

Build A Web Application Using Node-RED

Team ID	PNT2022TMID24904
Project Name	Smart Farmer-IOT Enabled Smart Farming Application

The screenshot shows the IBM Watson IoT Platform interface. At the top, there's a navigation bar with the user's name 'drsuryakiranit2019@citchennai.net' and ID 'n9zhtn'. Below it, a sidebar contains various icons. The main area displays the 'Generate API Key' dialog box with the 'Information' tab selected. The dialog has a 'Description' text field, an 'API Key Expires' toggle set to 'Off', and a 'Choose date' button. At the bottom right of the dialog are 'Cancel' and 'Next' buttons. Below the dialog, a status bar indicates '1 Simulation running'. The browser's address bar shows the URL 'n9zhtn.internetofthings.ibmcloud.com/dashboard/apps/browse/add'.

This screenshot shows the same 'Generate API Key' dialog box, but now the 'Permissions' tab is selected. The dialog indicates 'The application will have access for the following role:' and shows a dropdown menu with 'Standard Application' selected. Below this, there's a link: 'For more information about roles, see [User, application, and gateway roles](#).' At the bottom right of the dialog are 'Back' and 'Generate Key' buttons. The status bar still shows '1 Simulation running'. The browser's address bar remains the same.

IBM Watson IoT Platform

The API key has been added.

Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the API key to generate a new authentication token.

Generated Details

API Key	a-n9zhtn-ccpxxd4jhq
Authentication Token	Kpl&hCE3*Eaq_TXd1p

Make a note of the generated authentication token. Lost authentication tokens cannot be recovered. If you lose the token, you must reregister the API to generate a new token.

API Key Information

Description	-
Role	Standard Application
Expires	Never

View API Key Add Another Close

0 Simulations running

Browse API Keys

node-red-vlsno-2022-11-14.eu-gb.mybluemix.net/red/#flow/3a871d1aa6dceb1a

Node-RED

Flow 1

websocket out

tcp in

tcp out

tcp request

udp in

udp out

input

ibmiot in

output

OpenWhisk

ibmiot out

welcome

msg payload

IBM IoT

Edit ibmiot in node > Add new ibmiot config node

Cancel Add

Properties

Name

API Key

API Token

Server-Name orgid.messaging.internetofthings.ibmcloud.com

Scalable ☐ Application ID

Keep Alive 60 Seconds ☒ Use Clean Session

Enabled 0 nodes use this config On all flows

node-red-visno-2022-11-14.eu-gb.mybluemix.net/red/#flow/3a871d1aa6dceb1a

Node-RED

Flow 1

debug

11/15/2022, 12:29:36 AM node: f2f2649a.0d0d98
msg.payload: string[15]
"Hello Node-RED!"

11/15/2022, 12:30:49 AM node: f2f2649a.0d0d98
msg.payload: string[7]
"welcome"

11/15/2022, 1:03:30 AM node: f2f2649a.0d0d98
iot-2/type/sensorId/sensor_1/evt/event_1/fmt/json :
msg.payload: Object
object
Temperature: 8
Humidity: 88

The screenshot shows the Node-RED web interface. On the left, the 'nodes' palette is visible with categories like 'input', 'output', and 'function'. The main workspace contains a flow named 'Flow 1' with two nodes: a 'welcome' node and a 'msg.payload' node. A connection line links the 'welcome' node to the 'msg.payload' node. On the right, the 'debug' console displays a series of log messages. The first two messages are simple strings: 'Hello Node-RED!' and 'welcome'. The third message is a JSON object containing 'Temperature: 8' and 'Humidity: 88'.

node-red-visno-2022-11-14.eu-gb.mybluemix.net/red/#flow/3a871d1aa6dceb1a

Node-RED

Flow 1

debug

{ Temperature: 15, Humidity: 55 }

11/15/2022, 1:09:36 AM node: f2f2649a.0d0d98
iot-2/type/sensorId/sensor_1/evt/event_1/fmt/json :
msg.payload: number
15

11/15/2022, 1:09:37 AM node: f2f2649a.0d0d98
iot-2/type/sensorId/sensor_1/evt/event_1/fmt/json :
msg.payload: number
55

11/15/2022, 1:10:39 AM node: f2f2649a.0d0d98
iot-2/type/sensorId/sensor_1/evt/event_1/fmt/json :
msg.payload: Object
{ Temperature: 37, Humidity: 81 }

11/15/2022, 1:10:39 AM node: f2f2649a.0d0d98
iot-2/type/sensorId/sensor_1/evt/event_1/fmt/json :
msg.payload: number
37

11/15/2022, 1:10:39 AM node: f2f2649a.0d0d98
iot-2/type/sensorId/sensor_1/evt/event_1/fmt/json :
msg.payload: number
81

This screenshot shows a more complex flow in Node-RED. The 'nodes' palette on the left includes a 'function' category. The main workspace shows a flow named 'Flow 1' starting with an 'IBM IoT' node, which is connected to two function nodes labeled 'Temperature' and 'Humidity'. Both function nodes are then connected to a 'msg.payload' node. The 'debug' console on the right shows a series of log messages. The first two messages are JSON objects: '{ Temperature: 15, Humidity: 55 }' and '{ Temperature: 37, Humidity: 81 }'. The subsequent messages show the 'msg.payload' as a number (15, 55, 37, 81) for each log entry, indicating that the function nodes are extracting specific values from the incoming JSON objects.

node-red-vlsno-2022-11-14.eu-gb.mybluemix.net/red/#flow/3a871d1aa6dceb1a

Node-RED

filter nodes

Flow 1

Nodes added to palette:

- ui_base
- ui_button
- ui_dropdown
- ui_switch
- ui_slider
- ui_numeric
- ui_text_input
- ui_date_picker
- ui_colour_picker
- ui_form
- ui_text
- ui_gauge
- ui_chart
- ui_audio
- ui_toast
- ui_ui_control
- ui_template
- ui_link
- ui_tab
- ui_group
- ui_spacer

IBM IoT

connected

debug

all nodes

all

Temperature: 37, Humidity: 81

11/15/2022, 1:10:39 AM node: f2f2649a.0d0d98
iot-2/type/sensor/id/sensor_1/evt/event_1/fmt/json :
msg.payload : number
37

11/15/2022, 1:10:39 AM node: f2f2649a.0d0d98
iot-2/type/sensor/id/sensor_1/evt/event_1/fmt/json :
msg.payload : number
81

11/15/2022, 1:11:40 AM node: f2f2649a.0d0d98
iot-2/type/sensor/id/sensor_1/evt/event_1/fmt/json :
msg.payload : Object
{ Temperature: 66, Humidity: 53 }

11/15/2022, 1:11:41 AM node: f2f2649a.0d0d98
iot-2/type/sensor/id/sensor_1/evt/event_1/fmt/json :
msg.payload : number
66

11/15/2022, 1:11:42 AM node: f2f2649a.0d0d98
iot-2/type/sensor/id/sensor_1/evt/event_1/fmt/json :
msg.payload : number
53

