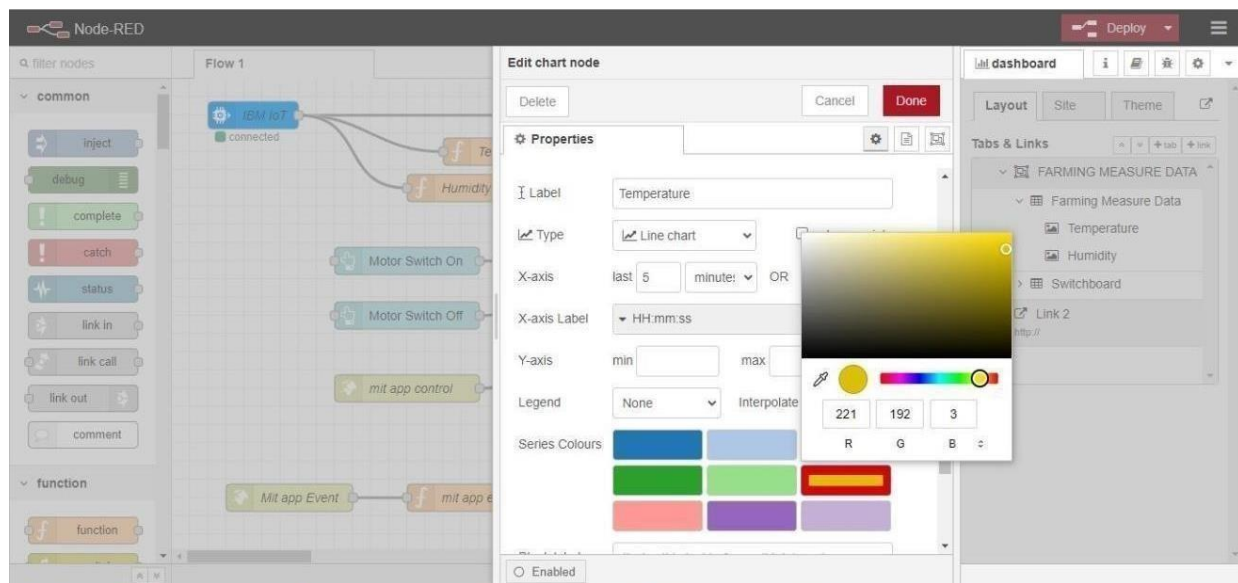
This is the program flow for sending commands to IBM cloud.

Adjusting User Interface

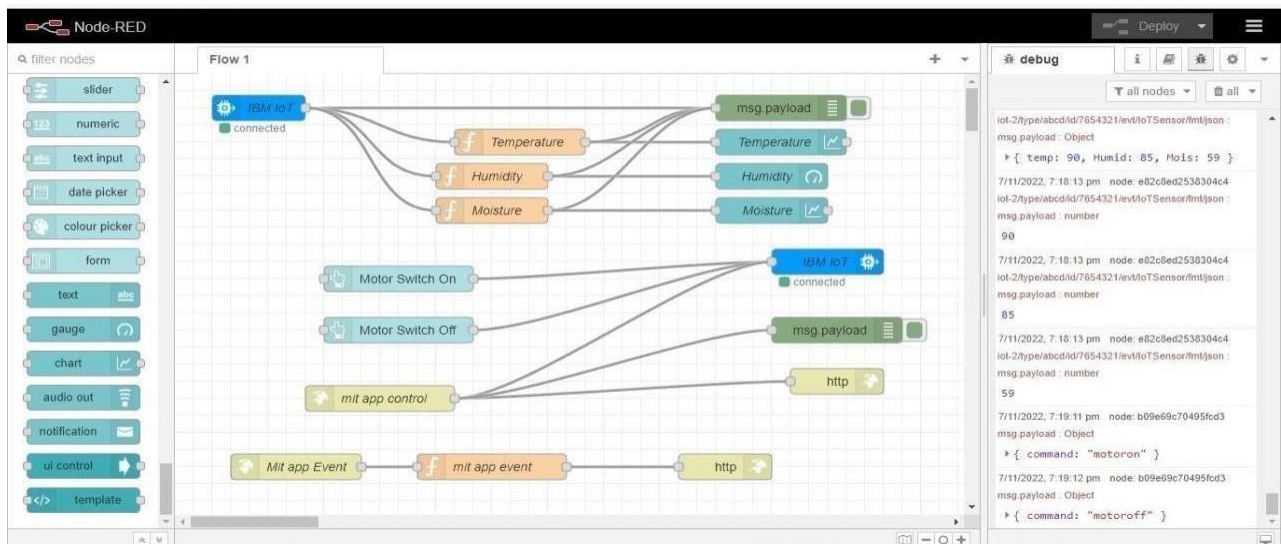
In order to display the parsed JSON data a Node-Red dashboard is created

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.

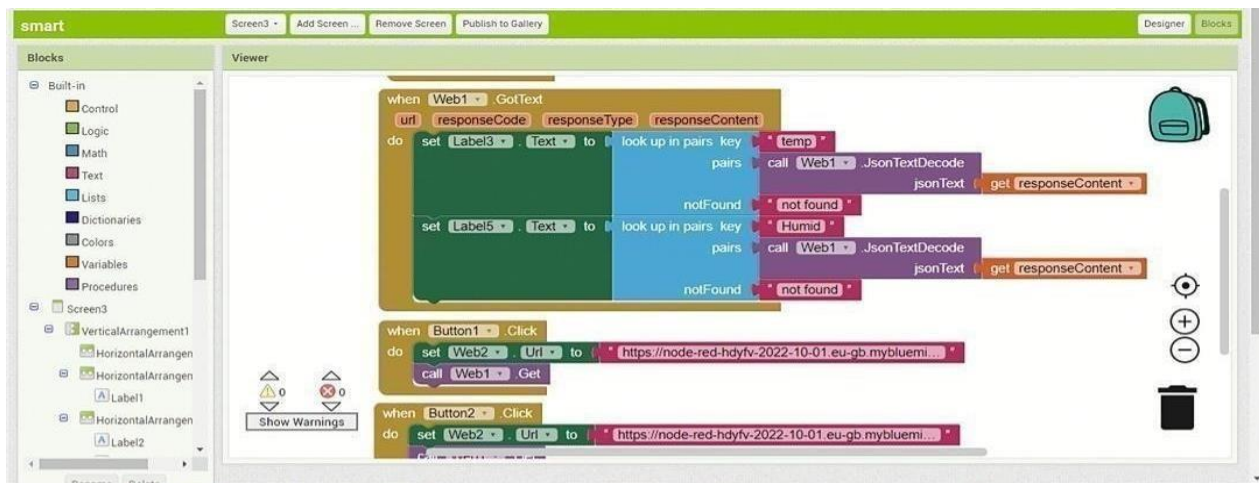
Below images are the Gauge, text and button node configurations.



