PROJECT DEVELOPMENT - DELIVERY OF SPRINT 2

Date:	17 November 2022
Team ID:	PNT2022TMID04601
Name:	Real-Time River Water Quality Monitoring and Control System

PYTHON CODE

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

#Provide your IBM Watson Device Credentials
organization = "uyyqeq"
deviceType = "12345"
deviceId = "12345"
authMethod = "token"
authToken = "12345678"

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="light on":
        print ("led is on")
    elif status == "light off":
        print ("led is off")
    else :
        print ("please send proper command")

try:
        deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod,
"auth-token": authToken}
        deviceCli = ibmiotf.device.Client(deviceOptions)
        #.....................................

except Exception as e:
        print("Caught exception connecting device: %s" % str(e))
        sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10
times
deviceCli.connect()

while True:
        #Get Sensor Data from DHT11

        temp=random.randint(90,110)
        Humid=random.randint(60,100)

        data = { 'temp' : temp, 'Humid': Humid }
        #print data
        def myOnPublishCallback():
            print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % Humid, "to IBM Watson")

        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
```

```
    on_publish=myOnPubl
            ishCallback) if
            not success:
                print("Not
            connected to IoTF")
            time.sleep(10)

            deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the clouddeviceCli.disconnect()
```

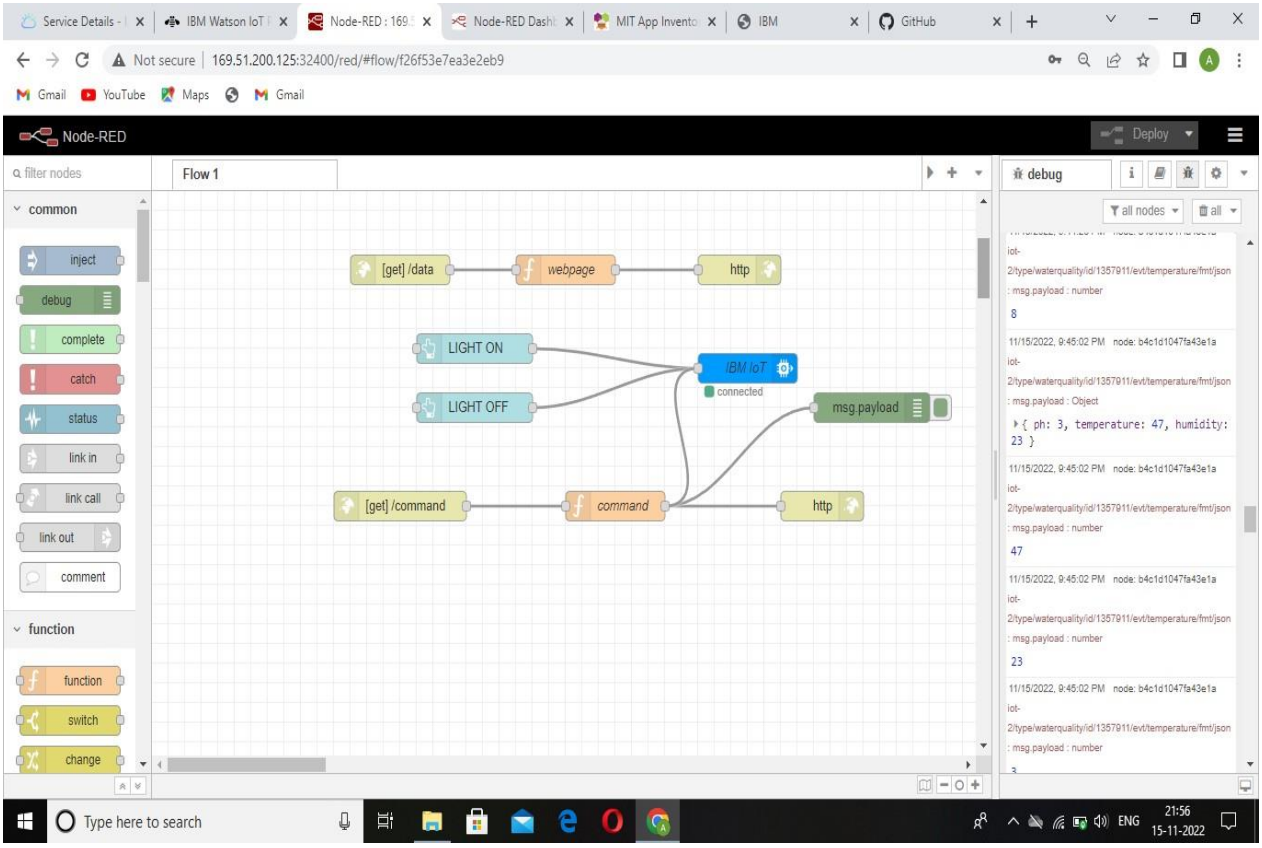
IDLE Shell 3.9.10

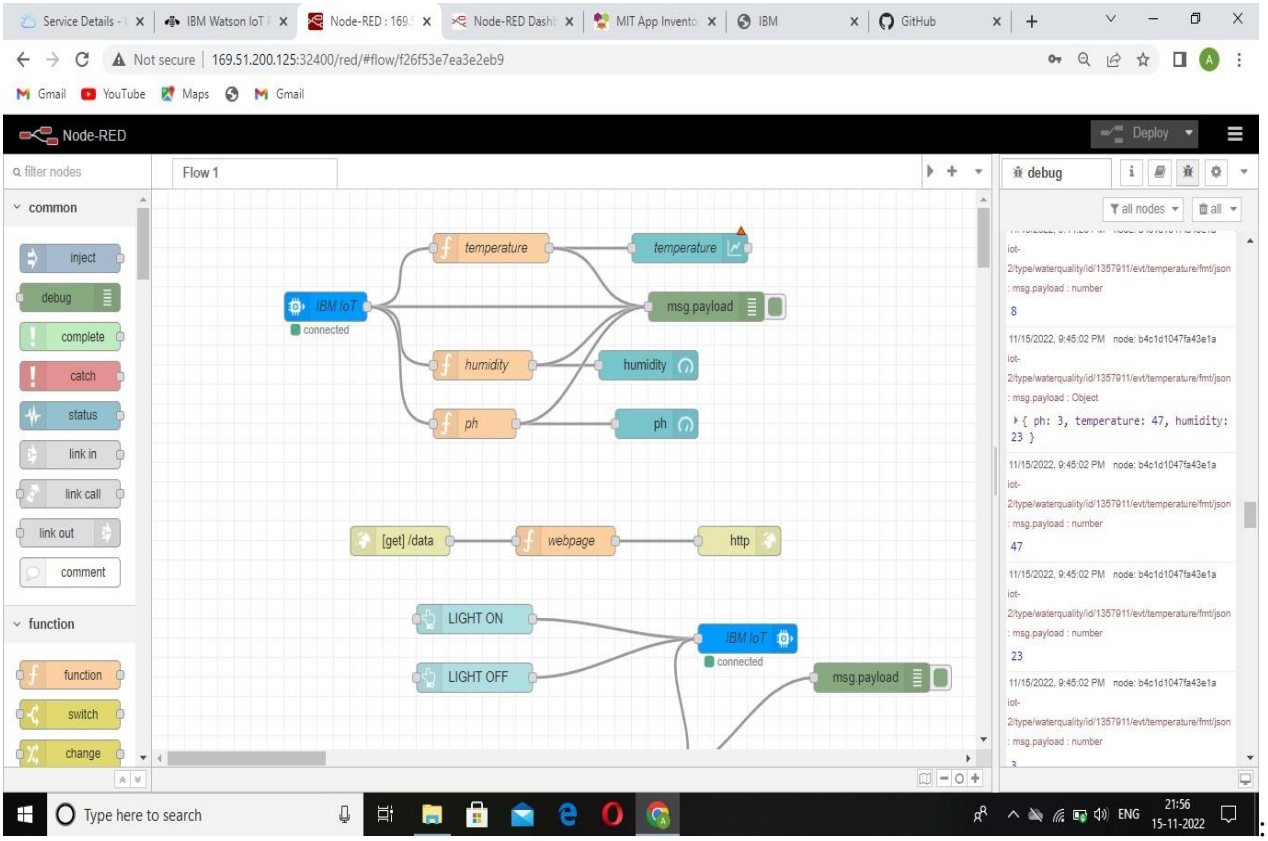
File Edit Shell Debug Options Window Help

```
Python 3.9.10 (tags/v3.9.10:f2f3f53, Jan 17 2022, 15:01:48) [MSC v.1929 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:\Users\vinay\Downloads\ibmiotpublishsubscribe.py =========
2022-11-14 19:36:48,951   ibmiotf.device.Client      INFO    Connected successfully: d:uyyqeq:12345:12345
Published Temperature = 95 C Humidity = 68 % to IBM Watson
Published Temperature = 90 C Humidity = 92 % to IBM Watson
Published Temperature = 101 C Humidity = 99 % to IBM Watson
Published Temperature = 107 C Humidity = 89 % to IBM Watson
Published Temperature = 96 C Humidity = 63 % to IBM Watson
Published Temperature = 91 C Humidity = 81 % to IBM Watson
Published Temperature = 95 C Humidity = 67 % to IBM Watson
Published Temperature = 104 C Humidity = 83 % to IBM Watson
Published Temperature = 93 C Humidity = 99 % to IBM Watson
Published Temperature = 95 C Humidity = 72 % to IBM Watson
Published Temperature = 97 C Humidity = 99 % to IBM Watson
Published Temperature = 103 C Humidity = 65 % to IBM Watson
Published Temperature = 110 C Humidity = 64 % to IBM Watson
Published Temperature = 92 C Humidity = 93 % to IBM Watson
Published Temperature = 101 C Humidity = 87 % to IBM Watson
Published Temperature = 102 C Humidity = 67 % to IBM Watson
Published Temperature = 91 C Humidity = 94 % to IBM Watson
Published Temperature = 95 C Humidity = 68 % to IBM Watson
Published Temperature = 110 C Humidity = 71 % to IBM Watson
Published Temperature = 100 C Humidity = 79 % to IBM Watson
Published Temperature = 102 C Humidity = 61 % to IBM Watson
Published Temperature = 109 C Humidity = 68 % to IBM Watson
Published Temperature = 106 C Humidity = 79 % to IBM Watson
Published Temperature = 103 C Humidity = 82 % to IBM Watson
Published Temperature = 103 C Humidity = 70 % to IBM Watson
Published Temperature = 104 C Humidity = 75 % to IBM Watson
Published Temperature = 91 C Humidity = 81 % to IBM Watson
Published Temperature = 99 C Humidity = 98 % to IBM Watson
Published Temperature = 91 C Humidity = 95 % to IBM Watson
Published Temperature = 110 C Humidity = 98 % to IBM Watson
Published Temperature = 106 C Humidity = 86 % to IBM Watson
Published Temperature = 92 C Humidity = 72 % to IBM Watson
Published Temperature = 100 C Humidity = 80 % to IBM Watson
Published Temperature = 107 C Humidity = 97 % to IBM Watson
Published Temperature = 92 C Humidity = 62 % to IBM Watson
Published Temperature = 90 C Humidity = 68 % to IBM Watson
Published Temperature = 106 C Humidity = 65 % to IBM Watson
Published Temperature = 110 C Humidity = 80 % to IBM Watson
Published Temperature = 103 C Humidity = 68 % to IBM Watson
Published Temperature = 110 C Humidity = 94 % to IBM Watson
Published Temperature = 91 C Humidity = 67 % to IBM Watson
Published Temperature = 97 C Humidity = 73 % to IBM Watson
Published Temperature = 97 C Humidity = 84 % to IBM Watson
Published Temperature = 110 C Humidity = 97 % to IBM Watson
Published Temperature = 101 C Humidity = 99 % to IBM Watson
Published Temperature = 90 C Humidity = 69 % to IBM Watson
Published Temperature = 104 C Humidity = 92 % to IBM Watson
Published Temperature = 98 C Humidity = 99 % to IBM Watson
Published Temperature = 107 C Humidity = 84 % to IBM Watson
Published Temperature = 103 C Humidity = 68 % to IBM Watson
Published Temperature = 91 C Humidity = 88 % to IBM Watson
```

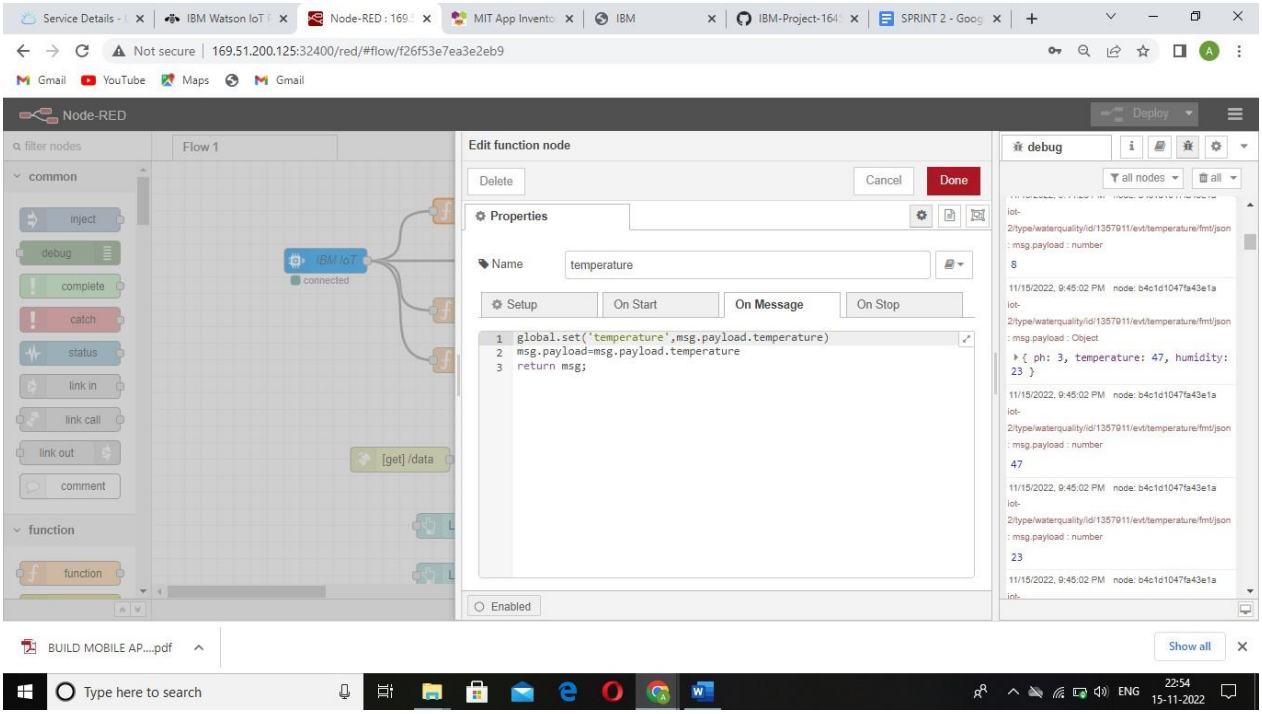
Design of webpage application using NODE-RED

Using Dashboard nodes for create UI (Web Application)



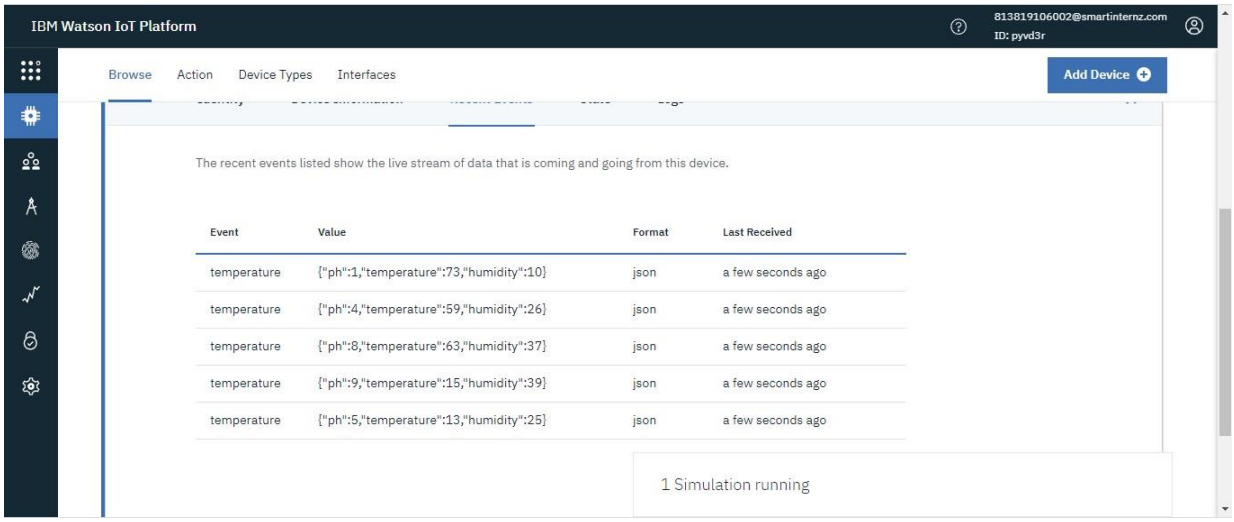
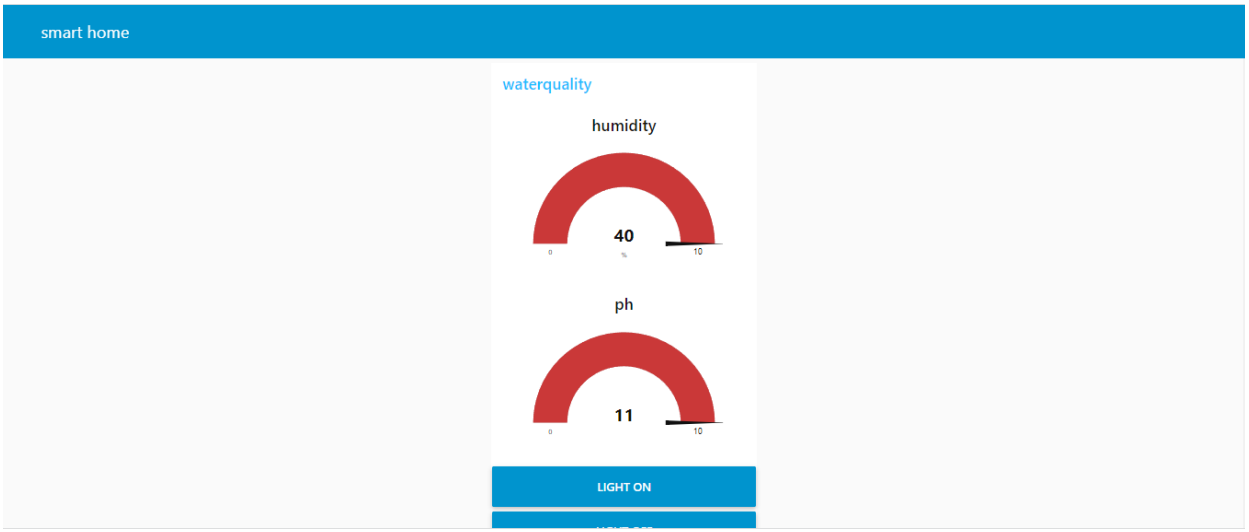
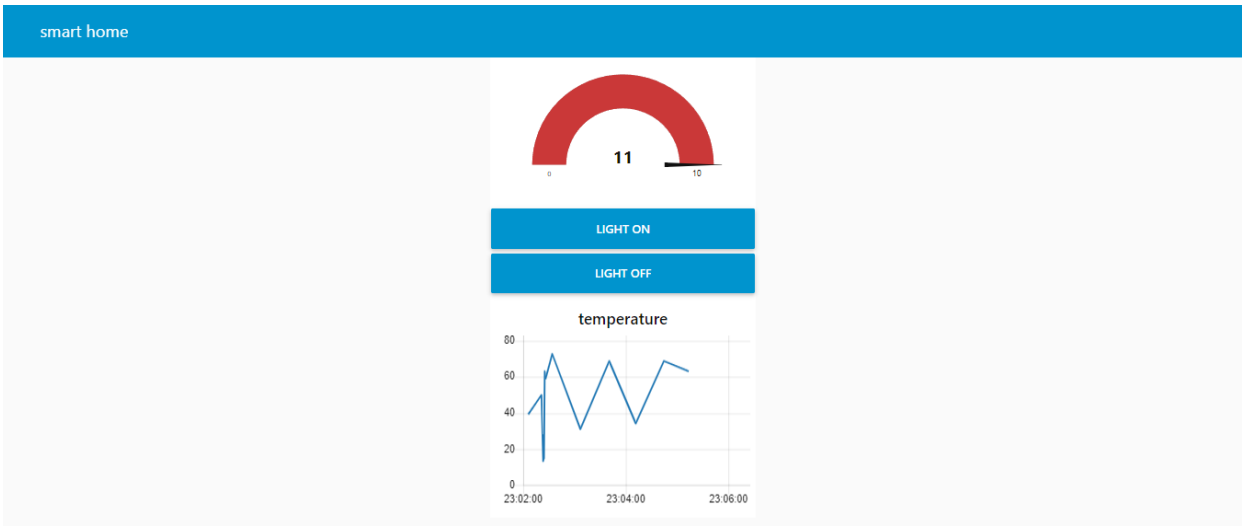

Service Details -
IBM Watson IoT
Node-RED : 169
Node-RED Dashb
MIT App Invento
IBM
GitHub
Not secure | 169.51.200.125:32400/red/#flow/f26f53e7ea3e2eb9
Gmail
YouTube
Maps
Gmail
Node-RED
Deploy
filter nodes
Flow 1
debug
all nodes
all
common
inject
debug
complete
catch
status
link in
link call
link out
comment
function
function
switch
change
temperature
temperature
IBM IoT
connected
msg.payload
humidity
humidity
ph
ph
[get] /data
webpage
http
LIGHT ON
LIGHT OFF
IBM IoT
connected
msg.payload
11/15/2022, 9:45:02 PM node: b4c1d1047fa43e1a
iot-2/type/waterquality/id/1357911/evt/temperature/fmt/json : msg.payload : number
8
11/15/2022, 9:45:02 PM node: b4c1d1047fa43e1a
iot-2/type/waterquality/id/1357911/evt/temperature/fmt/json : msg.payload : Object
{ ph: 3, temperature: 47, humidity: 23 }
11/15/2022, 9:45:02 PM node: b4c1d1047fa43e1a
iot-2/type/waterquality/id/1357911/evt/temperature/fmt/json : msg.payload : number
47
11/15/2022, 9:45:02 PM node: b4c1d1047fa43e1a
iot-2/type/waterquality/id/1357911/evt/temperature/fmt/json : msg.payload : number
23
11/15/2022, 9:45:02 PM node: b4c1d1047fa43e1a
iot-2/type/waterquality/id/1357911/evt/temperature/fmt/json : msg.payload : number
Type here to search
ENG
21:56
15-11-2022

IBM IoT input node configuration



Debug Node output :

IBM WATSON IoT platform(Sensor reading stored in cloud):



Web Application (User Interface):