3.2.0 2 months ago

feezal

Web Components based Dashboard UI with WYSIWYG Editor

0.8.1 2 years ago

node-red-vlsno-2022-11-14.eu-gb.mybluemix.net/red/#flow/3a871d1aa6dceb1a

Node-RED

filter nodes

Flow 1

switch

dropdown

text input

date picker

text

colour picker

form

gauge

notification

chart

ui control

template

audio out

IBM IoT

connected

msg.payload

Temperature

Humidity

chart

gauge

dashboard

Layout

Site

Theme

Style

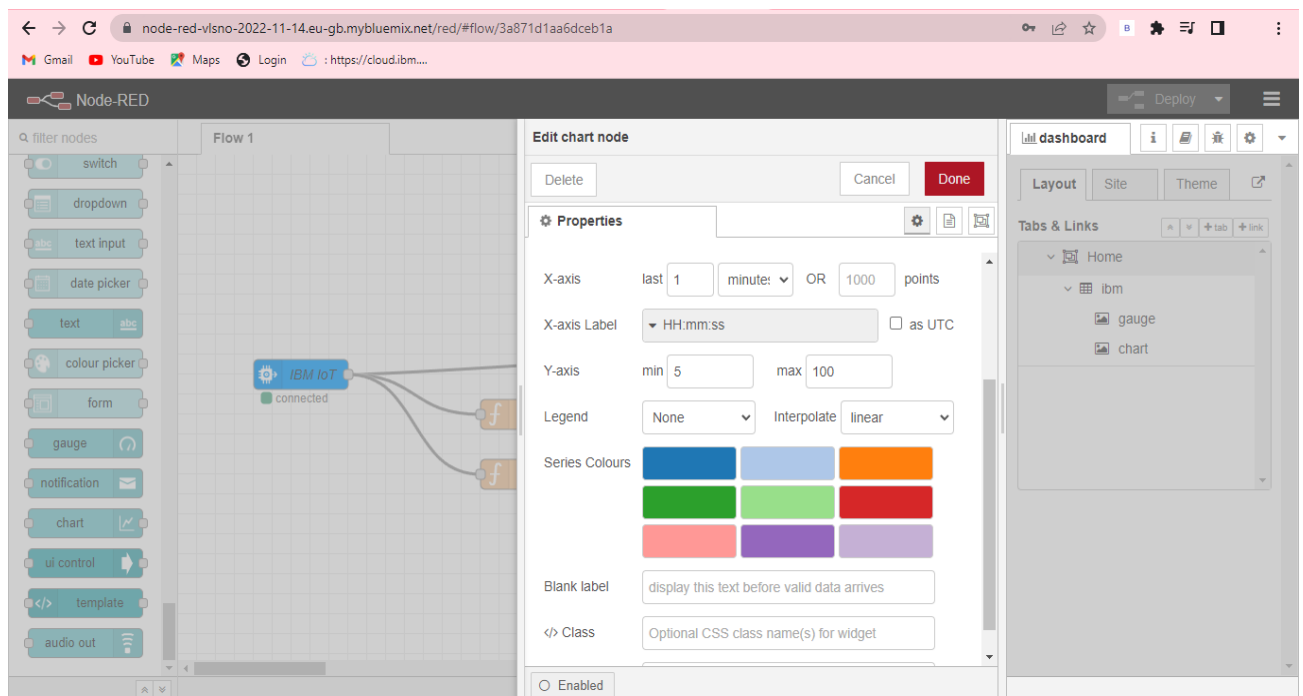
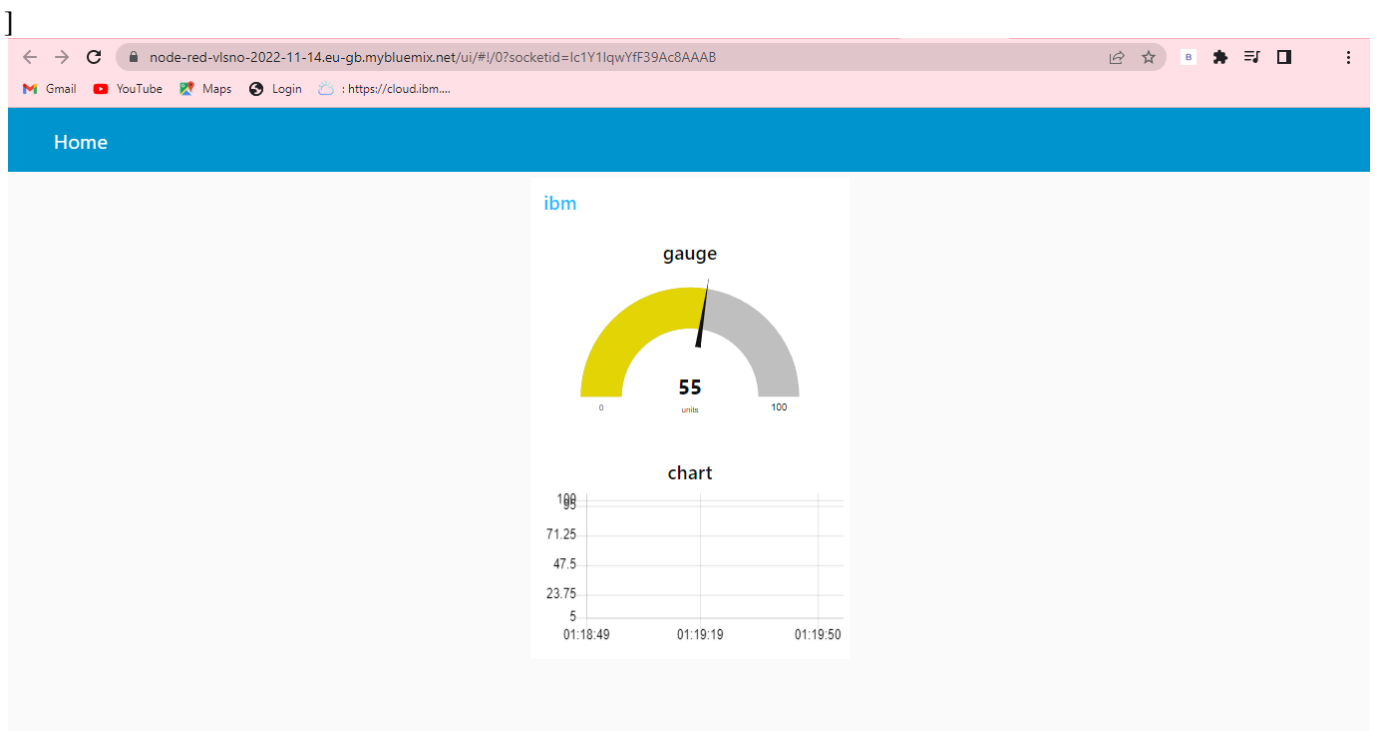
Light (default)

Base Settings

Colour

Font

System Font (default)



node-red-vlsno-2022-11-14.eu-gb.mybluemix.net/red/#flow/3a871d1aa6dceb1a

Node-RED

Flow 1

filter nodes

dropdown, switch, slider, numeric, text input, date picker, colour picker, form, text, gauge, chart, audio out, notification

IBM IoT (connected)

Temperature, Humidity, moisture

msg.payload, temperature, humidity, moisture

dashboard

Layout, Site, Theme

Title: Node-RED Dashboard

Options: Show the title bar, Click to show side menu, No swipe between tabs, Node-RED theme everywhere

Date Format: DD/MM/YYYY

Sizes: 1x1 Widget Size (48, 48), Widget Spacing (6, 6), Group Padding (0, 0), Group Spacing (6, 6)

```
Command Prompt - pip install ibmiotf
Collecting paho-mqtt>=1.3.1 (from ibmiotf)
  Downloading https://files.pythonhosted.org/packages/f8/dd/4b75dcba025f8647bc9862ac17299e0d7d12d3beadbfb026d8c8d74215c12/paho-mqtt-1.6.1.tar.gz (99kB)
  100% |#####| 102kB 672kB/s
Collecting requests>=2.18.4 (from ibmiotf)
  Downloading https://files.pythonhosted.org/packages/ca/91/6d9b8ccacd0412c08820f72cebaa4f0c0441b5cda699c90f618b6f8a1b42/requests-2.28.1-py3-none-any.whl (62kB)
  100% |#####| 71kB 1.3MB/s
Collecting requests_toolbelt>=0.8.0 (from ibmiotf)
  Downloading https://files.pythonhosted.org/packages/05/d3/bf87a36bff1cb88fd30a509fd366c70ec30676517ee791b2f77e0e29817a/requests_toolbelt-0.10.1-py2.py3-none-any.whl (54kB)
  100% |#####| 61kB 1.5MB/s
Collecting charset-normalizer<3,>=2 (from requests>=2.18.4->ibmiotf)
  Downloading https://files.pythonhosted.org/packages/db/51/a507c856293ab05cdc1db77ff4bc1268ddd39f29e7dc4919aa497f0adbec/charset_normalizer-2.1.1-py3-none-any.whl
Collecting certifi>=2017.4.17 (from requests>=2.18.4->ibmiotf)
  Downloading https://files.pythonhosted.org/packages/1d/38/fa96a426e0ce68aabc68e896584b83ad1eec779265a028e156ce509630e/certifi-2022.9.24-py3-none-any.whl (161kB)
  100% |#####| 163kB 1.5MB/s
Collecting idna<4,>=2.5 (from requests>=2.18.4->ibmiotf)
  Downloading https://files.pythonhosted.org/packages/fc/34/3030de6f1370931b9dbb4dad48f6ab1015ab1d32447850b9fc94e60097be/idna-3.4-py3-none-any.whl (61kB)
  100% |#####| 71kB 1.5MB/s
Collecting urllib3<1.27,>=1.21.1 (from requests>=2.18.4->ibmiotf)
  Downloading https://files.pythonhosted.org/packages/6f/de/5be2e3eed8426f871b170663333a0f627fc2924cc386cd41be065e7ea870/urllib3-1.26.12-py2.py3-none-any.whl (140kB)
  100% |#####| 143kB 1.5MB/s
Installing collected packages: iso8601, pytz, paho-mqtt, charset-normalizer, certifi, idna, urllib3, requests, requests-toolbelt, ibmiotf
```

py ibm.py - F:\py ibm.py (3.7.0)

