

IOT ENABLED SMART FARMING APPLICATION

SPRINT DELIVERY – 3

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5.4 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 Node-RED configuration interface for the 'ibmiot out' node. The browser tabs at the top are 'IBM Watson IoT Platform', 'IBM App Development', and 'Node-RED : 169.51.203'. The address bar shows '1d50a6ecfcc0ef9'. The configuration panel is titled 'Edit ibmiot in node' and includes 'Delete', 'Cancel', and 'Done' buttons. The 'Properties' section contains the following settings:

- Authentication:** API Key
- API Key:** IBMIOTAPI
- Input Type:** Device Event
- Device Type:** ☒ All or +
- Device Id:** ☐ All or device id e.g. ab12cd231a21
- Event:** ☒ All or +
- Format:** ☐ All or json
- QoS:** 0

At the bottom, there is an 'Enabled' checkbox.

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;
```

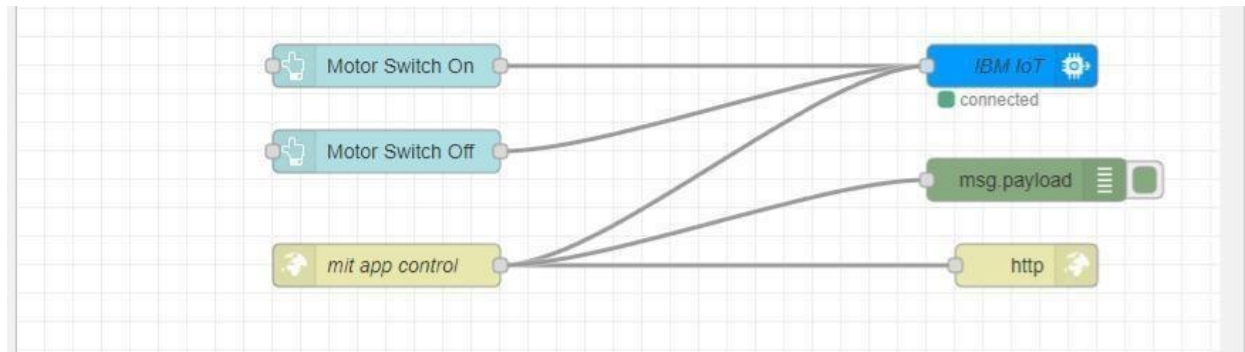


The above images show the java script codes of analyser and state function nodes.

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



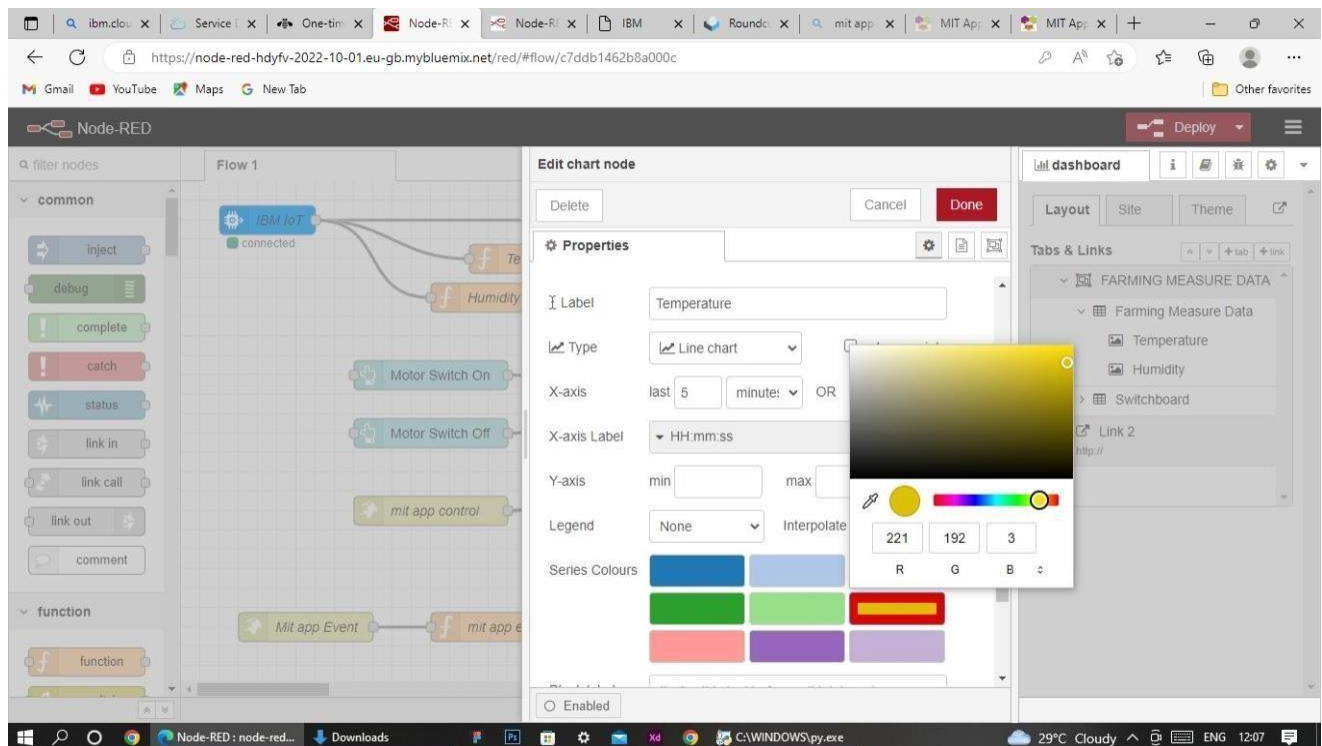
This is the program flow for sending commands to IBM cloud.

5.5 Adjusting User Interface

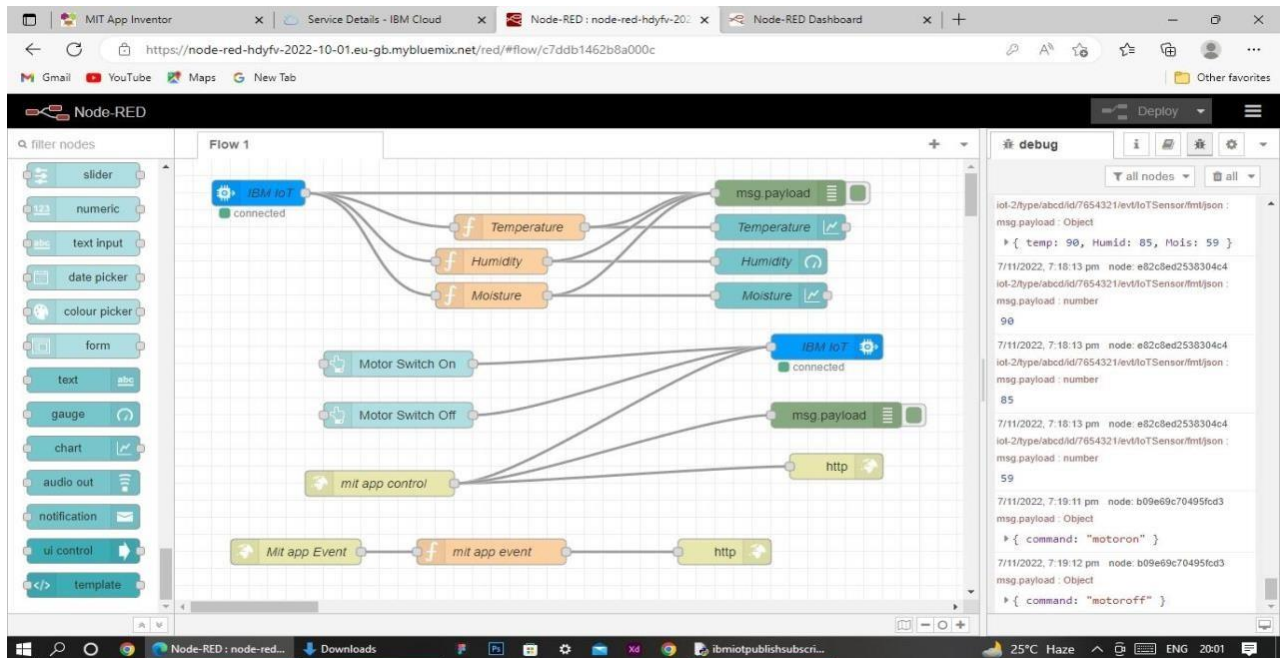
In order to display the parsed JSON data a Node-Red dashboard is created

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.

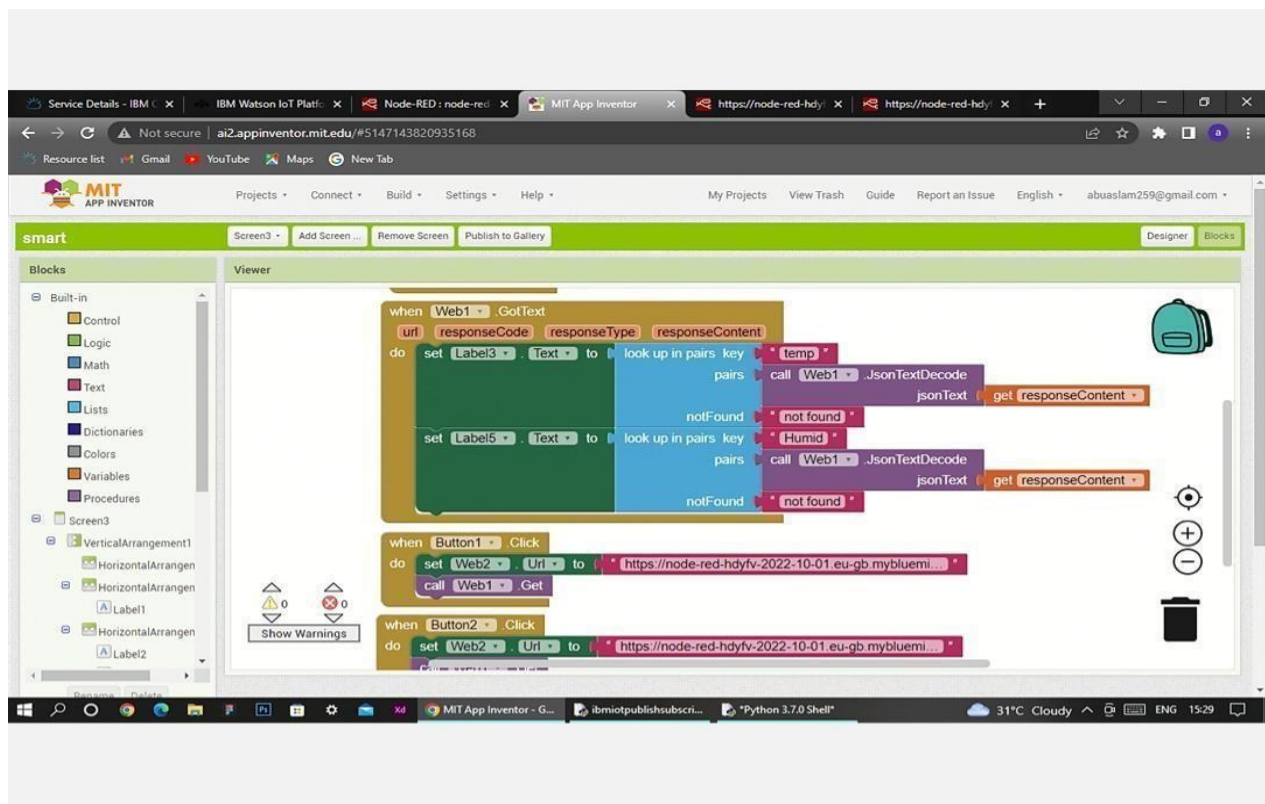
Below images are the Gauge, text and button node configurations.



Complete Program Flow



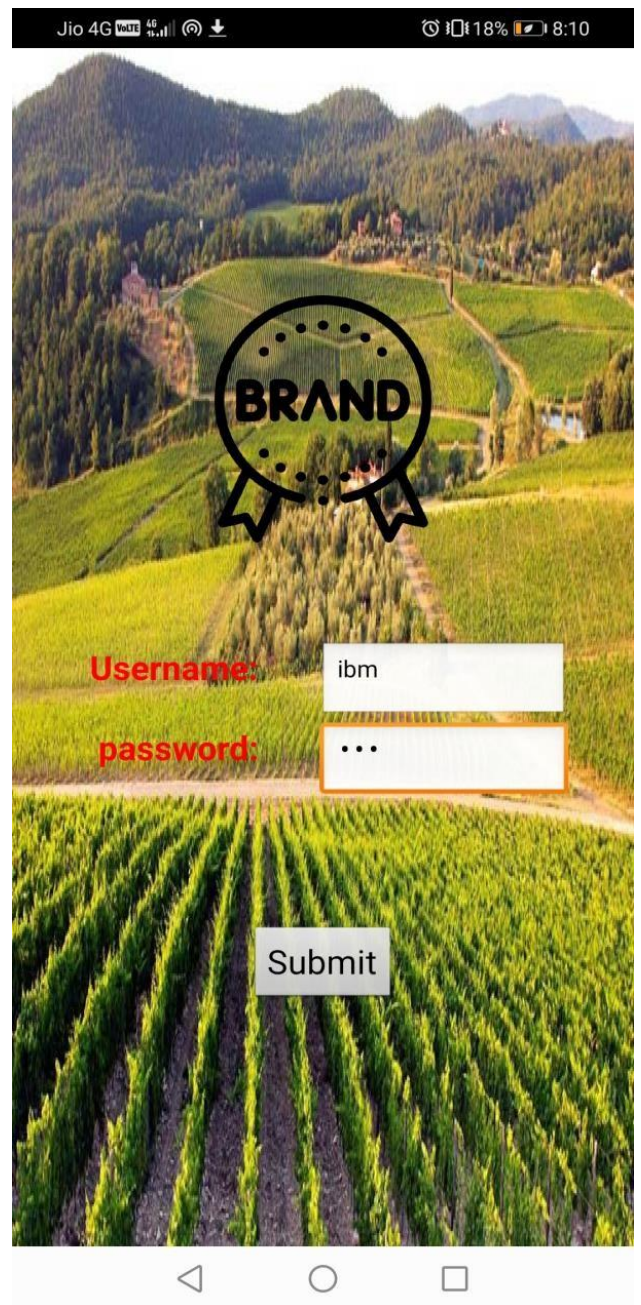
MOBILE APP WEB :



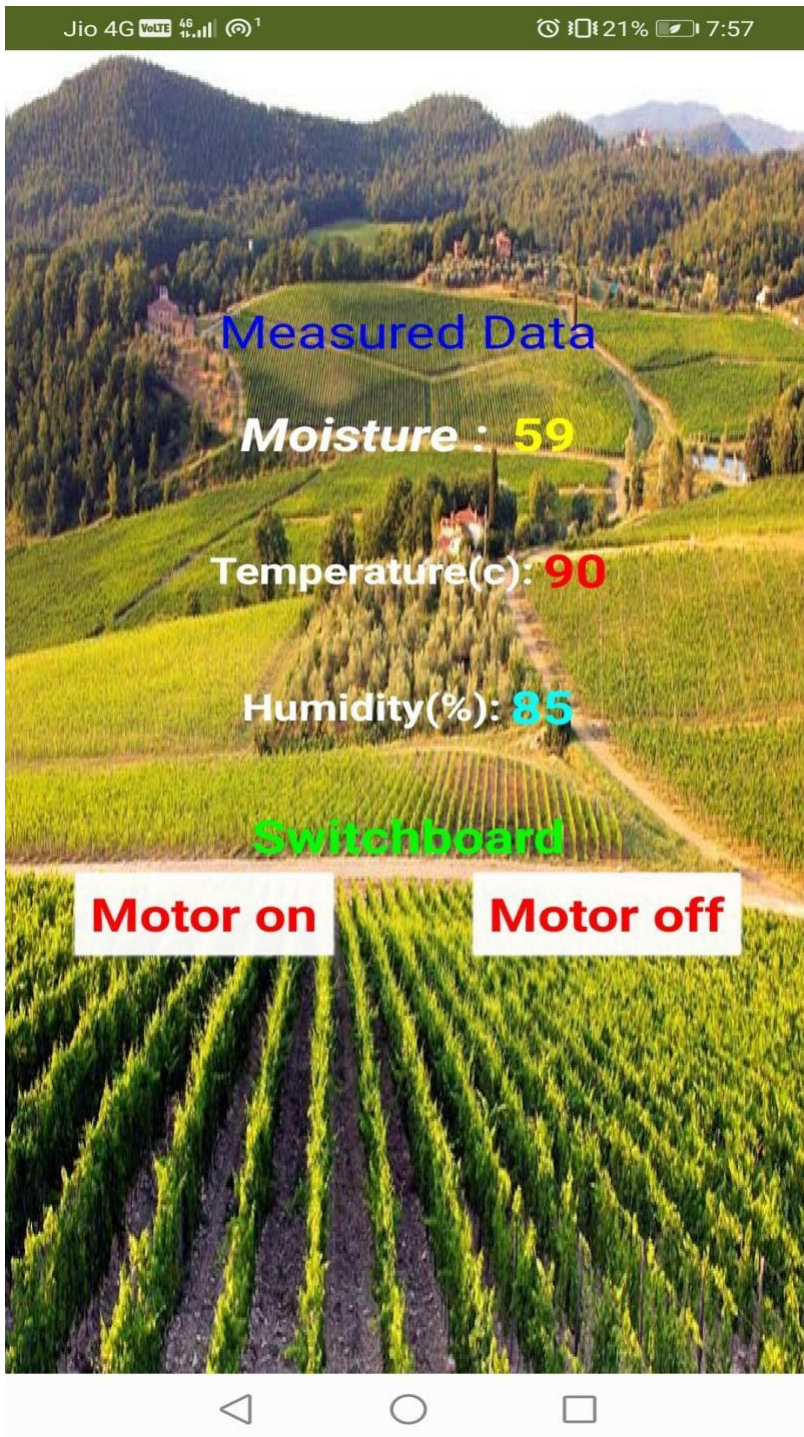
BLOCK DIAGRAM



SCREEN – 1



SCREEN - 2

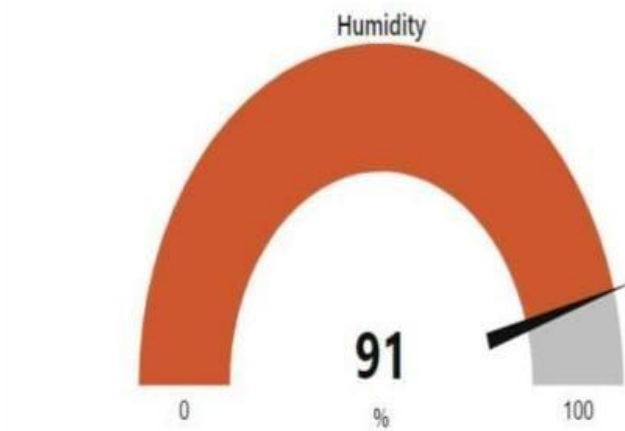


SCREEN - 3

Web APP UI Home Tab

≡ FARMING MEASURE DATA

Farming Measure Data



Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF

