

WORK FLOW

Team ID	PNT2022TMID11410
Project Name	Real-time river water quality monitoring and control system

COMMUNICATION AMONG MIT APP, NODE-RED, IBM IOT WATSON AND PYTHON

Python code:

```
ibmiotpublishsubscribe 2.py - C:\Users\KANANKARUPPAIAH\J\Desktop\ibm\ibmiotpublishsubscribe 2.py (3.7.4)
File Edit Format Run Options Window Help

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

#Provide your IBM Watson Device Credentials
organization = "ks8pt1"
deviceType = "ESP32"
deviceId = "143143"
authMethod = "token"
authToken = "123456789"

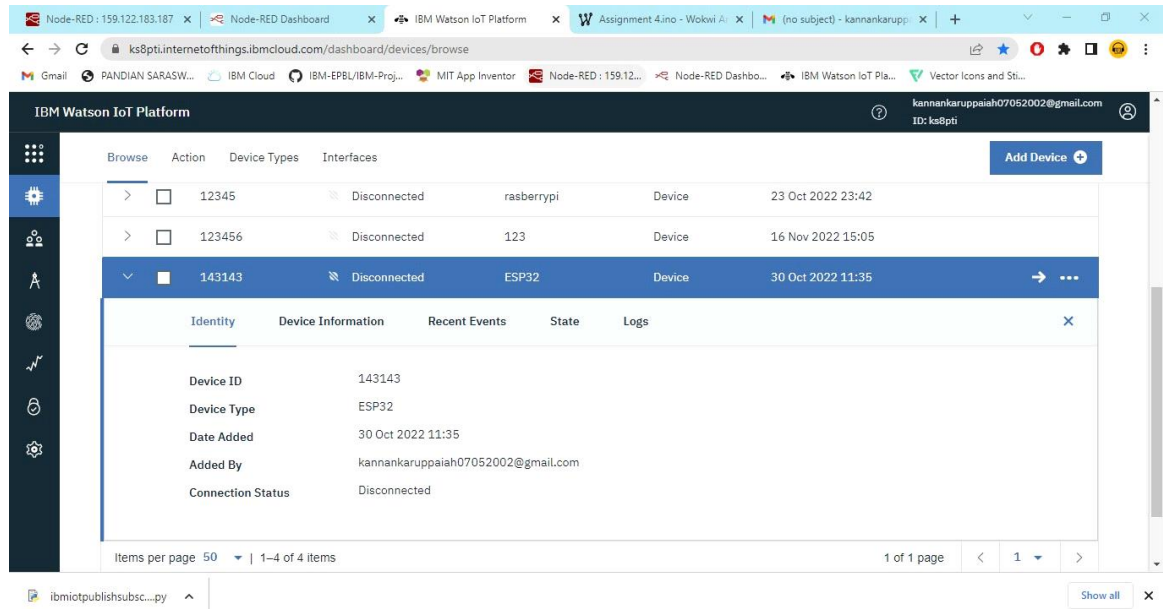
# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="START":
        print ("Motor is Started")
    elif status=="STOP":
        print ("Motor is oFF state")
    elif status=="LEFT":
        print ("Left Side is Closed")
    elif status=="RIGHT":
        print ("Right Side is Closed")
    elif status=="FORWARD":
        print ("Message is Forward to the chief")
    else :
        print ("Send a proper command")

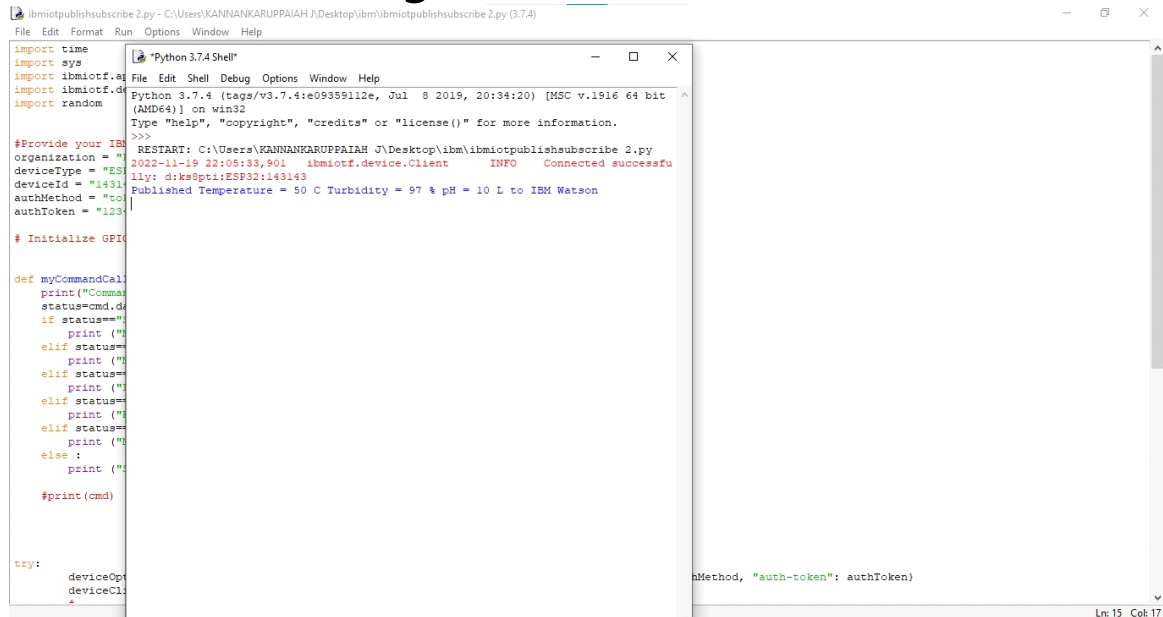
    #print(cmd)

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

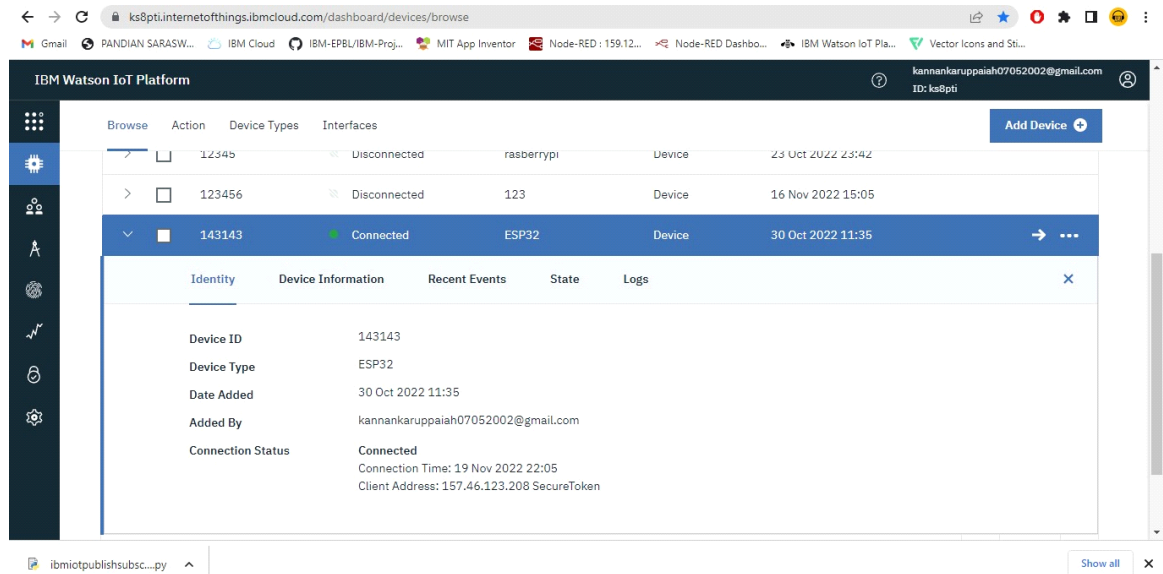
Before Run the python code, The IOT platform is disconnected



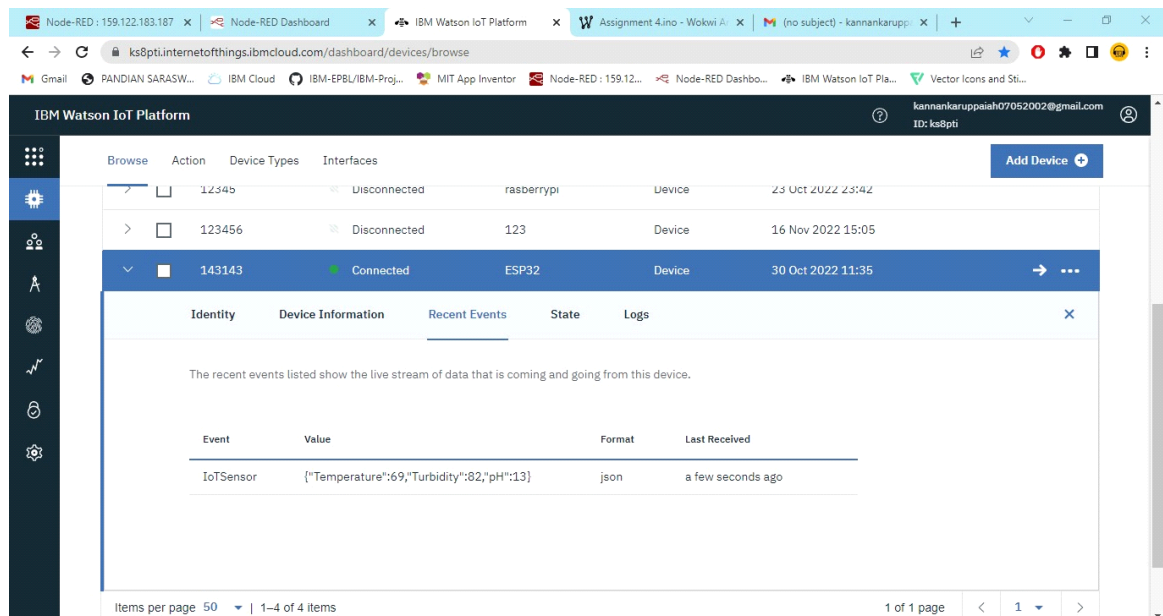
Run the Python code:
After running the python code the data's are showing in IDLE



Now the IBM IoT Watson platform is connected

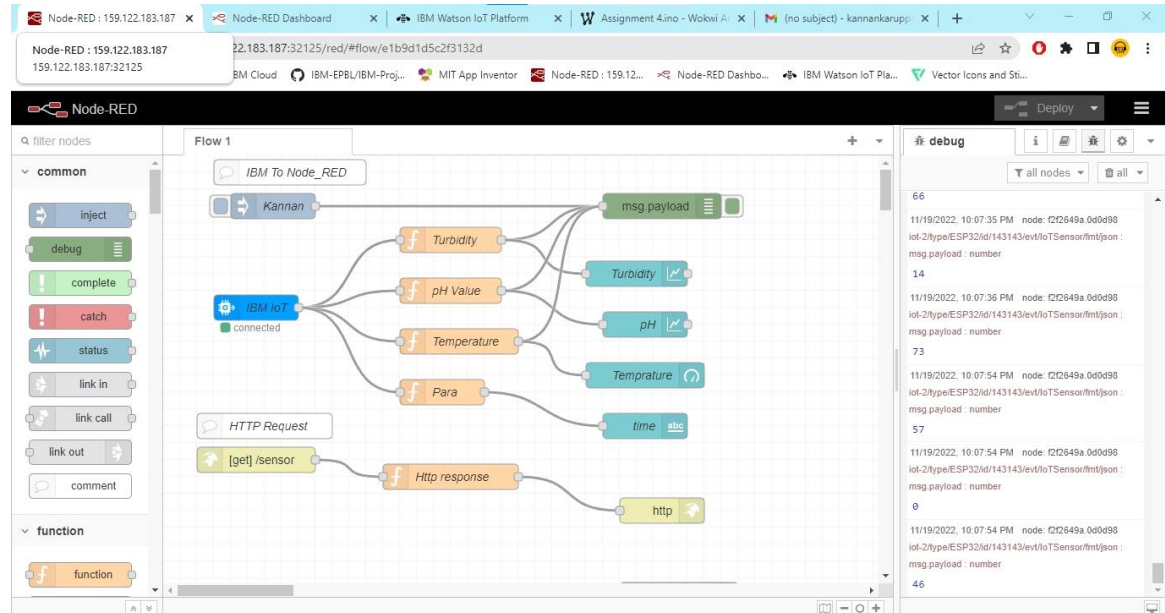


IoT Device ESP32 is connected with python code , Then the data's are collected and shown in recentevents

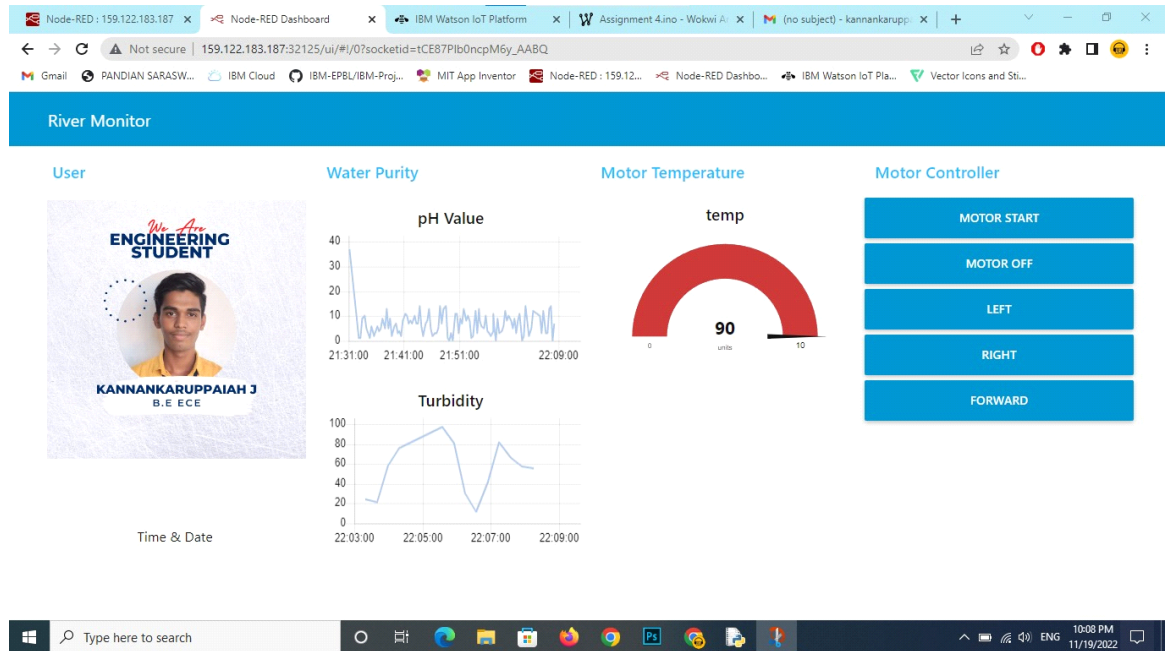


The Node-RED is connected with the IBM IoTplatform .
IBM IoT is pass the data to the Node-Red.

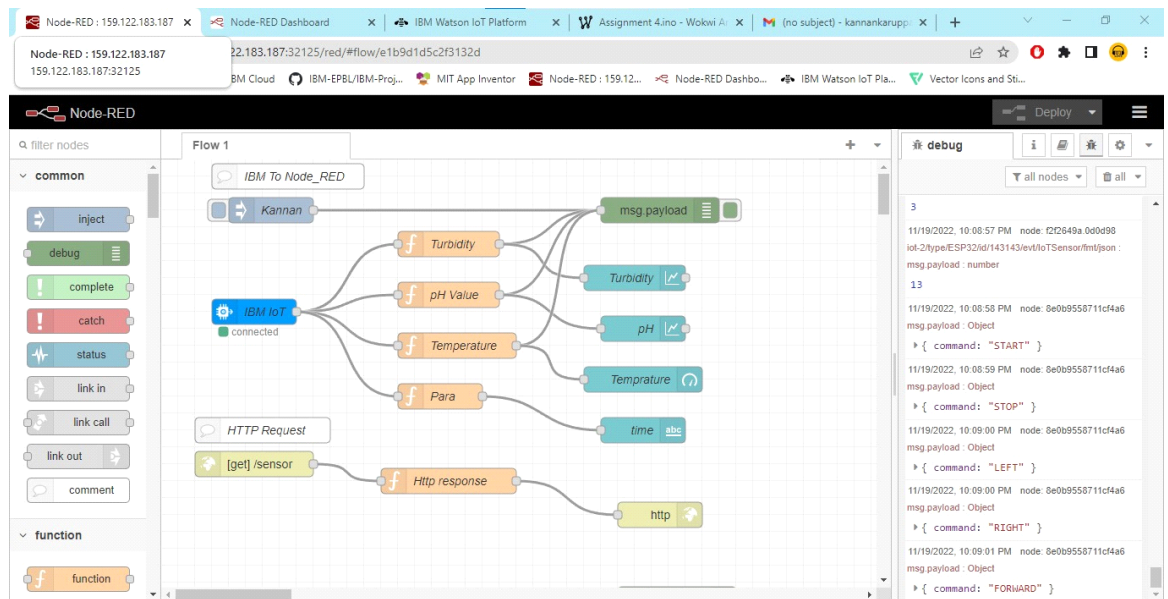
Node-RED is collected the all data and display indebug window



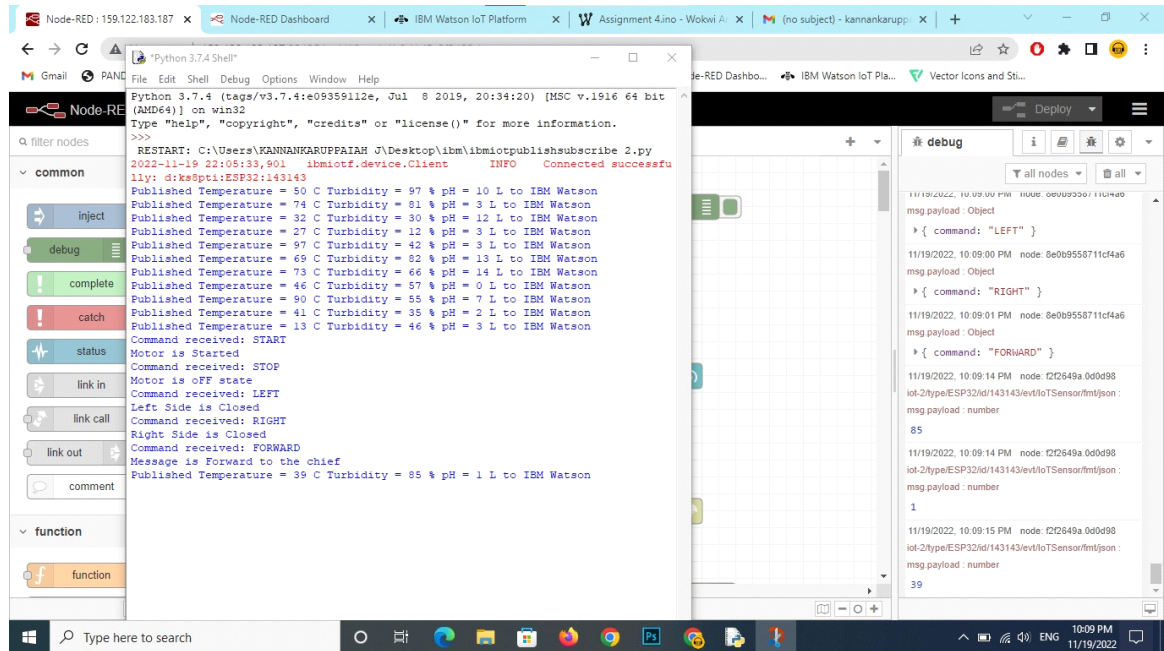
Node-RED Dashboard is Showing every data. When we click the buttons in dashboard the result will be publish both Node-RED and Python



Node-RED OUTPUT



Python OUTPUT



This is my mobile app screen.

Its show the pH and Turbidity values of water andtemperature of motor.

When I'm clicking the control buttons in this screen the result are publish in Node-RED andpython .

10:09



VoLTE 4G 89

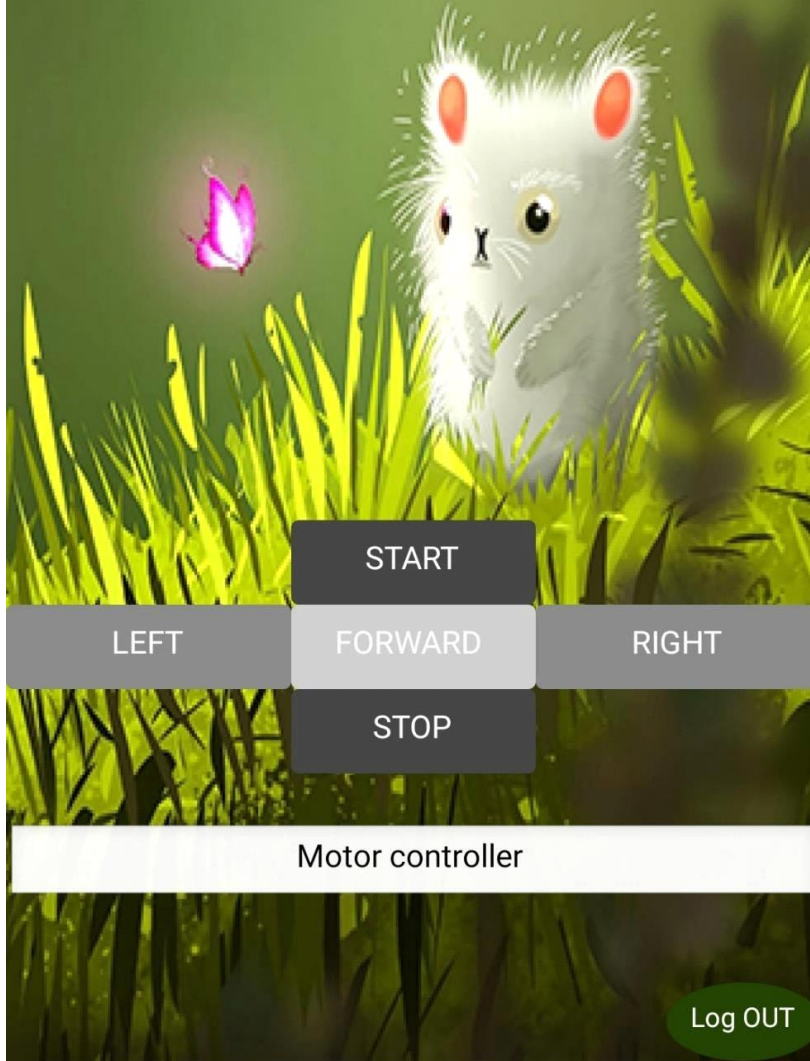
Real Time Water Quality Monitoring

MONITORING WINDOW

pH Value : 6

Turbidity : 55

Temperature: 13



START

LEFT

FORWARD

RIGHT

STOP

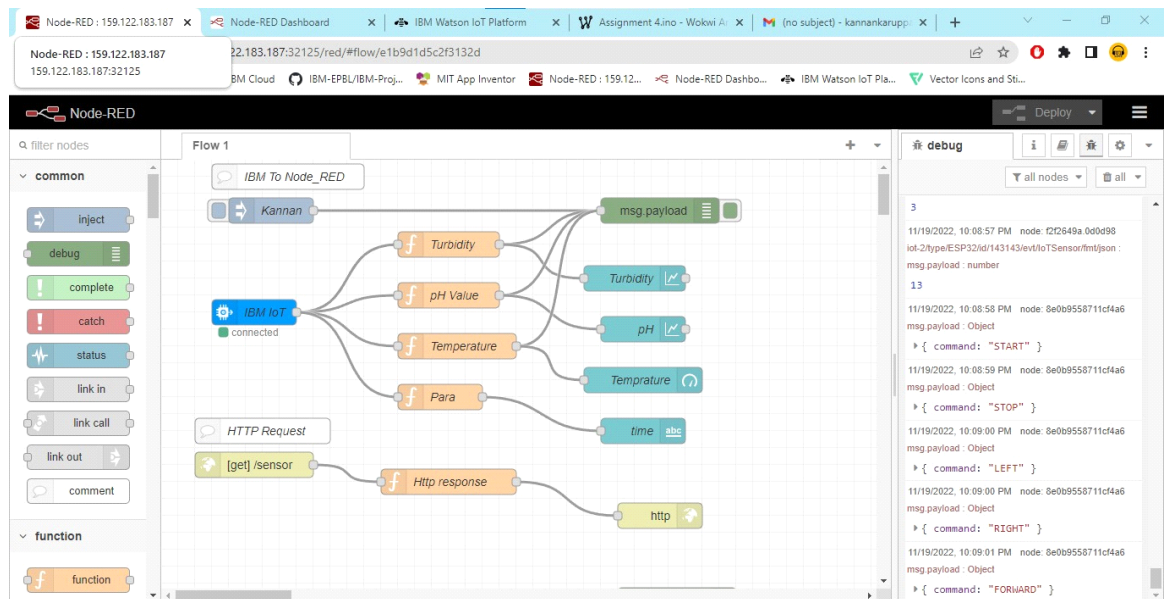
Motor controller

Log OUT



Python OUTPUT

```
Type "help", "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:\Users\KANNANKARUPPAIAH J\Desktop\lbmiotpublishsubscribe 2.py
2022-11-19 22:05:33,901 lbmiotf.device.Client INFO Connected successfully
lly: d:ks@pti:ESP32:143143
Published Temperature = 50 C Turbidity = 97 % pH = 10 L to IBM Watson
Published Temperature = 74 C Turbidity = 81 % pH = 3 L to IBM Watson
Published Temperature = 32 C Turbidity = 30 % pH = 12 L to IBM Watson
Published Temperature = 27 C Turbidity = 12 % pH = 3 L to IBM Watson
Published Temperature = 97 C Turbidity = 42 % pH = 3 L to IBM Watson
Published Temperature = 69 C Turbidity = 82 % pH = 13 L to IBM Watson
Published Temperature = 73 C Turbidity = 66 % pH = 14 L to IBM Watson
Published Temperature = 46 C Turbidity = 57 % pH = 0 L to IBM Watson
Published Temperature = 90 C Turbidity = 55 % pH = 7 L to IBM Watson
Published Temperature = 41 C Turbidity = 35 % pH = 2 L to IBM Watson
Published Temperature = 13 C Turbidity = 46 % pH = 3 L to IBM Watson
Command received: START
Motor is Started
Command received: STOP
Motor is off state
Command received: LEFT
Left Side is Closed
Command received: RIGHT
Right Side is Closed
Command received: FORWARD
Message is Forward to the chief
Published Temperature = 39 C Turbidity = 85 % pH = 1 L to IBM Watson
Published Temperature = 13 C Turbidity = 55 % pH = 6 L to IBM Watson
Published Temperature = 52 C Turbidity = 60 % pH = 0 L to IBM Watson
Command received: START
Motor is Started
Command received: FORWARD
Message is Forward to the chief
Command received: LEFT
Left Side is Closed
Command received: STOP
Motor is off state
Command received: RIGHT
Right Side is Closed
```



Node-RED OUTPUT