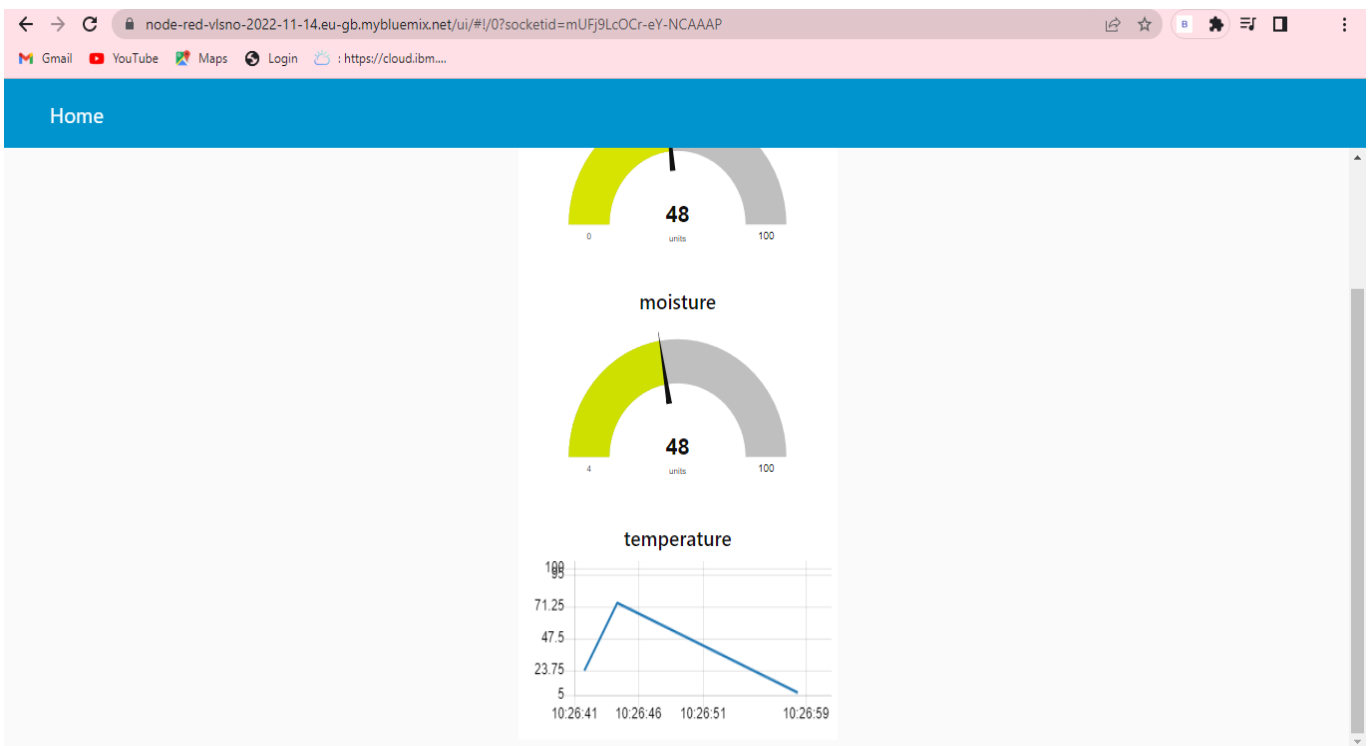
File Edit Format Run Options Window Help

Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.

```
>>> import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

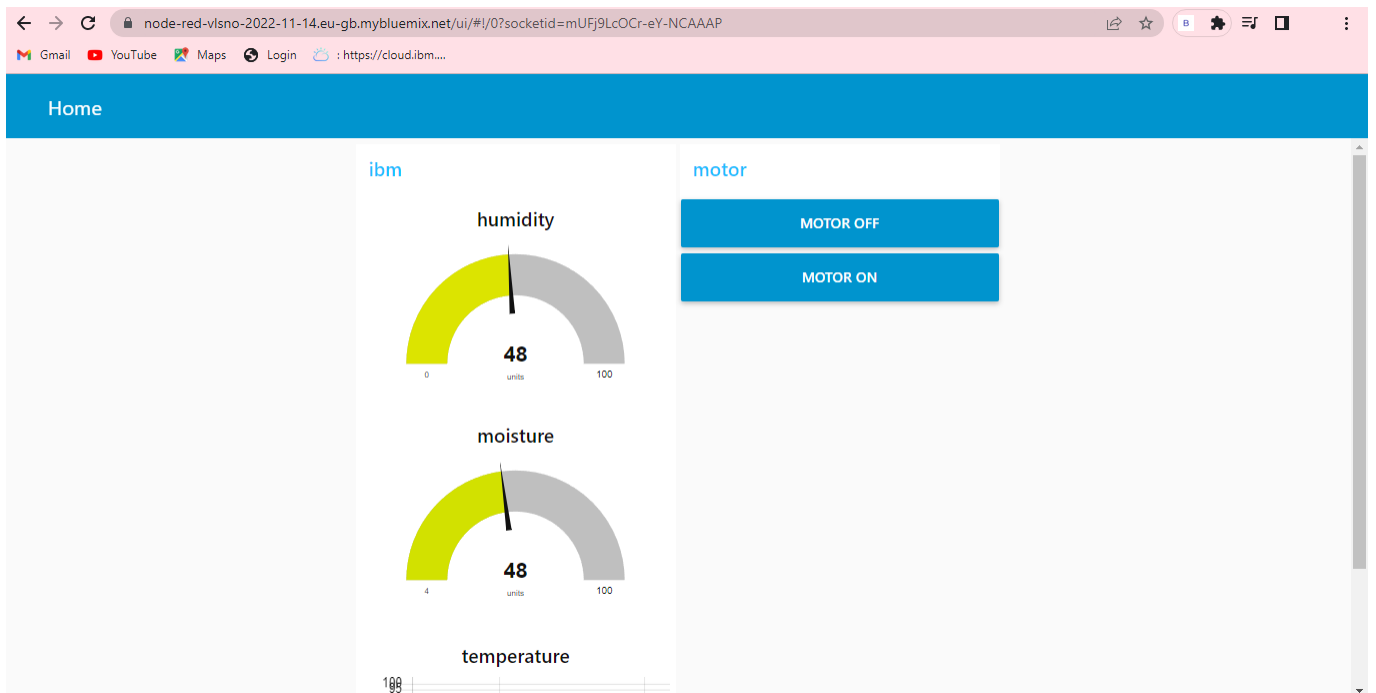
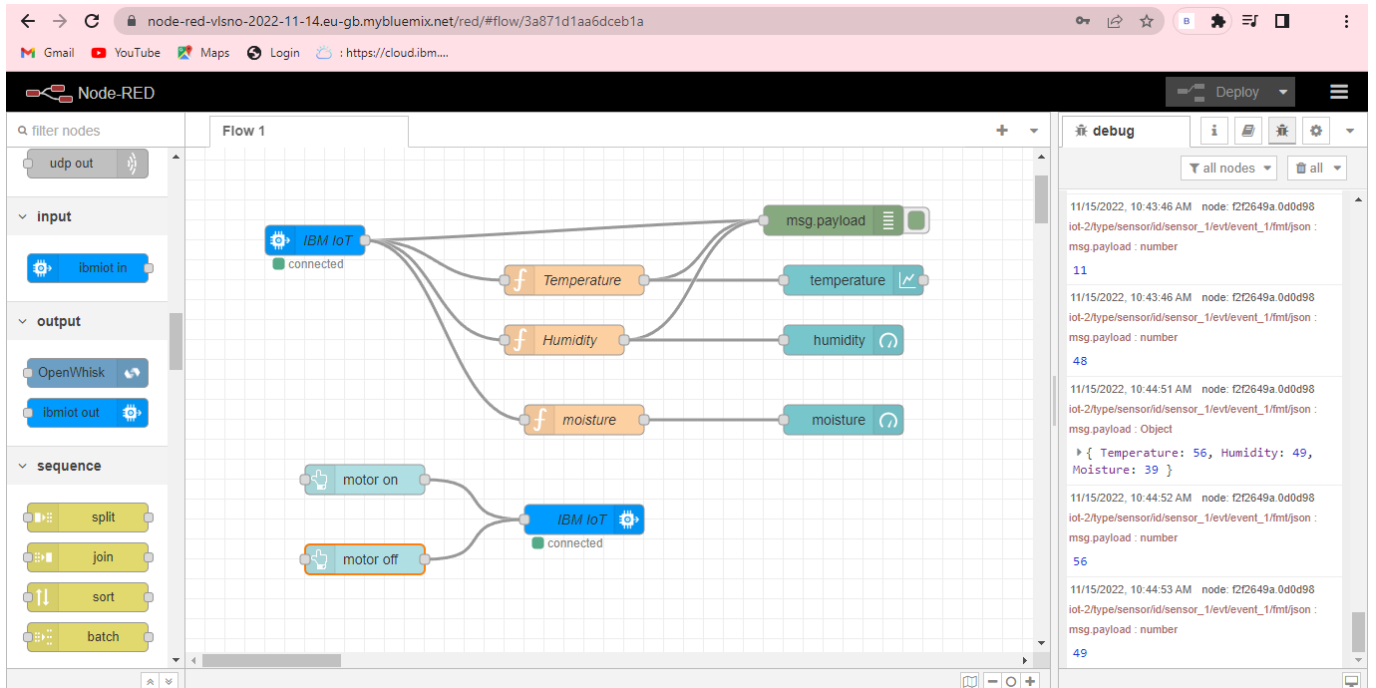
#Provide your IBM Watson Device Credentials
organization = "rr454u"
deviceType = "sensor_1"
deviceId = "sensor"
authMethod = "token"
authToken = "12345678"

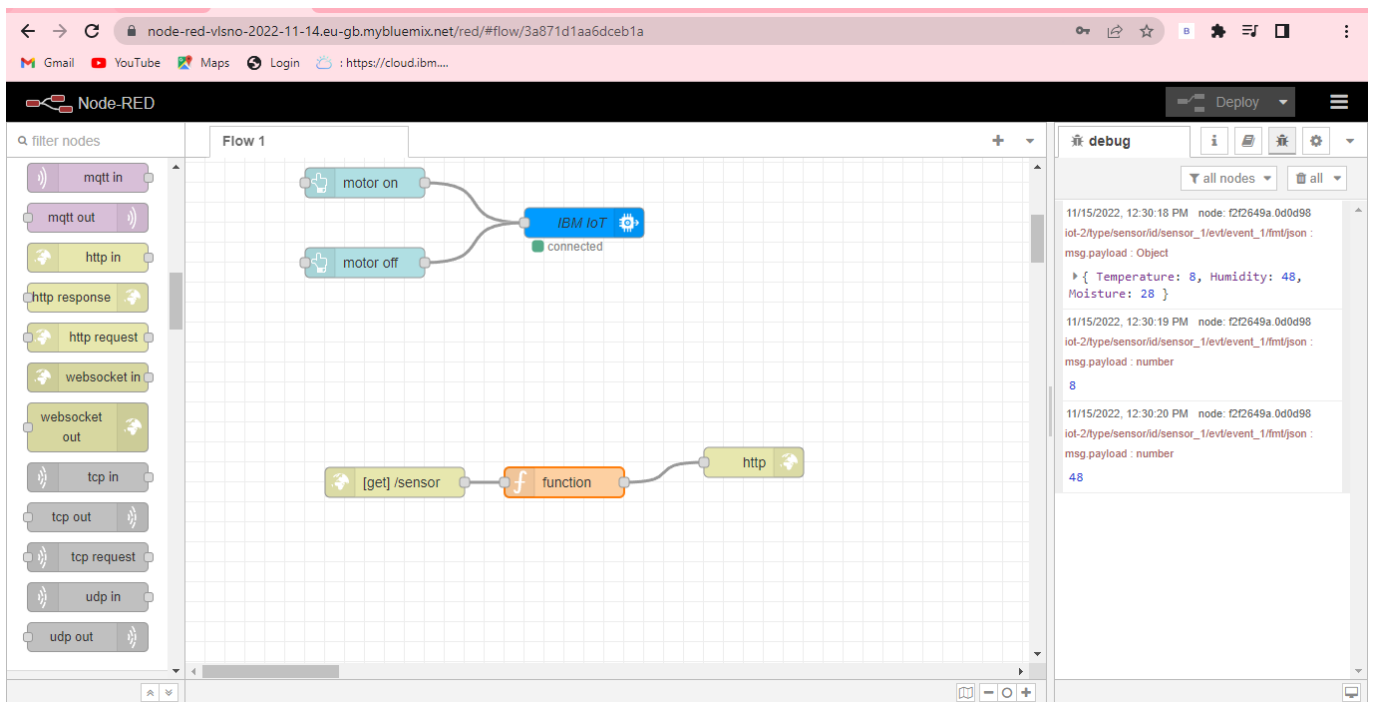
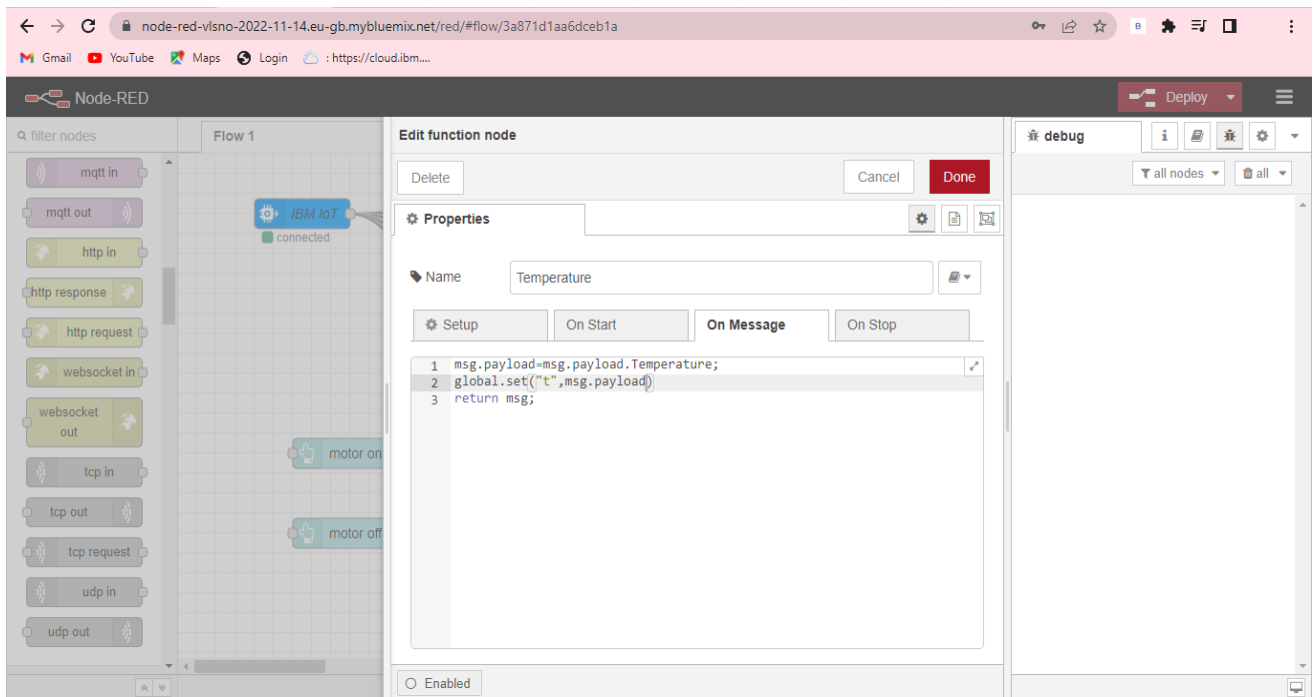
# Initialize GPIO
def myCommandCallback (cmd):
    print ("Command received: %s" cmd.data['command'])
    status=cmd.data['command']
    if status=="lighton":
        print ("led is on")
    elif status == "lightoff":
        print ("led is off")
    else :
        print ("please send proper command")
try:
    deviceOptions s = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod,"auth-token":authToken}
    deviceCli = ibmiotf.device.Client (deviceOptions)
except Exception as e:
```

