

WORK FLOW

Team ID	PNT2022TMID48183
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\KANNANKARUPPAIAH\I\Desktop\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 = "ks8pti"
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

Node-RED: 159.122.183.187 x Node-RED Dashboard x IBM Watson IoT Platform x Assignment 4.ino - Wokwi A x (no subject) - kannankarupp x +

ks8pti.internetofthings.ibmcloud.com/dashboard/devices/browse

Gmail PANDIAN SARASW... IBM Cloud IBM-EPBL/IBM-Proj... MIT App Inventor Node-RED: 159.12... Node-RED Dashbo... IBM Watson IoT Pla... Vector Icons and Sti...

IBM Watson IoT Platform kannankaruppaiah07052002@gmail.com ID: ks8pti

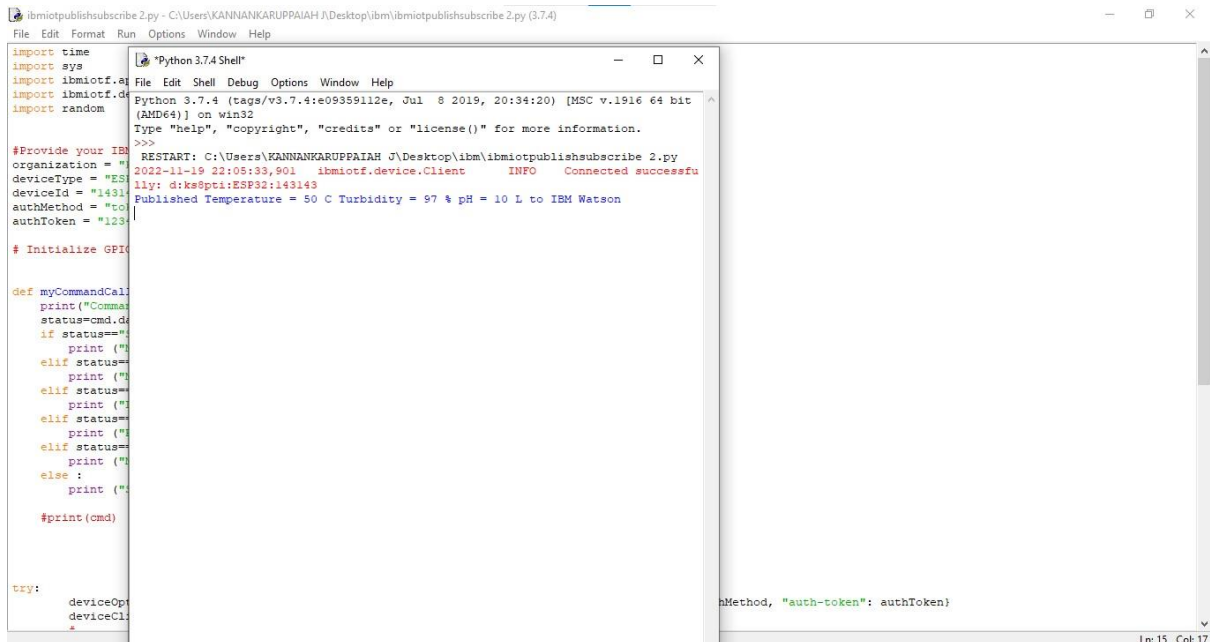
Browse	Action	Device Types	Interfaces			
>	<input type="checkbox"/>	12345	Disconnected	rasberrypi	Device	23 Oct 2022 23:42
>	<input type="checkbox"/>	123456	Disconnected	123	Device	16 Nov 2022 15:05
▼	<input checked="" type="checkbox"/>	143143	Disconnected	ESP32	Device	30 Oct 2022 11:35 → ...
Identity Device Information Recent Events State Logs						
Device ID		143143				
Device Type		ESP32				
Date Added		30 Oct 2022 11:35				
Added By		kannankaruppaiah07052002@gmail.com				
Connection Status		Disconnected				

Items per page 50 | 1-4 of 4 items 1 of 1 page < 1 >

ibmiotpublishsubsc...py Show all x

Run the Python code:

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



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

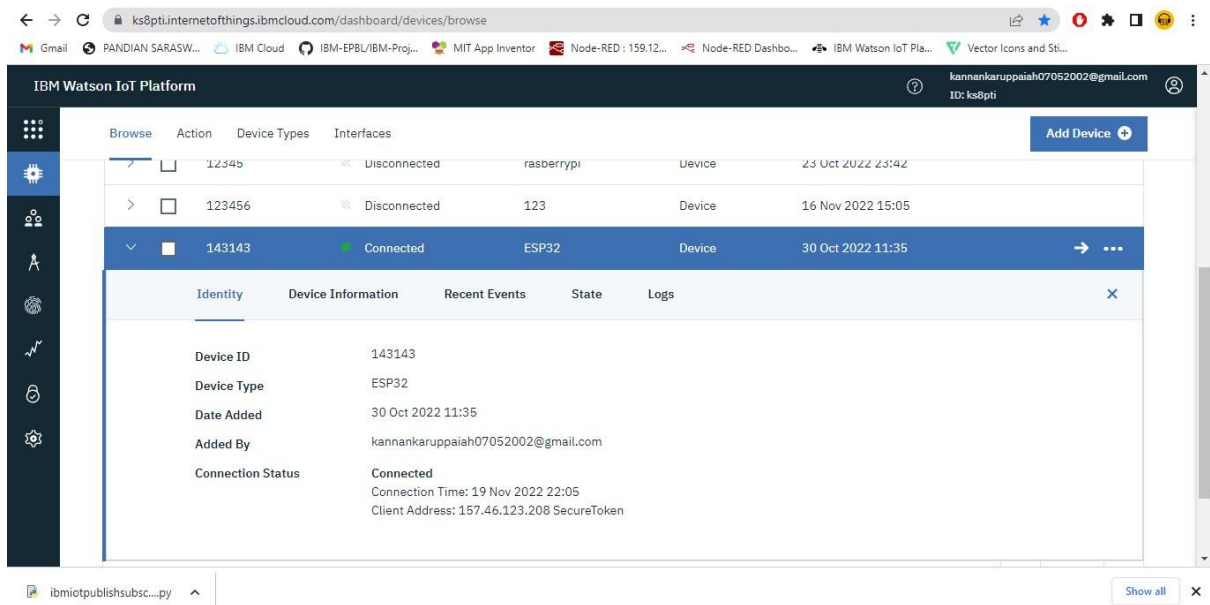
# Provide your IBM organization = "ES"
deviceType = "ESP32"
deviceID = "143143"
authMethod = "token"
authToken = "1234567890"

# Initialize GPIO

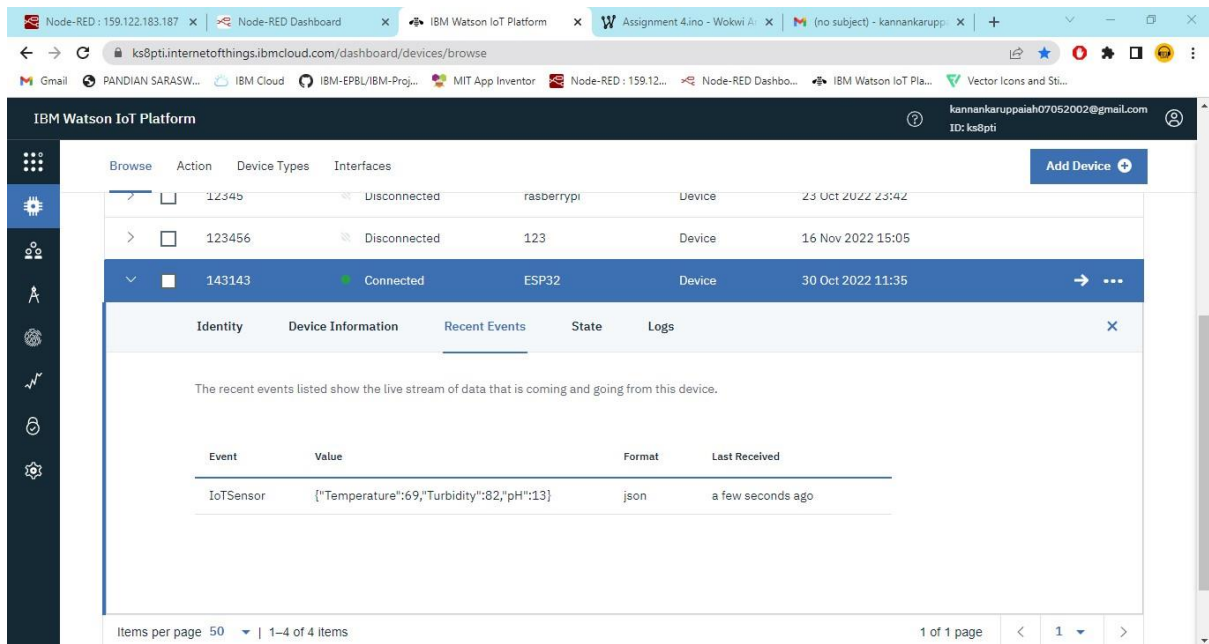
def myCommandCall():
    print("Command status=cmd.deviceID")
    if status=="success":
        print("Published Temperature = 50 C Turbidity = 97 pH = 10 L to IBM Watson")
    elif status=="error":
        print("Error: " + status)
    else:
        print("Unknown status: " + status)
    #print(cmd)

try:
    deviceOptions = {
        "deviceID": deviceID,
        "deviceType": deviceType,
        "authMethod": authMethod,
        "authToken": authToken
    }
    device = ibmiotf.device.Device(deviceOptions)
    device.connect()
    device.publish("temperature", 50)
    device.publish("turbidity", 97)
    device.publish("ph", 10)
    device.disconnect()
except Exception as e:
    print(e)
    sys.exit(1)
```

Now the IBM IoT Watson platform is connected

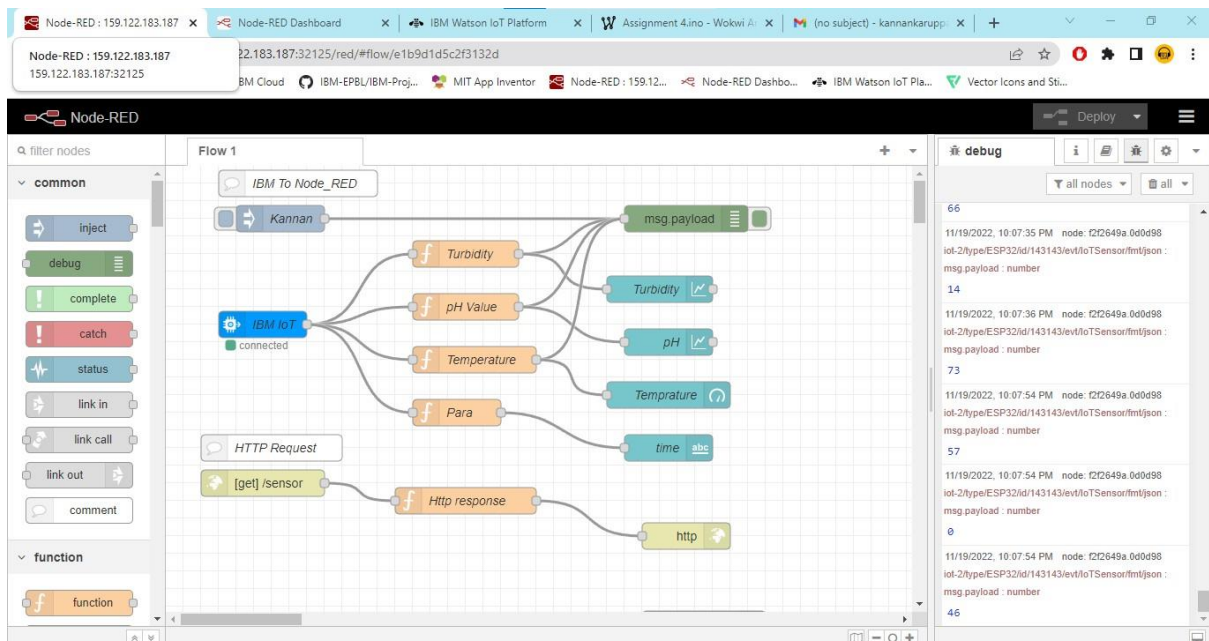


IoT Device ESP32 is connected with python code ,
Then the data's are collected and shown in recent events

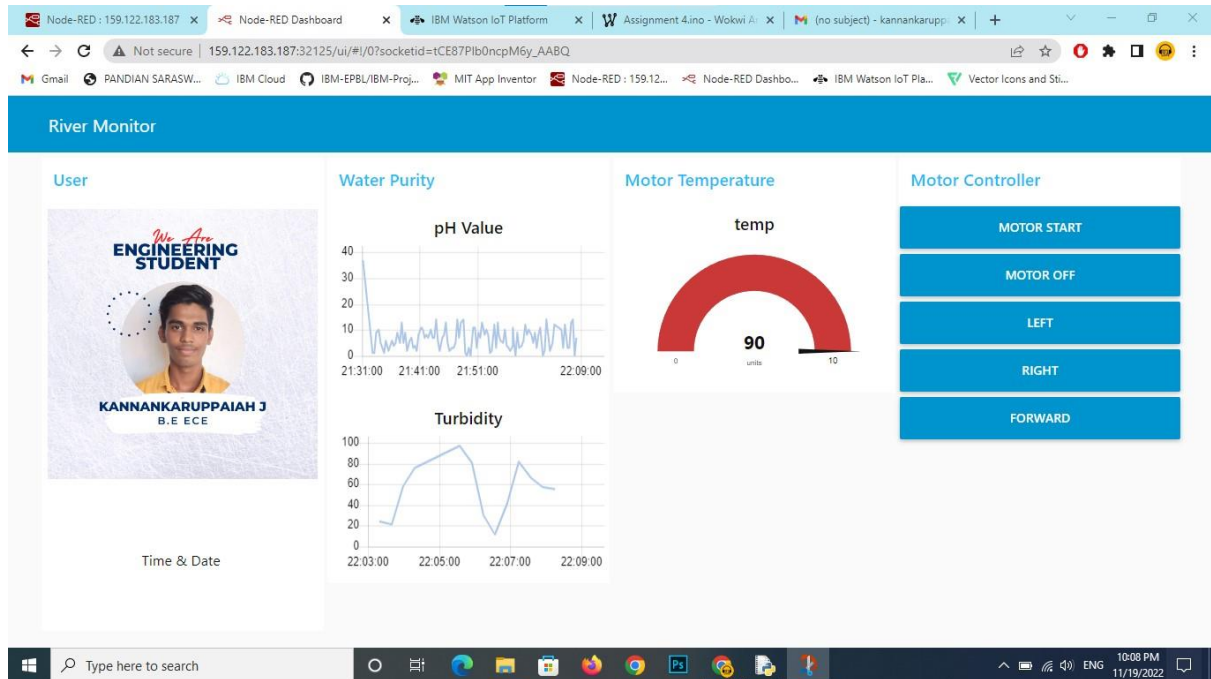


The Node-RED is connected with the IBM IoT platform .

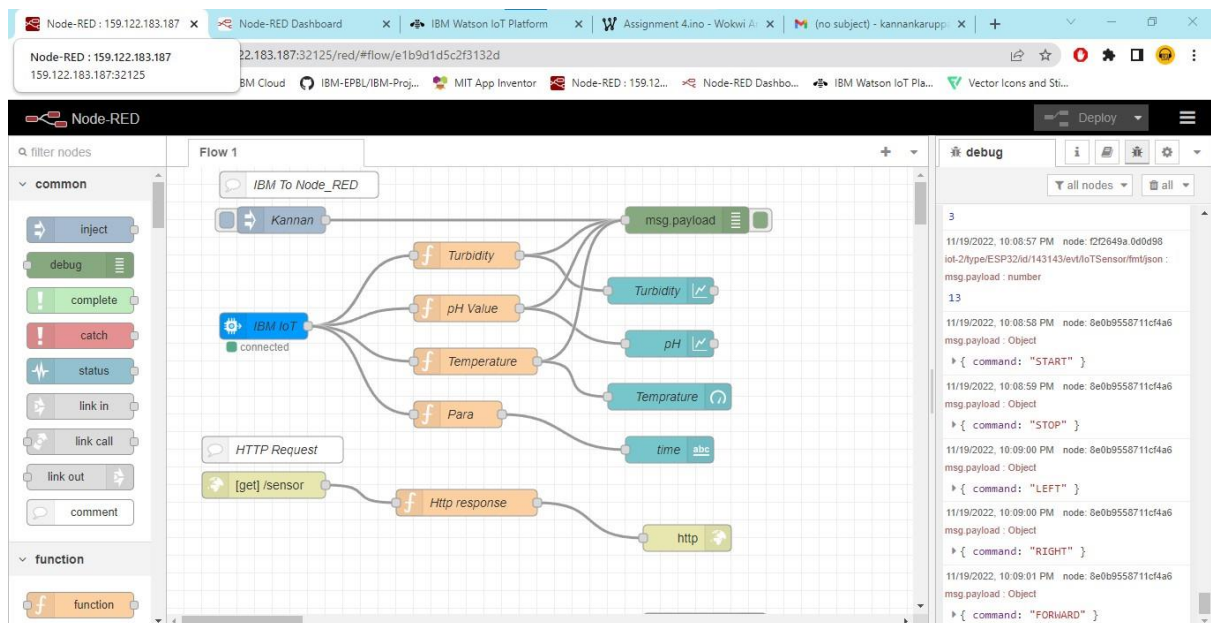
IBM IoT is pass the data to the Node-Red. Node-RED is collected the all data and display in debug window



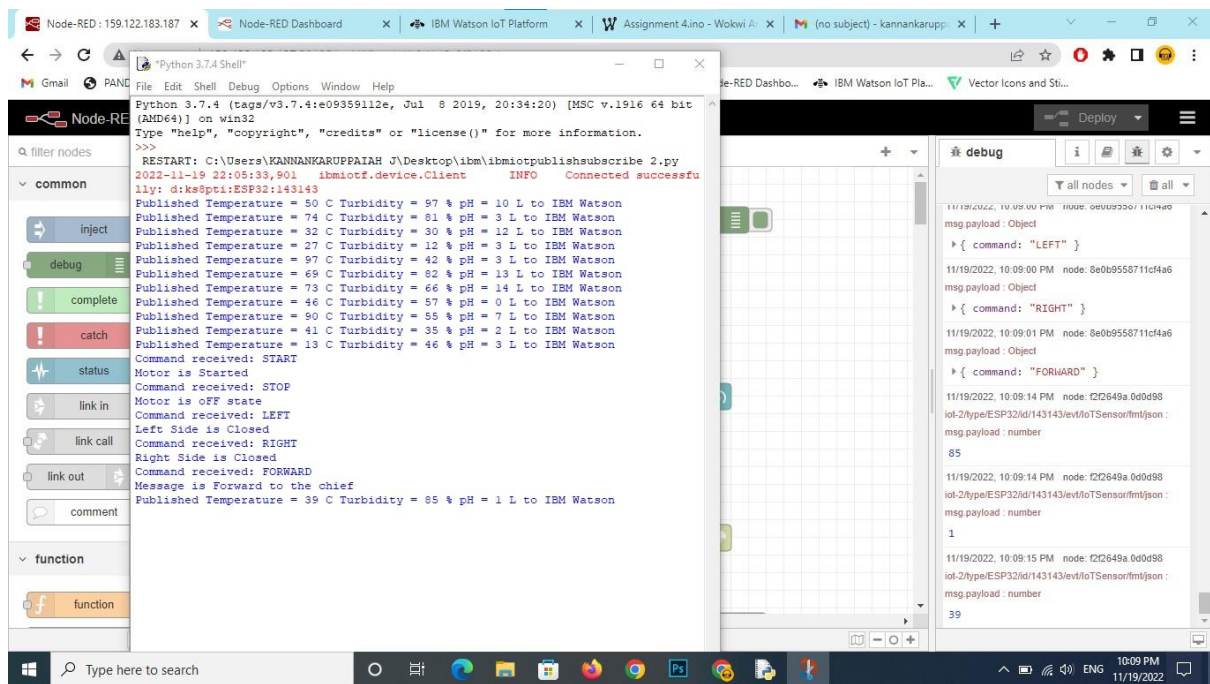
Node-RED Dashboard is Showing every data.
When we click the buttons in dashboard the result will be publish both Node-RED and Python



Node-RED OUTPUT



Python OUTPUT



This is my mobile app screen.

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

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

10:09



VoLTE 4G 89

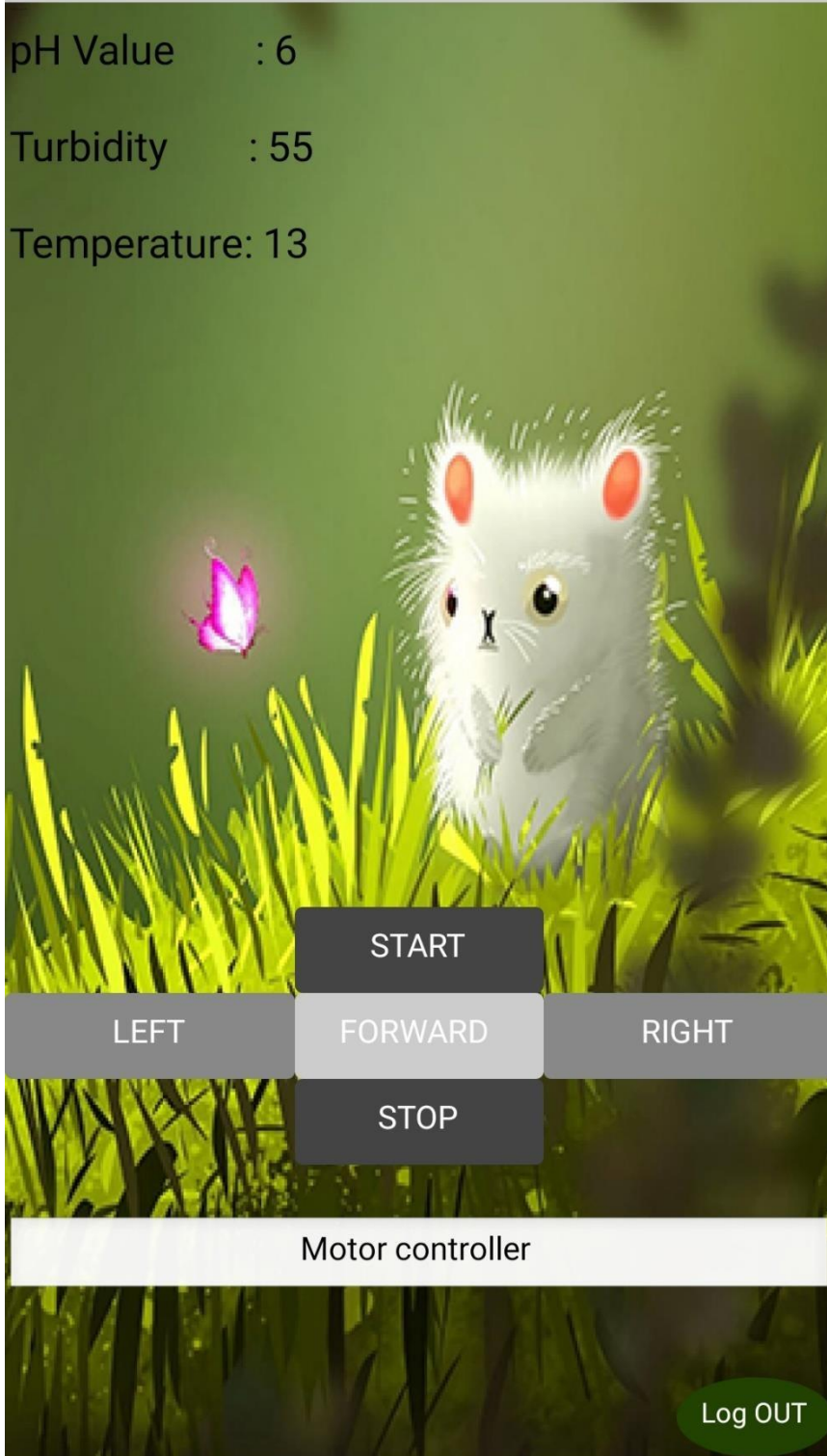
Real Time Water Quality Monitoring

MONITORING WINDOW

pH Value : 6

Turbidity : 55

Temperature: 13



START

LEFT

FORWARD

RIGHT

STOP

Motor controller

Log OUT



Python OUTPUT

```
RESTAPI: C:\Users\KANNANKARUPPAIAH J\Desktop\ibm\ibmiotpublishsubscribe 2.py
2022-11-19 22:05:33,901 ibmiotf.device.Client INFO Connected successfully
11/19/2022 10:09:55 PM node: f2f2649a-0d0d98
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

