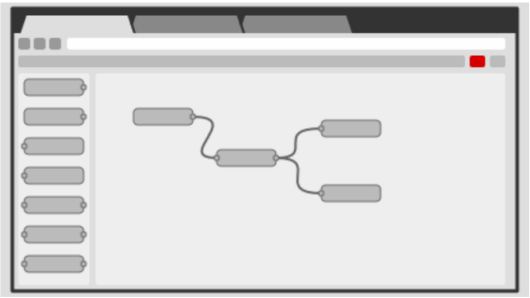
Sprint- 3

Team ID	**PNT2022TMID11481**
Project Title	**Smart Farmer -Iot Enabled Smart Farming Application**
Date	**15.11.2022**

Node-RED

Low-code programming for event-driven applications

Latest version: v3.0.2 (npm)



Browser-based flow editing

Node-RED provides a browser-based flow editor that makes it easy to wire together flows using the wide range of nodes in the palette. Flows can be then deployed to the runtime in a single-click.

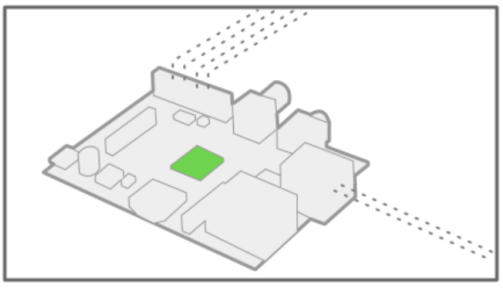
JavaScript functions can be created within the editor using a rich text editor.

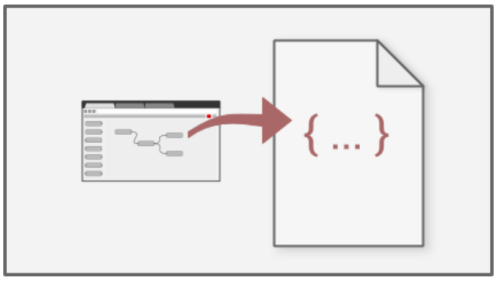
A built-in library allows you to save useful functions, templates or flows for re-use.

Built on Node.js

The light-weight runtime is built on Node.js, taking full advantage of its event-driven, non-blocking model. This makes it ideal to run at the edge of the network on low-cost hardware such as the Raspberry Pi as well as in the cloud.

With over 225,000 modules in Node's package repository, it is easy to extend the range of palette nodes to add new capabilities.