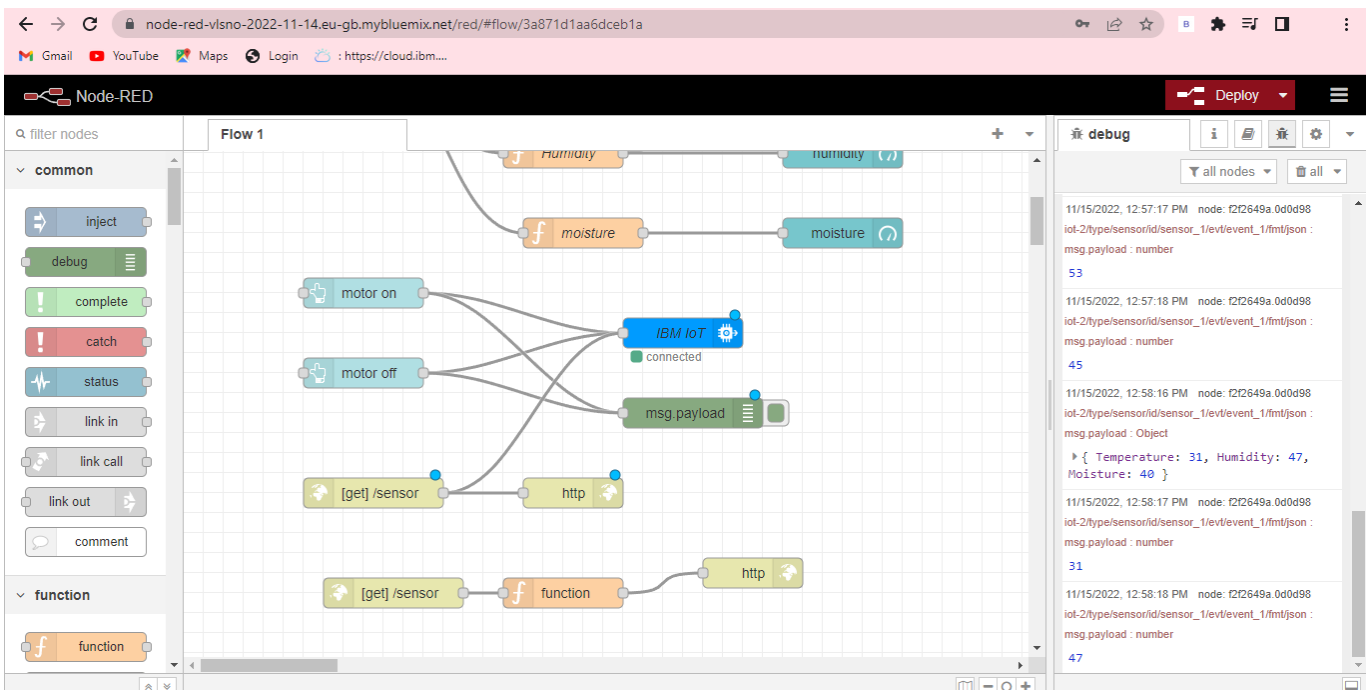
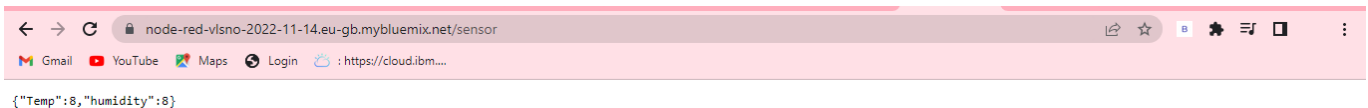


The screenshot shows the Node-RED web interface in a browser. The address bar at the top displays the URL: `node-red-vlsno-2022-11-14.eu-gb.mybluemix.net/red/#flow/3a871d1aa6dceb1a`. The interface is divided into several panels:

- Left Panel (Palette):** Contains a "filter nodes" search bar and a list of nodes categorized under "dashboard". The visible nodes are: button, dropdown, switch, slider, numeric, text input, date picker, colour picker, and form.
- Flow Canvas:** Displays "Flow 1" with a grid background. It shows a "connected" status indicator and two "button" nodes. One button node is connected to two function nodes (represented by orange 'f' icons).
- Right Panel (Edit button node):** A configuration panel for the selected "button" node. It includes:
 - Buttons: "Delete", "Cancel", and "Done".
 - Properties:**
 - Group:** A dropdown menu with the text "Add new dashboard group..." and a pencil icon.
 - Size:** A dropdown menu set to "auto".
 - Icon:** A text input field containing "optional icon".
 - Label:** A text input field containing "motor of".
 - Tooltip:** A text input field containing "optional tooltip".
 - Color:** A text input field containing "optional text/icon color".
 - Background:** A text input field containing "optional background color".
 - When clicked, send:** A checkbox that is checked, followed by a "Payload" field. The payload is a JSON object: `{ "command": "motor off" }`.
 - Enabled:** A radio button that is selected.
- Far Right Panel (Dashboard Editor):** Shows the "dashboard" configuration. It includes:
 - Buttons: "Layout", "Site", and "Theme".
 - Tabs & Links:** A section with a "Home" tab and two links: "ibm" and "motor".







{"command": "Motor on"}

ai2.appinventor.mit.edu/#5051269606408192

APP INVENTOR

Screen2 Add Screen Remove Screen Publish to Gallery Designer Blocks

ibm

Blocks

- Label1
- TextBox4
- HorizontalArrangemen
- Label2
- TextBox2
- HorizontalArrangemen
- Label3
- TextBox3
- HorizontalArrangemen
- Label4
- HorizontalArrangemen
- Button1
- Button2
- Web1
- Clock1
- Web2
- Any component

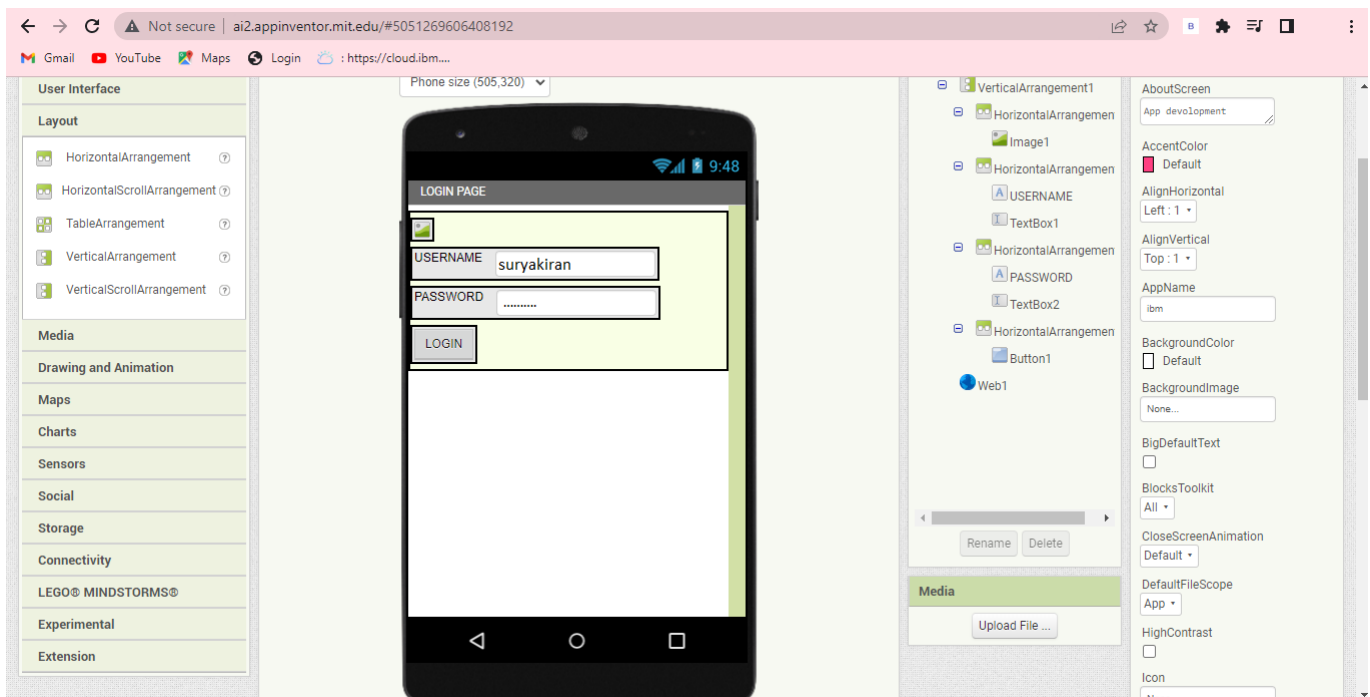
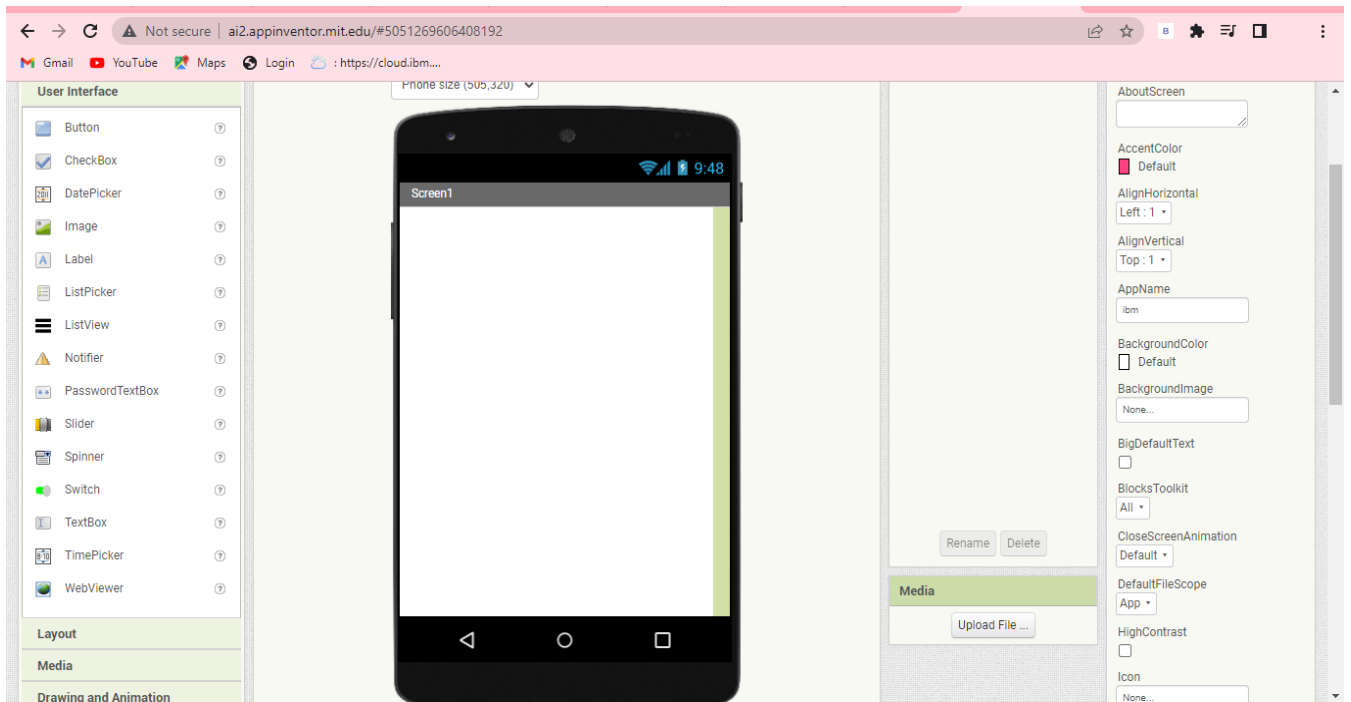
Viewer

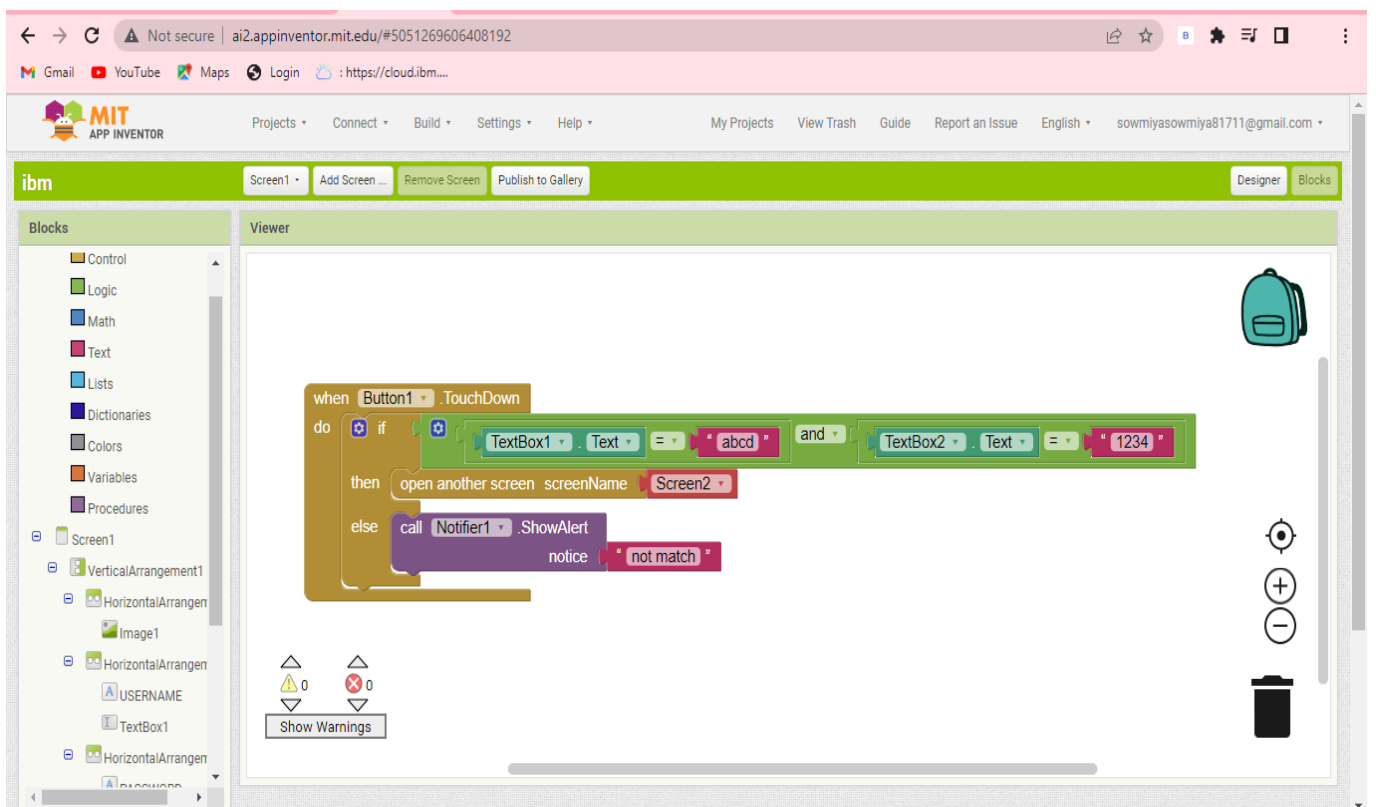
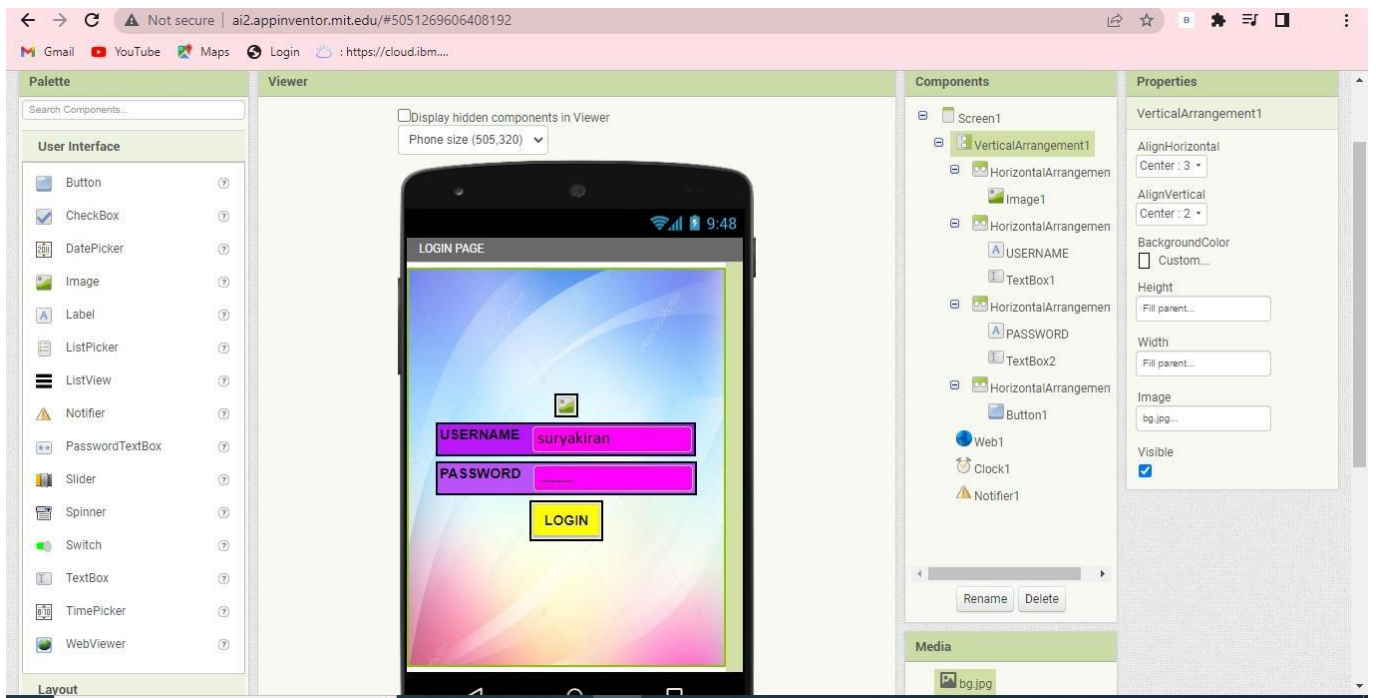
set Label2 . Text to look up in pairs key pairs call Web1 .JsonTextDecodeWithDictionaries jsonText get responseContent

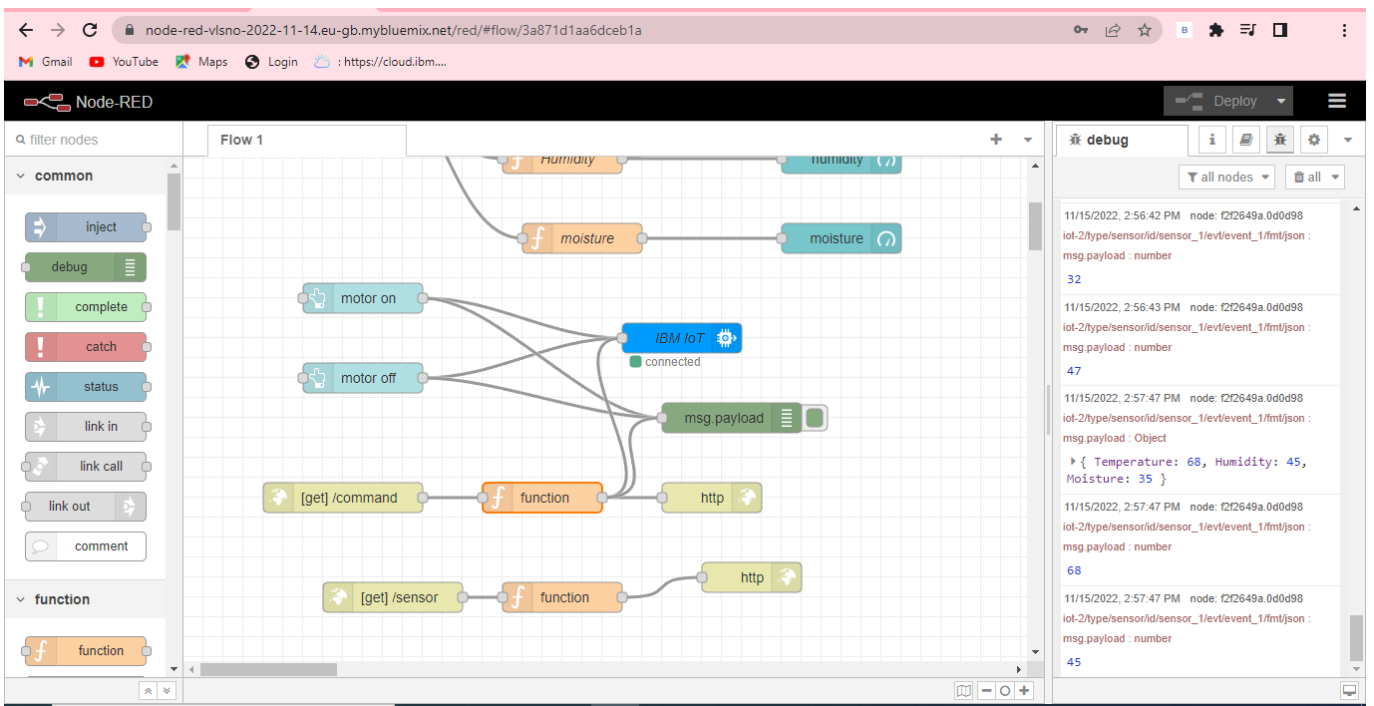
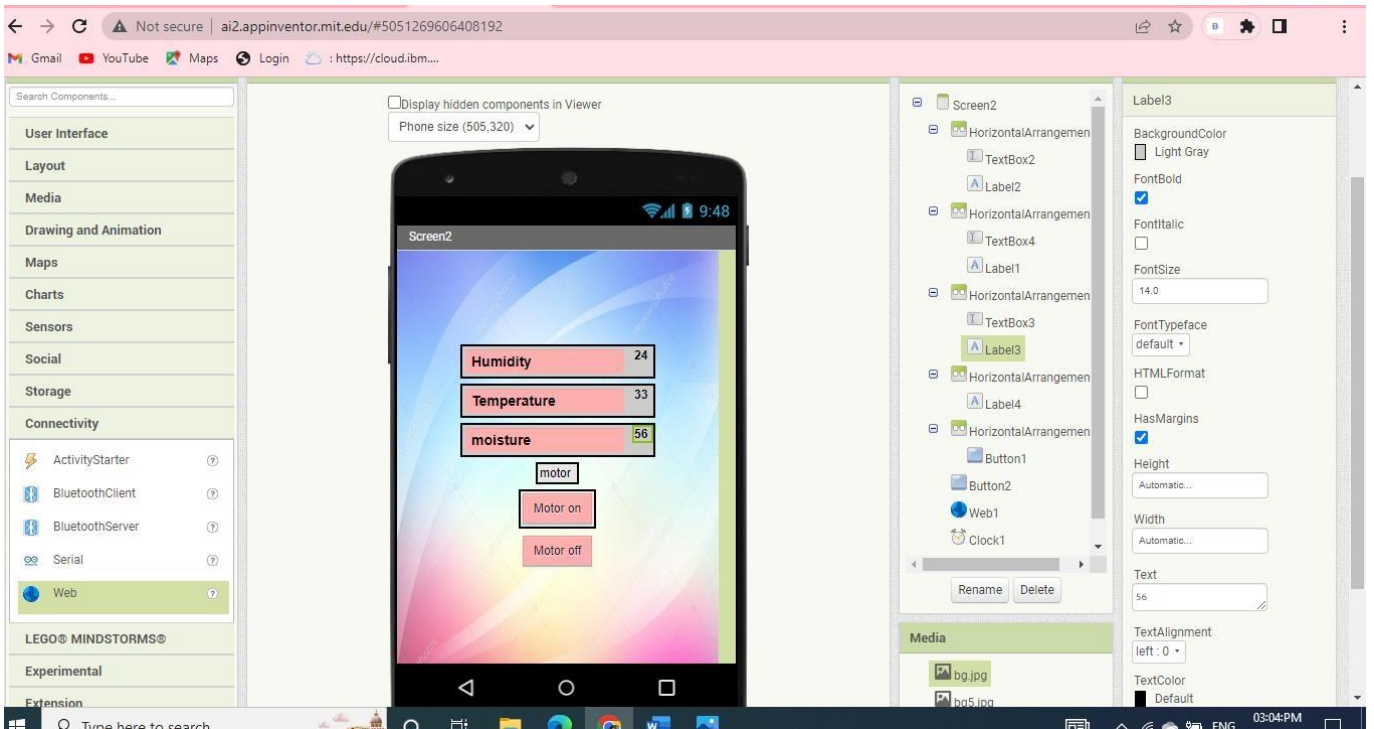
when Button1 .Click do set Web2 . Url to https://node-red-vlsno-2022-11-14.eu-gb.mybluemix.net/command?command=Motor%20on call Web2 .Get