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

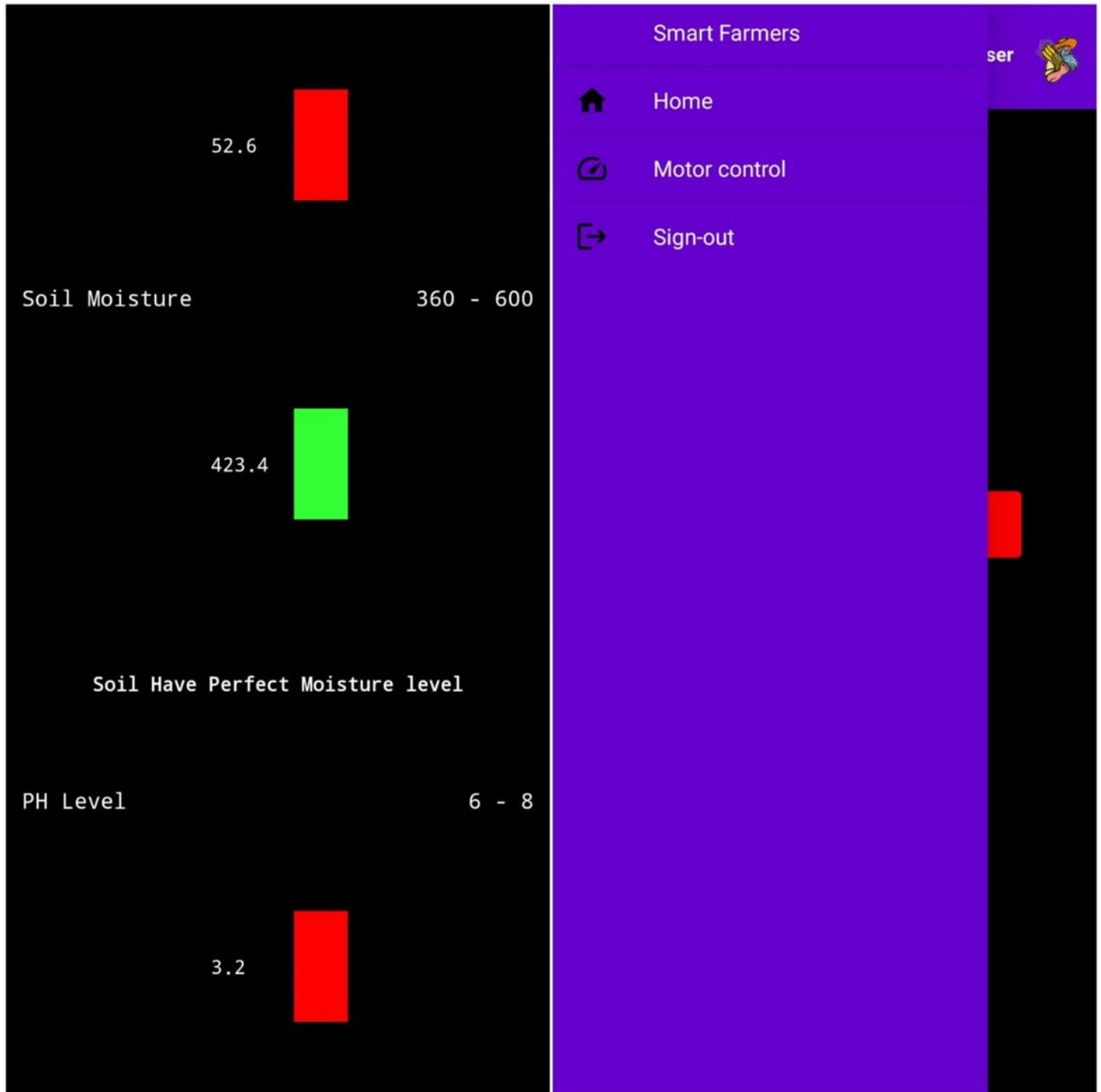


Soil Moisture

360 - 600

423.4







User



Smart Farmers

Motor Control

Manual

On

off

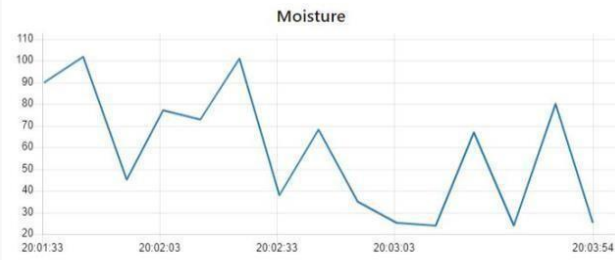


User



Smart Farmers

Sign - out

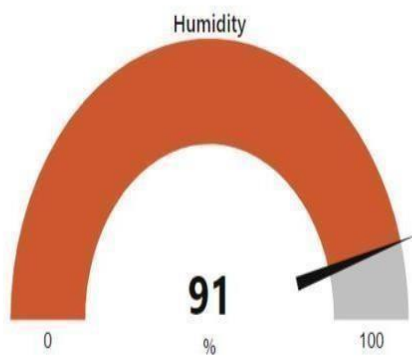


Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF

Web APP UI Hom



≡ FARMING MEASURE DATA

Farming Measure Data