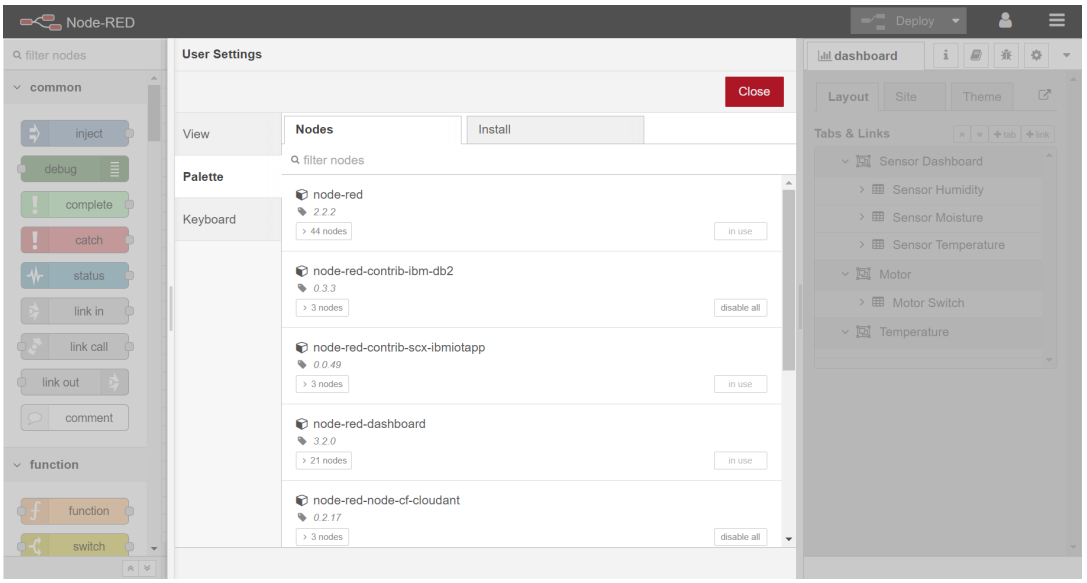


Social Development

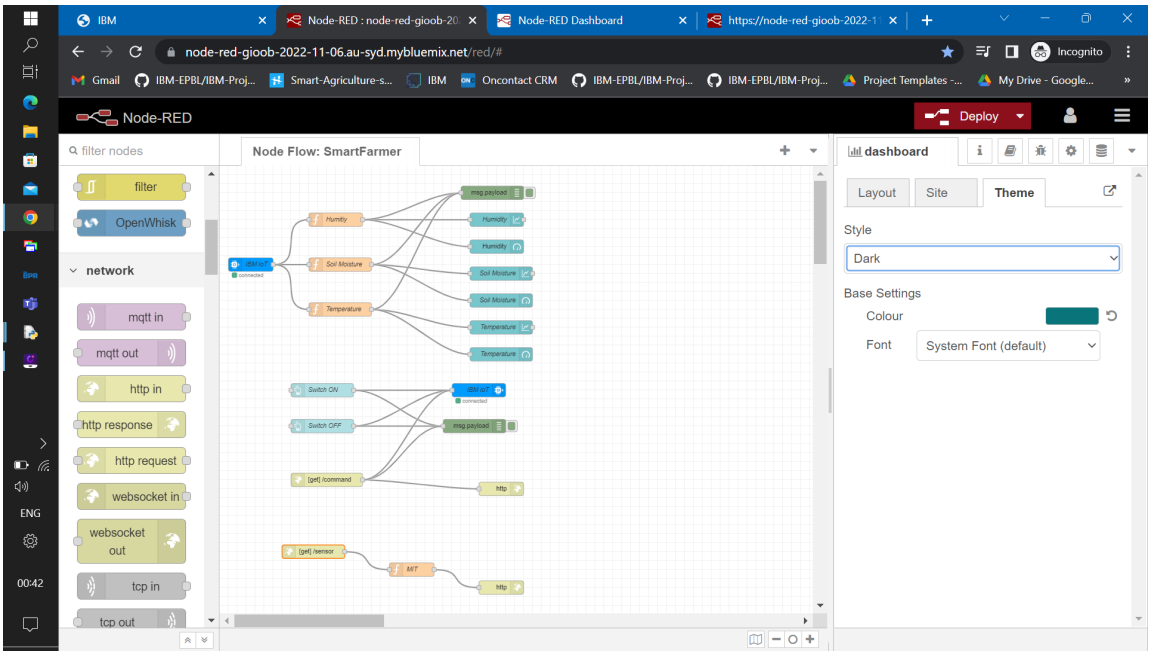
The flows created in Node-RED are stored using JSON which can be easily imported and exported for sharing with others.

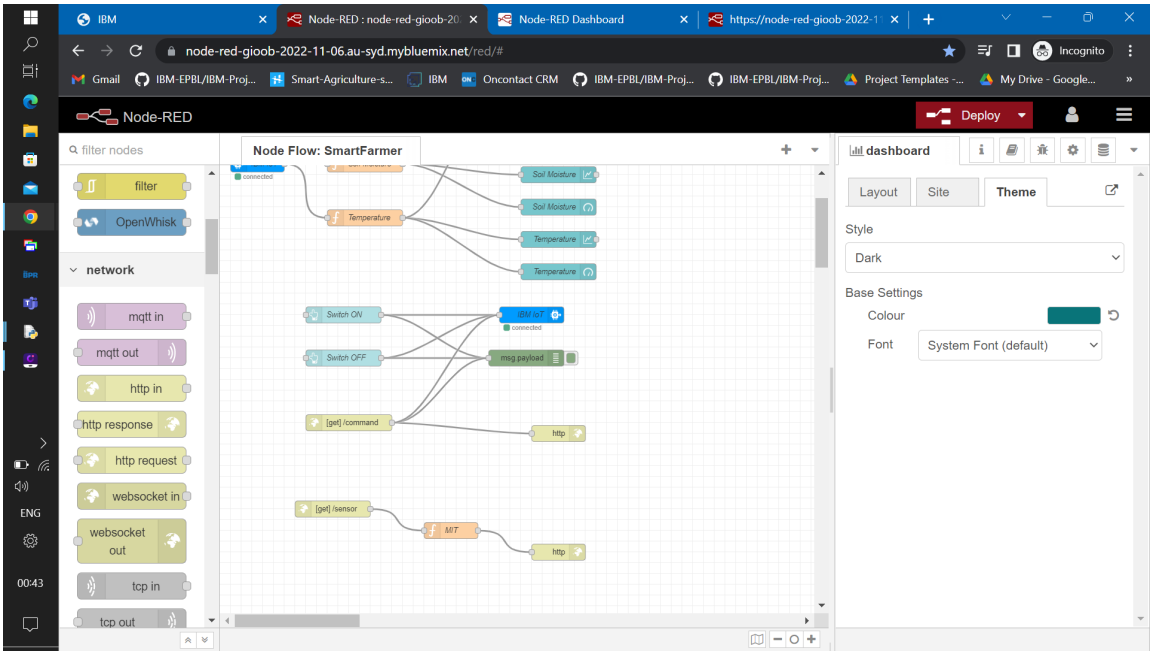
An online flow library allows you to share your best flows with the world.

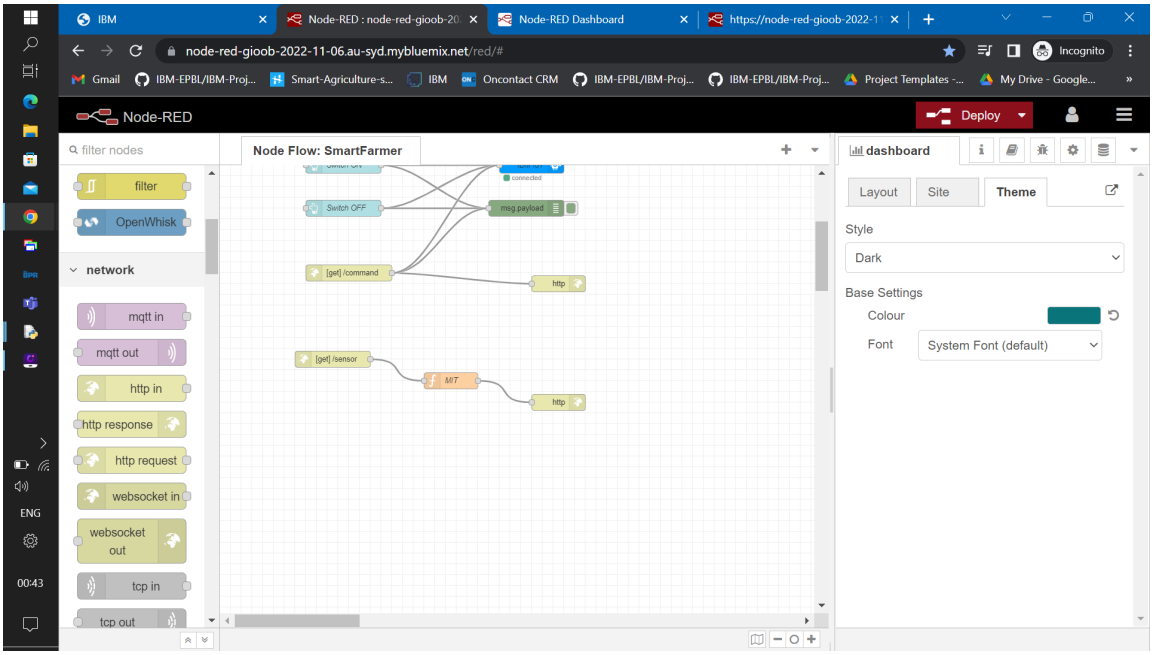
Node flow:



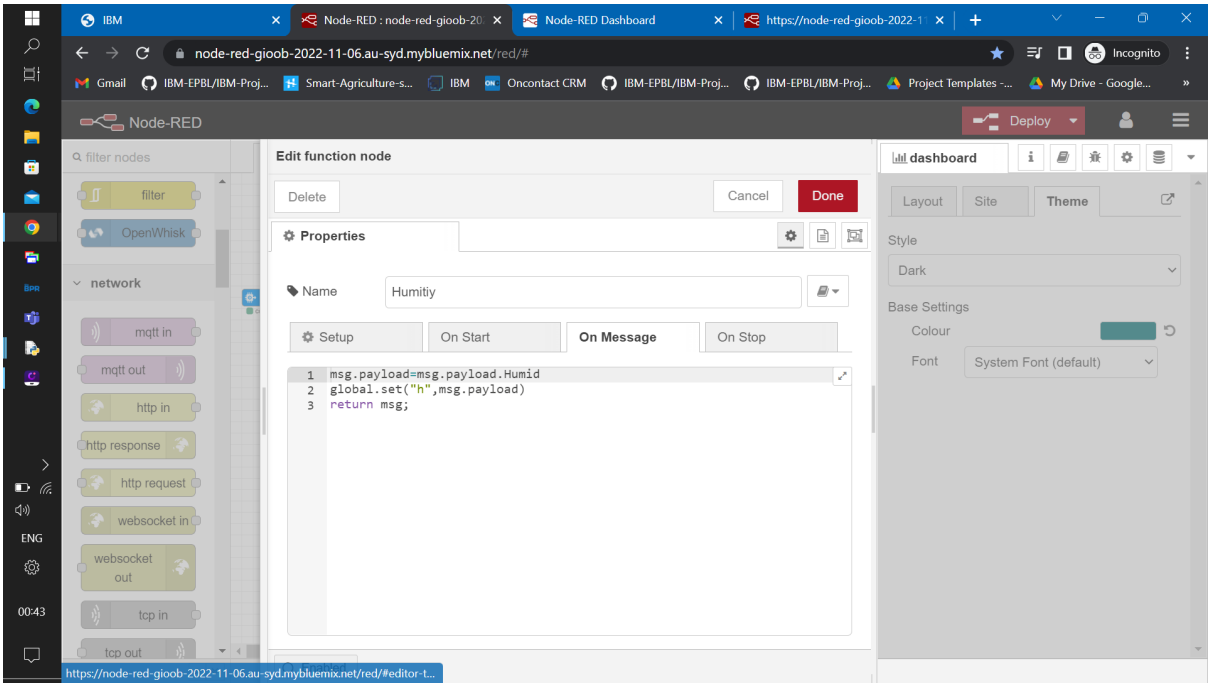
Firstly install these packages

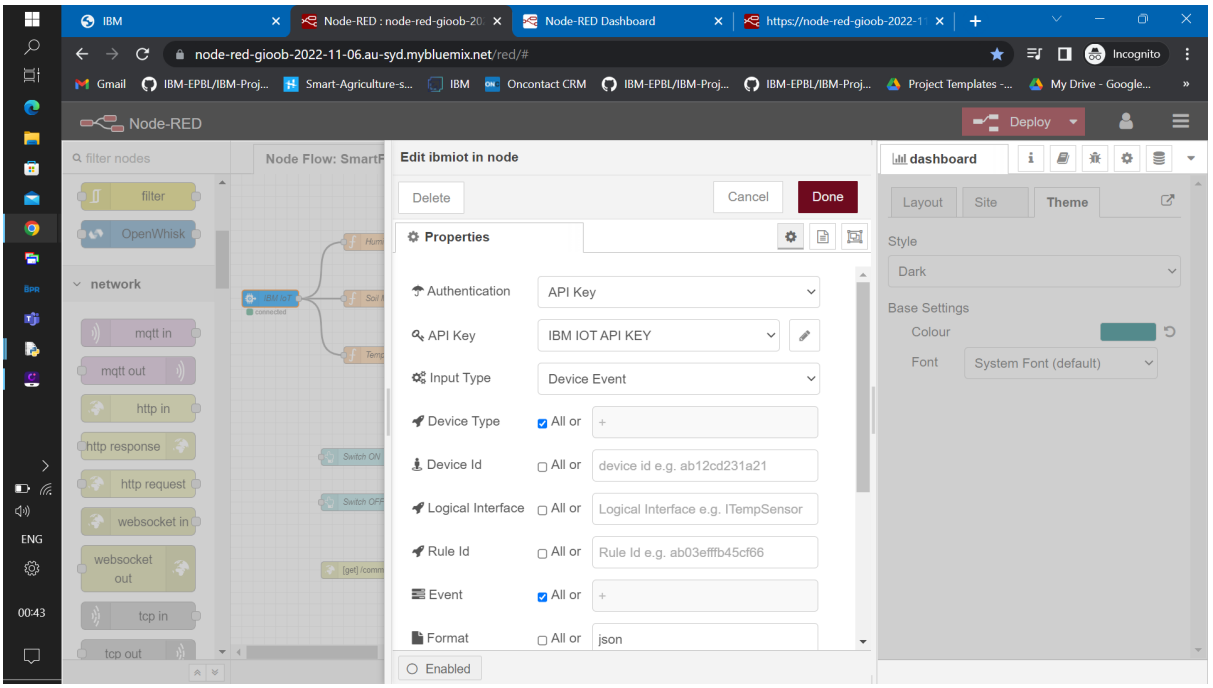


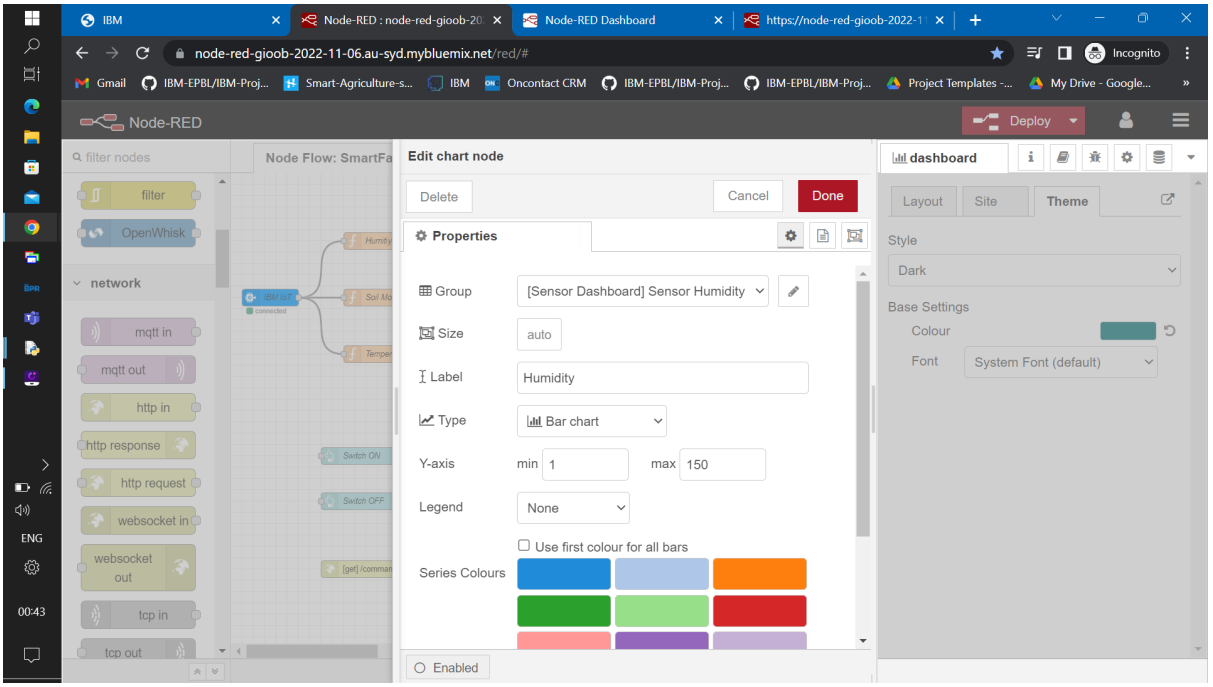

IBM
Node-RED : node-red-gioob-20
Node-RED Dashboard
https://node-red-gioob-2022-1
node-red-gioob-2022-11-06.au-syd.mybluemix.net/red/#
Incognito
Gmail
IBM-EPBL/IBM-Proj...
Smart-Agriculture-s...
IBM
Oncontact CRM
IBM-EPBL/IBM-Proj...
IBM-EPBL/IBM-Proj...
Project Templates -...
My Drive - Google...
Node-RED
Deploy
filter nodes
Node Flow: SmartFarmer
dashboard
Layout
Site
Theme
Style
Dark
Base Settings
Colour
Font
System Font (default)
filter
OpenWhisk
network
mqtt in
mqtt out
http in
http response
http request
websocket in
websocket out
tcp in
tcp out
Soil Moisture
Temperature
Switch ON
Switch OFF
IBM IoT
msg payload
[get] /command
http
[get] /sensor
MIT
ENG
00:43

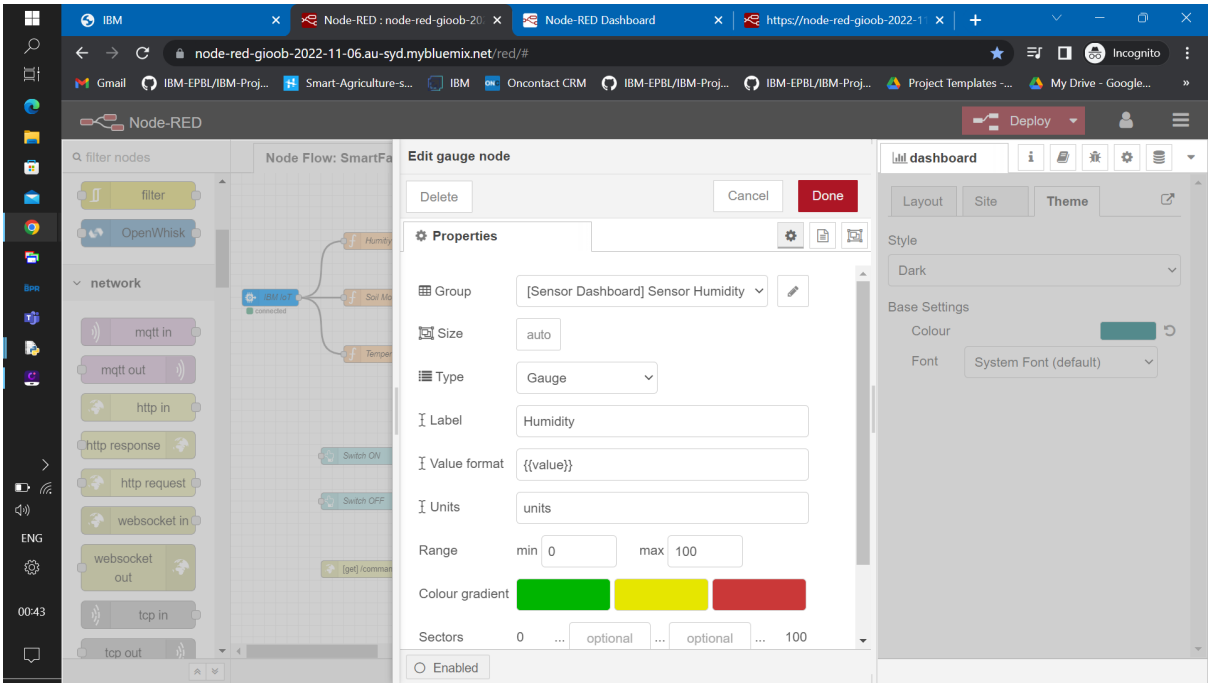

IBM
Node-RED : node-red-gioob-20
Node-RED Dashboard
https://node-red-gioob-2022-1
node-red-gioob-2022-11-06.au-syd.mybluemix.net/red/#
Incognito
Gmail
IBM-EPBL/IBM-Proj...
Smart-Agriculture-s...
IBM
Oncontact CRM
IBM-EPBL/IBM-Proj...
IBM-EPBL/IBM-Proj...
Project Templates -...
My Drive - Google...
Node-RED
Deploy
filter nodes
Node Flow: SmartFarmer
dashboard
Layout
Site
Theme
Style
Dark
Base Settings
Colour
Font
System Font (default)
filter
OpenWhisk
network
mqtt in
mqtt out
http in
http response
http request
websocket in
websocket out
tcp in
tcp out
Switch OFF
msg payload
[get] /command
http
[get] /sensor
MIT
ENG
00:43

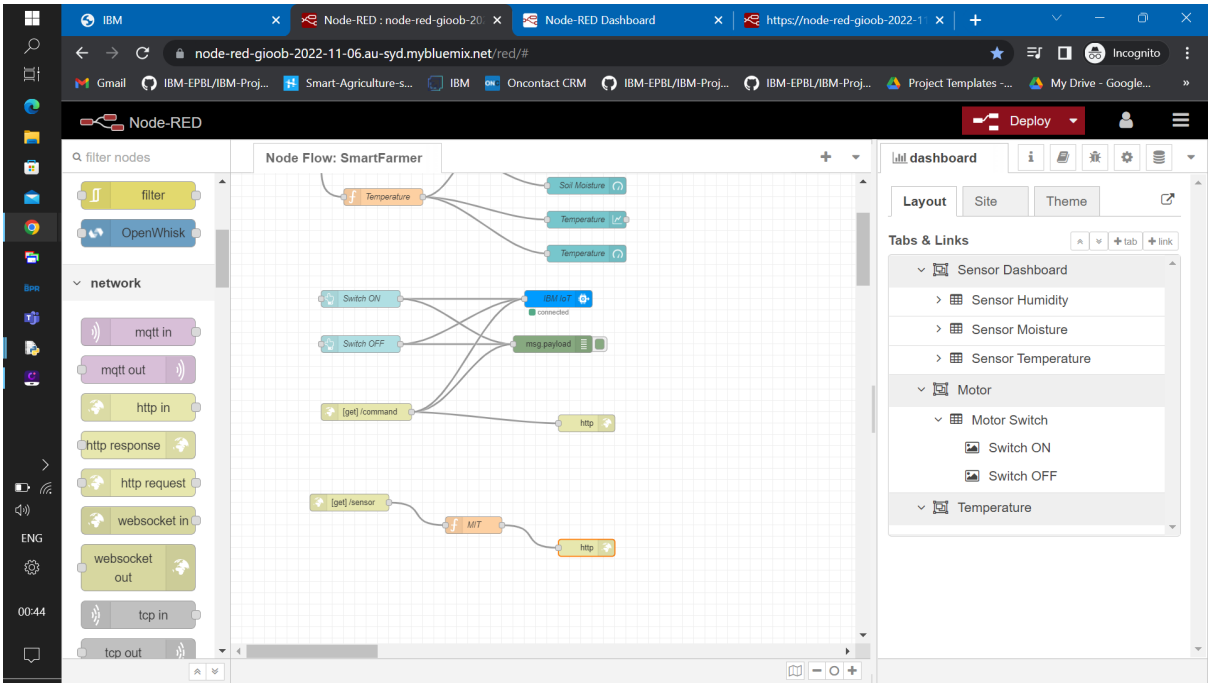
The Interior parts/values/codes of the nodes:






node-red-gioob-2022-11-06.au-syd.mybluemix.net/red/#
Node-RED
Deploy
Edit chart node
Delete
Cancel
Done
Properties
Group
[Sensor Dashboard] Sensor Humidity
Size
auto
Label
Humidity
Type
Bar chart
Y-axis
min 1
max 150
Legend
None
Use first colour for all bars
Series Colours
Enabled
dashboard
Layout
Site
Theme
Style
Dark
Base Settings
Colour
Font
System Font (default)


node-red-gioob-2022-11-06.au-syd.mybluemix.net/red/#
Node-RED
Deploy
Edit gauge node
Delete
Cancel
Done
Properties
Group
[Sensor Dashboard] Sensor Humidity
Size
auto
Type
Gauge
Label
Humidity
Value format
{{value}}
Units
units
Range
min 0
max 100
Colour gradient
Sectors
0 ... optional ... optional ... 100
Enabled
dashboard
Layout
Site
Theme
Style
Dark
Base Settings
Colour
Font
System Font (default)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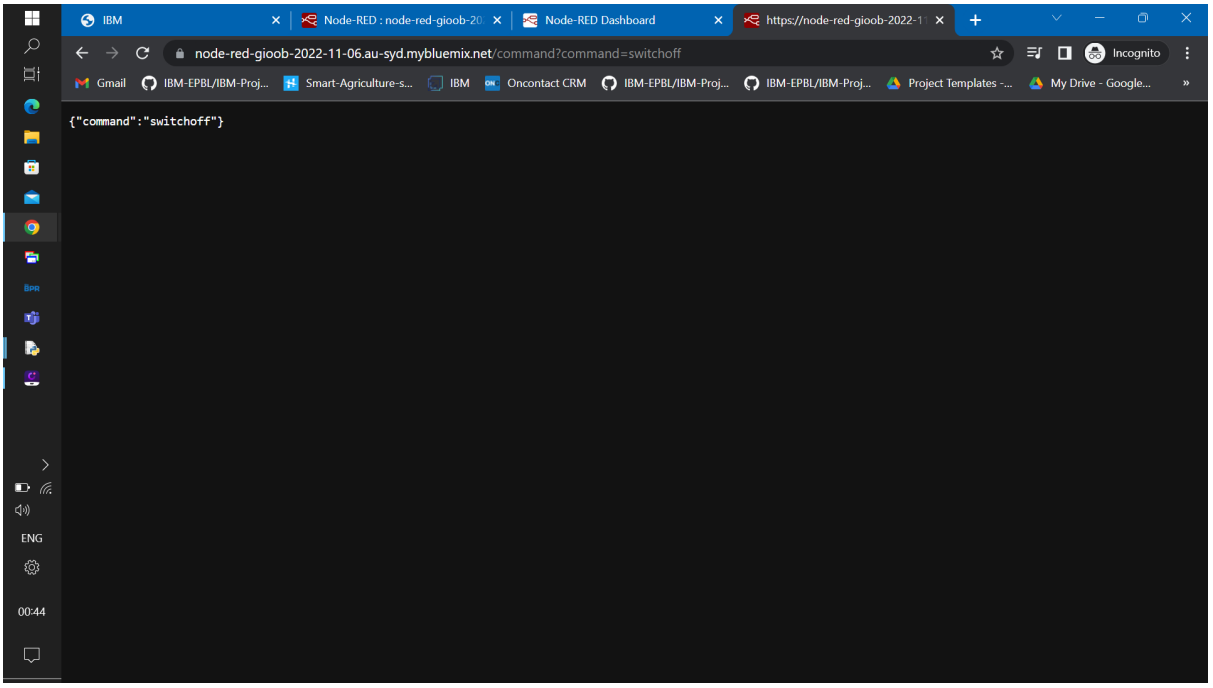
OpenWhisk
network
mqtt in
mqtt out
http in
http response
http request
websocket in
websocket out
tcp in
tcp out
Temperature
Soil Moisture
Switch ON
Switch OFF
IBM IoT
connected
msg.payload
[get] /command
http
[get] /sensor
MIT
Layout
Site
Theme
Tabs & Links
Sensor Dashboard
Sensor Humidity
Sensor Moisture
Sensor Temperature
Motor
Motor Switch
Switch ON
Switch OFF
Temperature
ENG
00:44


IBM
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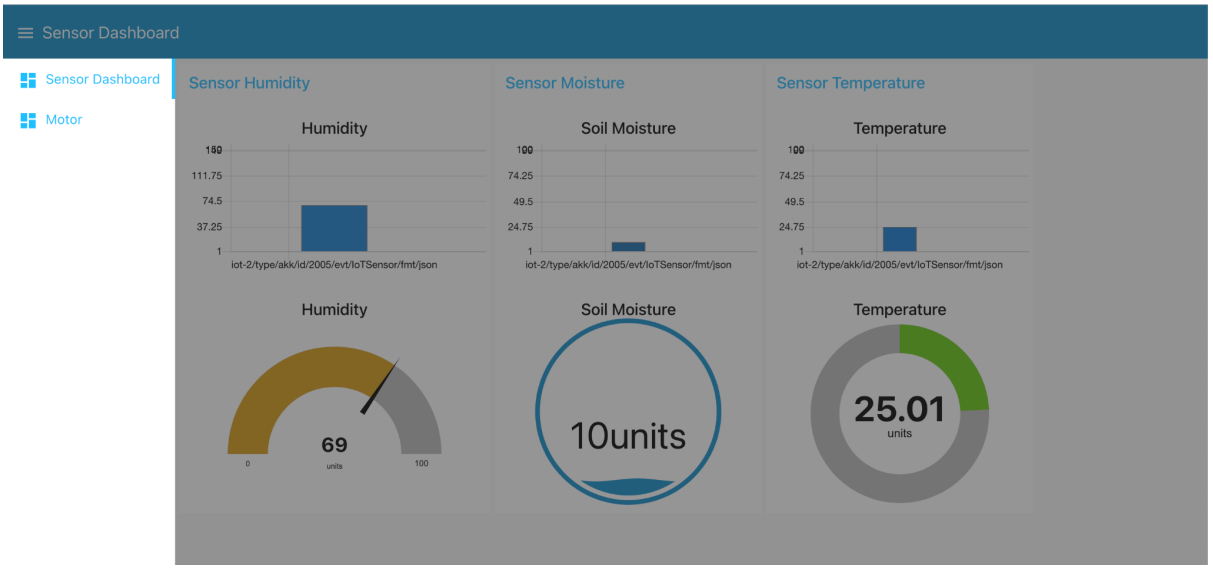
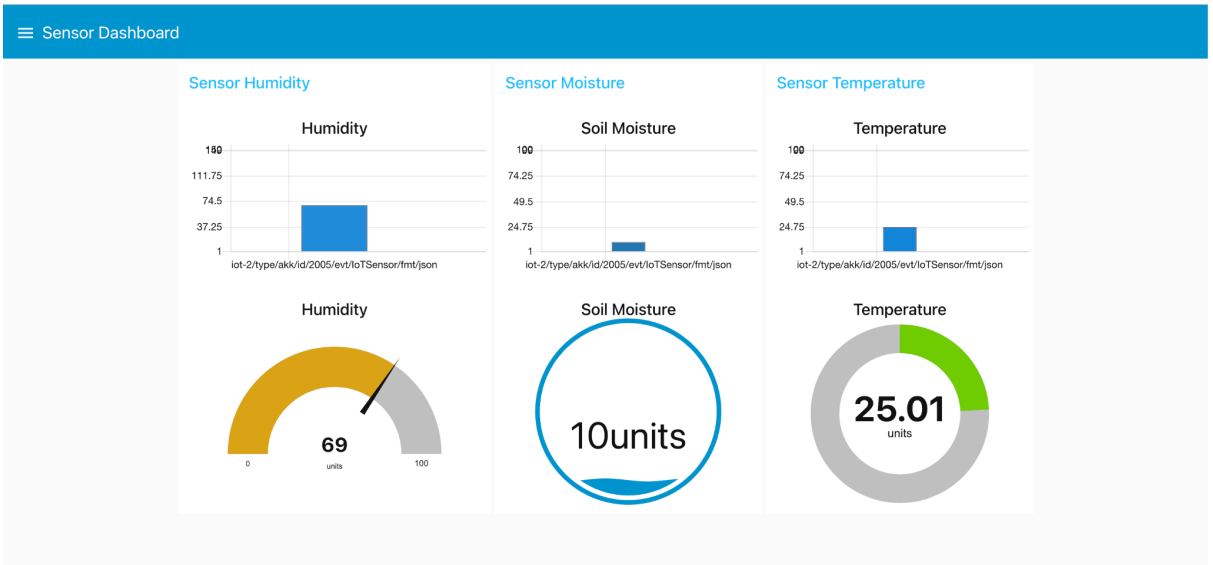
Node-RED Dashboard
https://node-red-gioob-2022-1
node-red-gioob-2022-11-06.au-syd.mybluemix.net/command?command=switchoff
Incognito
Gmail
IBM-EPBL/IBM-Proj...
Smart-Agriculture-s...
IBM
Oncontact CRM
Project Templates -...
My Drive - Google...
{"command":"switchoff"}
ENG
00:44

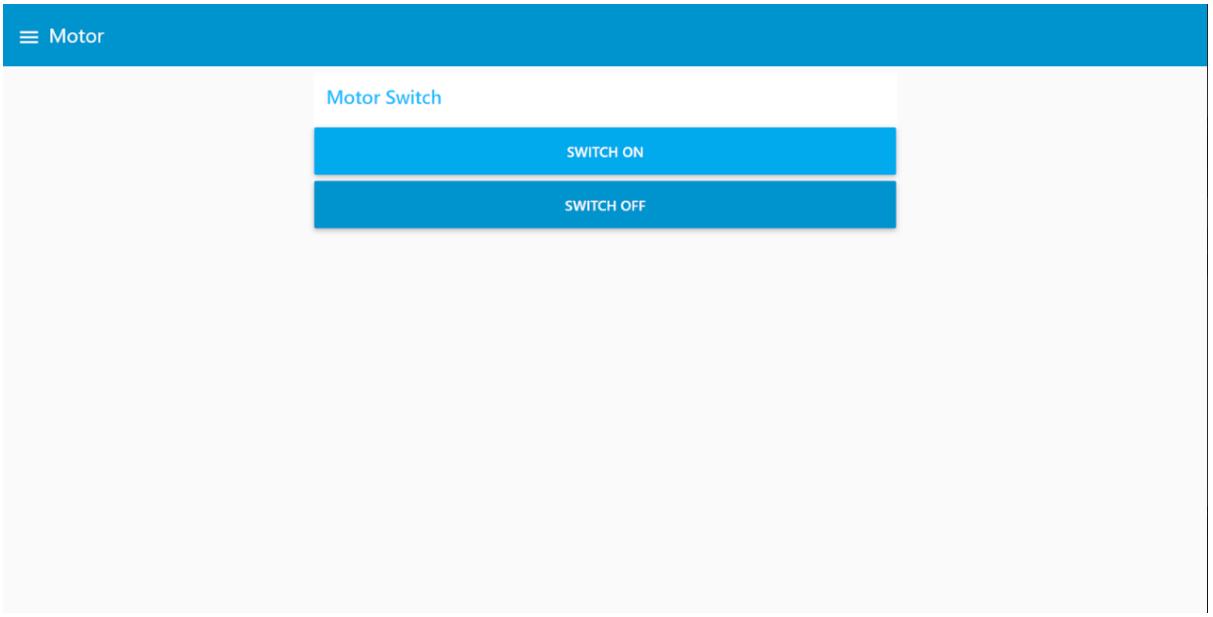
Dashboard created using Node:





Python Output :

```
========== RESTART: /Users/akkashrao/Desktop/Python IBM run/run2.py ==========
2022-11-19 19:11:34,250  ibmiotf.device.Client  INFO  Connected successfully: d:47l2i8:akk:2005
Published Temperature = 25.01 C Humidity = 69 % SoilMoisture = 10 % to IBM Watson
```



Python Output :

```
>>> Command received: switchon
Switch is on
```