

## SPRINT DELIVERY – 4

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<b>Project Name</b>	Smart Farmer-IOT Enabled Smart Farming Application
<b>Date</b>	9 November 2022

### Configuration of Node-Red to send commands to the IBM cloud

IBM IoT out node I used to send data from Node-Red to the IBM Watson device. So, after adding it to the flow we need to configure it with the 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 includes:

- Authentication:** API Key (dropdown)
- API Key:** IBMIOT APIKEY (text field with a search icon)
- Input Type:** Device Event (dropdown)
- Device Type:** ☐ All or
- Device Id:** ☐ All or
- Event:** ☒ All or  (Note: the checked box is in the original image)
- Format:** ☐ All or
- QoS:** 0 (dropdown)
- Name:** IBM IoT (text field)

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 analyze the data received and assign commands to each number.

The Javascript code

for the analyses is:

```
if(msg.payload===1)
```

```
msg.payload={"comm
```

```
and": "ON"}; else
```

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

```
msg.
```

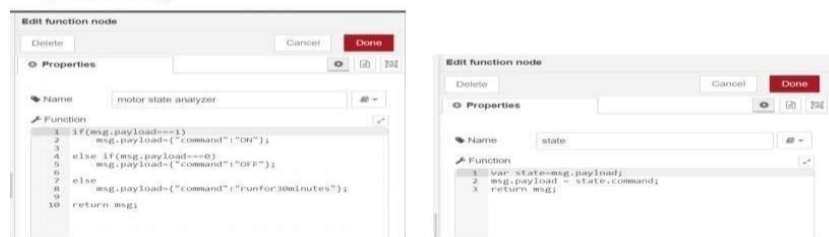
```
payload={"command"
```

```
: "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;
```

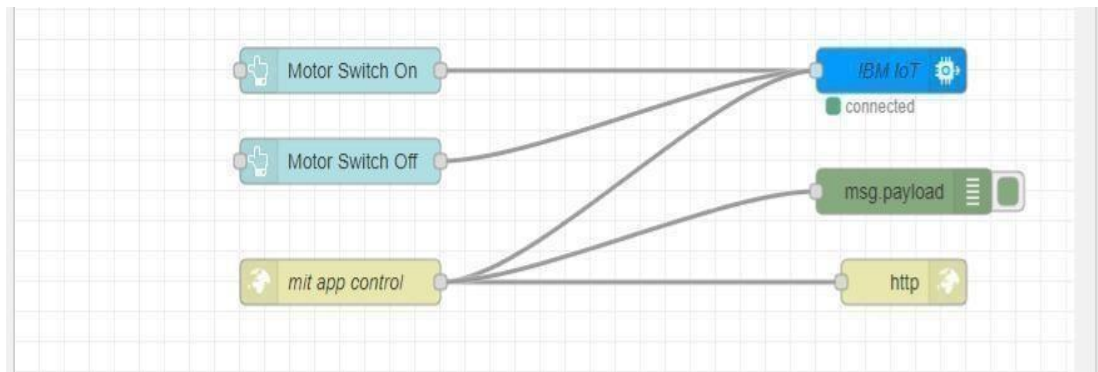


The above images show the java script codes of analyser and state function nodes.

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

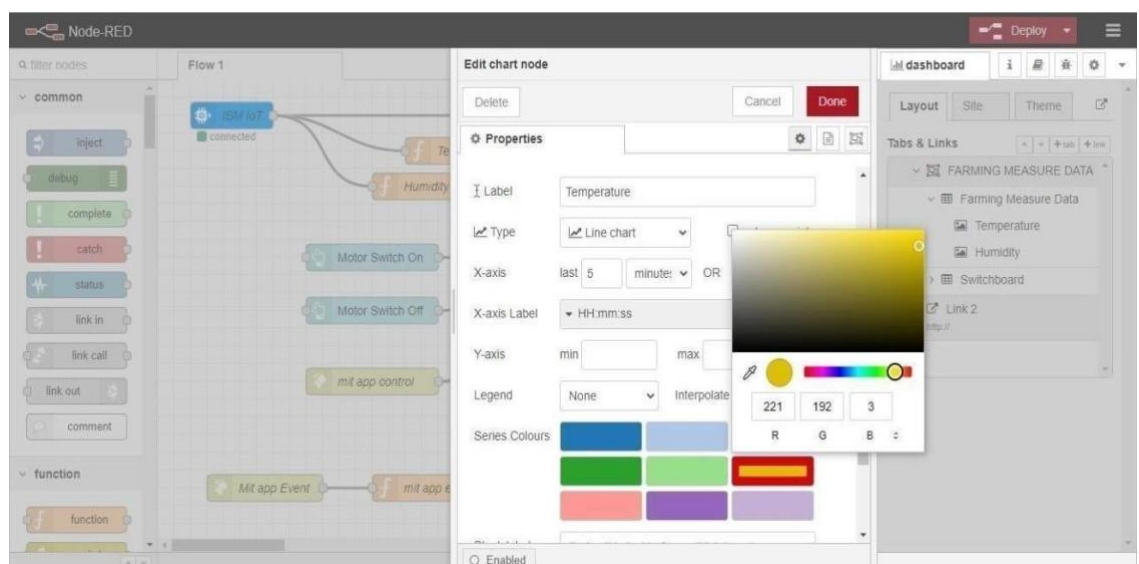


This is the program flow for sending commands to the IBM cloud.