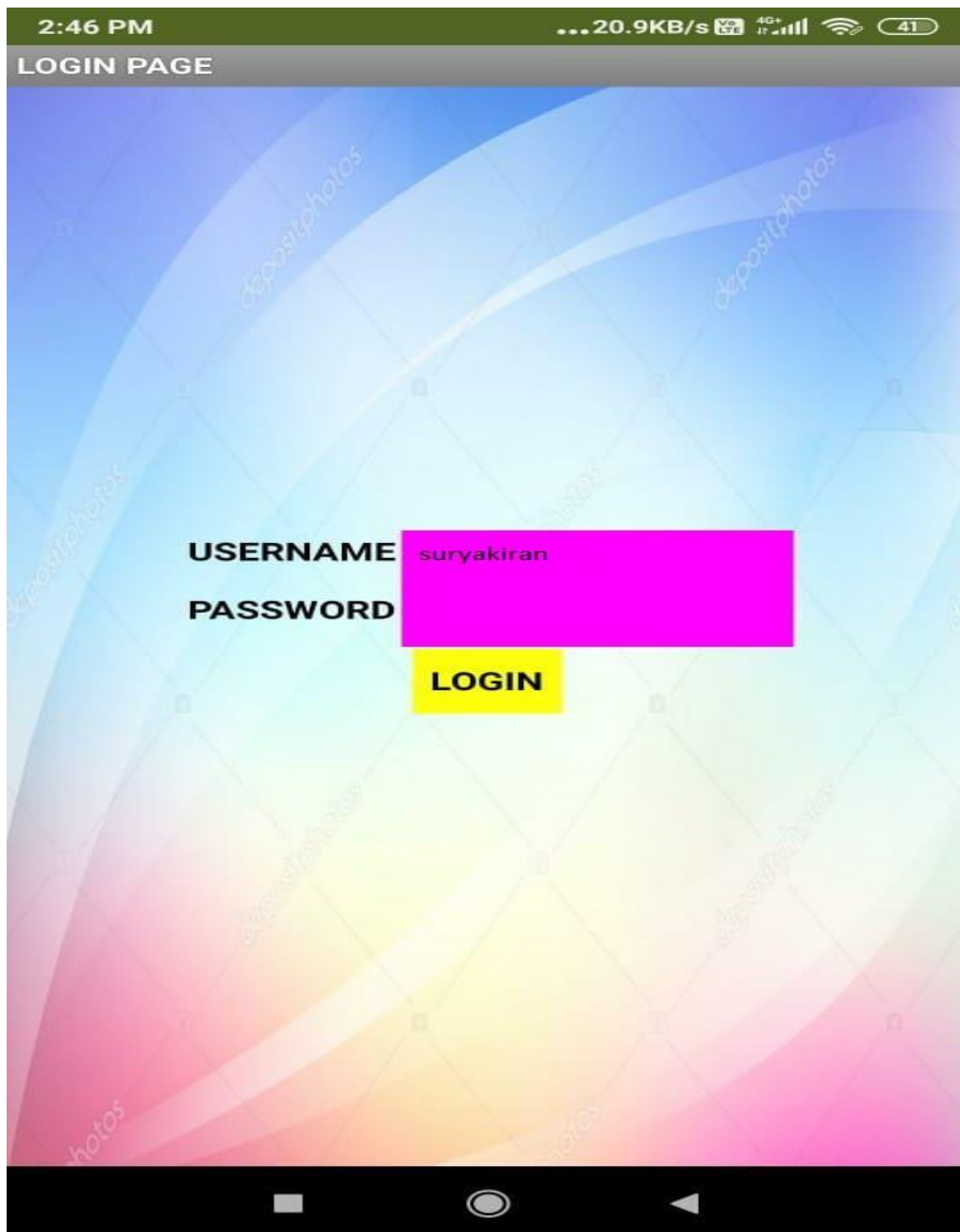
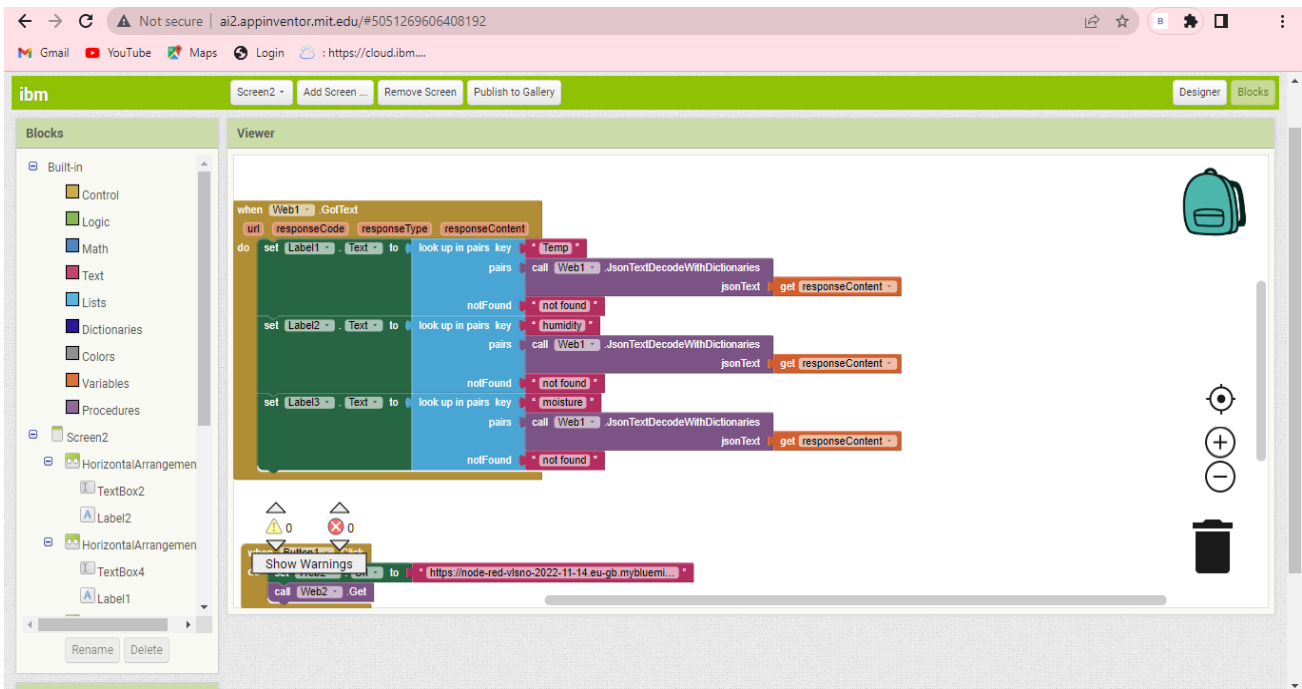
when Button2 .Click do set Web2 . Url to https://node-red-vlsno-2022-11-14.eu-gb.mybluemix.net/command?command=Motor%20on call Web2 .Get

Show Warnings









2:50 PM

...6.3KB/s VoLTE 4G 40

Screen2

Humidity	14
Temperature	14
moisture	48

motor

Motor on

Motor off