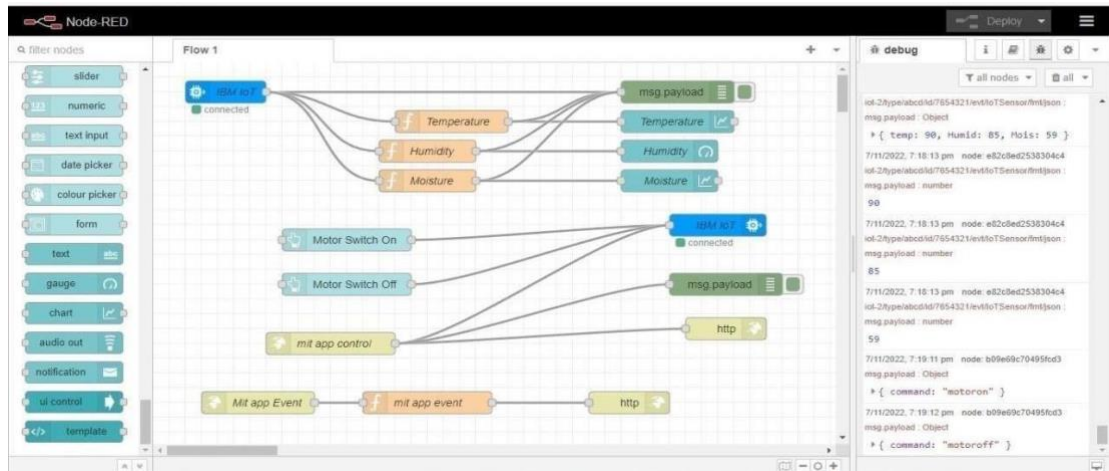
## Adjusting User Interface

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

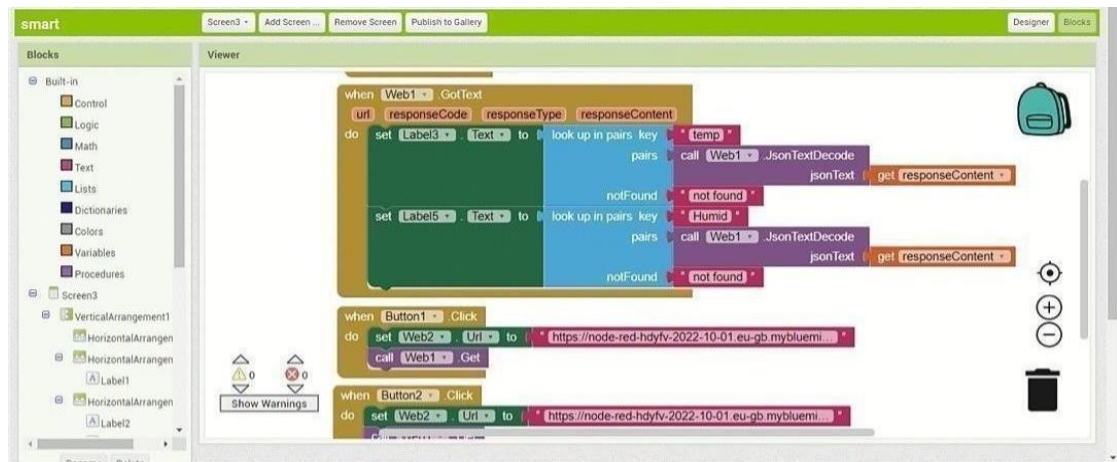
Here we are using Gauges, text, and button nodes to display in the UI and help to monitor the parameters and control the farm equipment. Below the images are the Gauge, text, and button node configurations.



## Complete Program Flow



## MOBILE APP WEB: BLOCK DIAGRAM





# SCREEN 1

Screen1



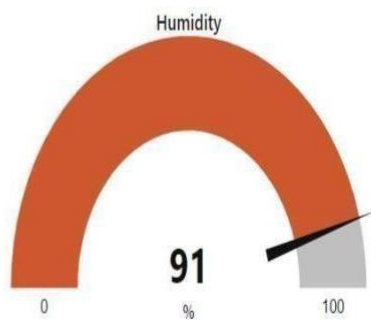
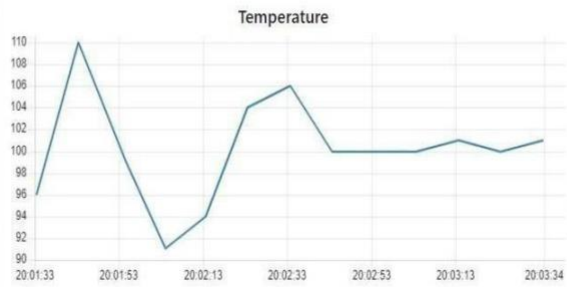
## SCREEN 2



## SCREEN 3

Web APP UI Home Tab

### Farming Measure Data



### Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF