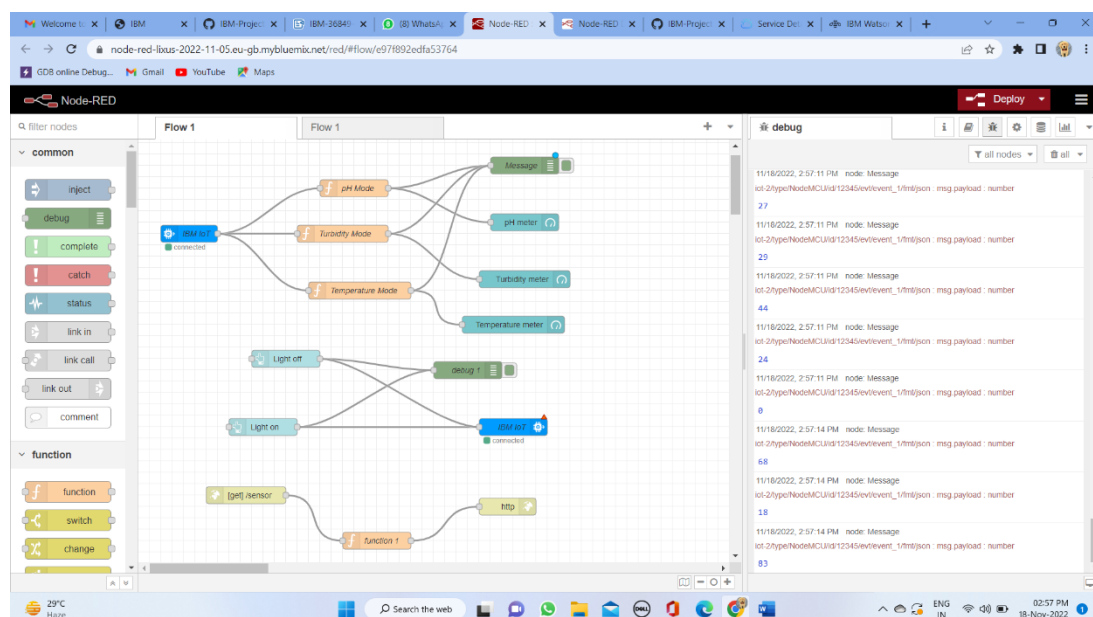
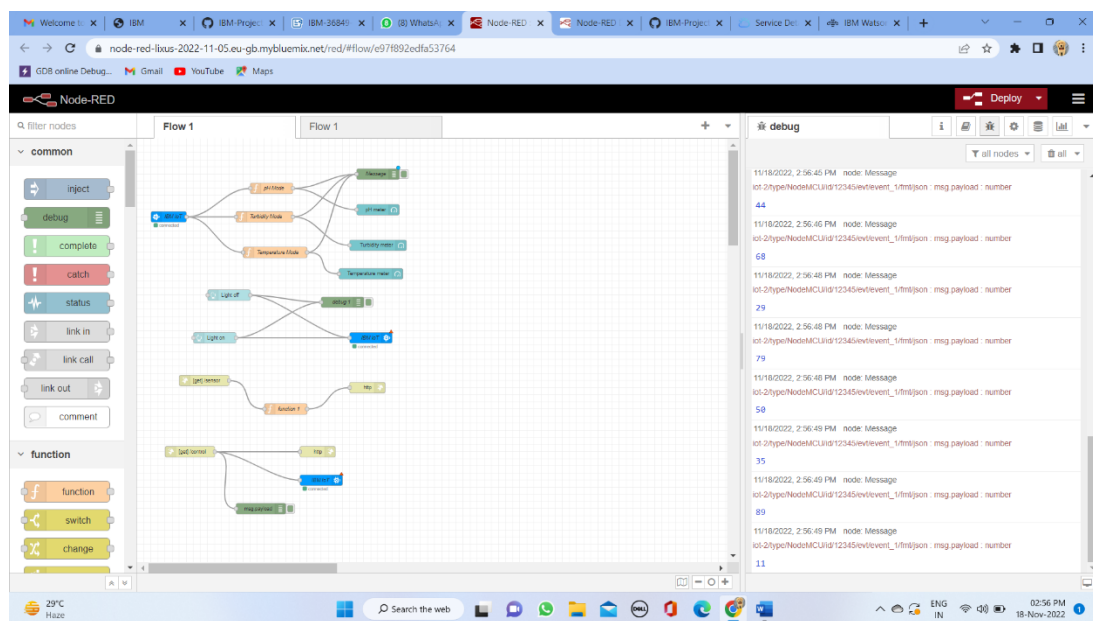
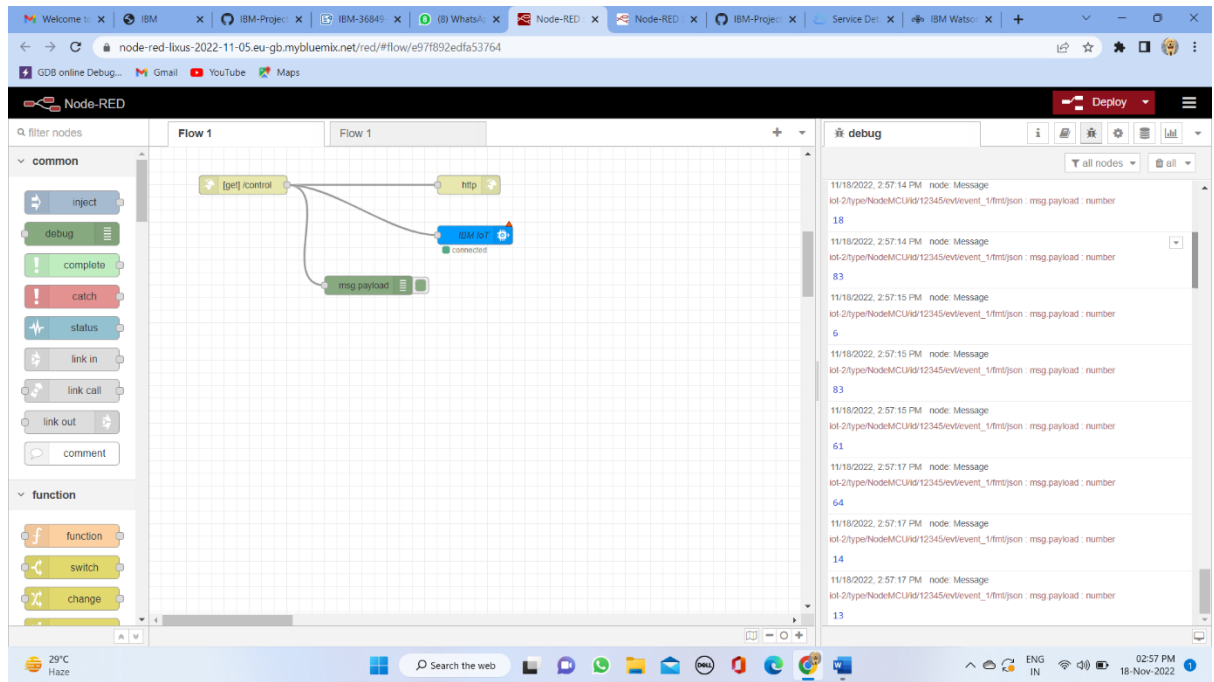


## NODE RED ARCHITECTURE

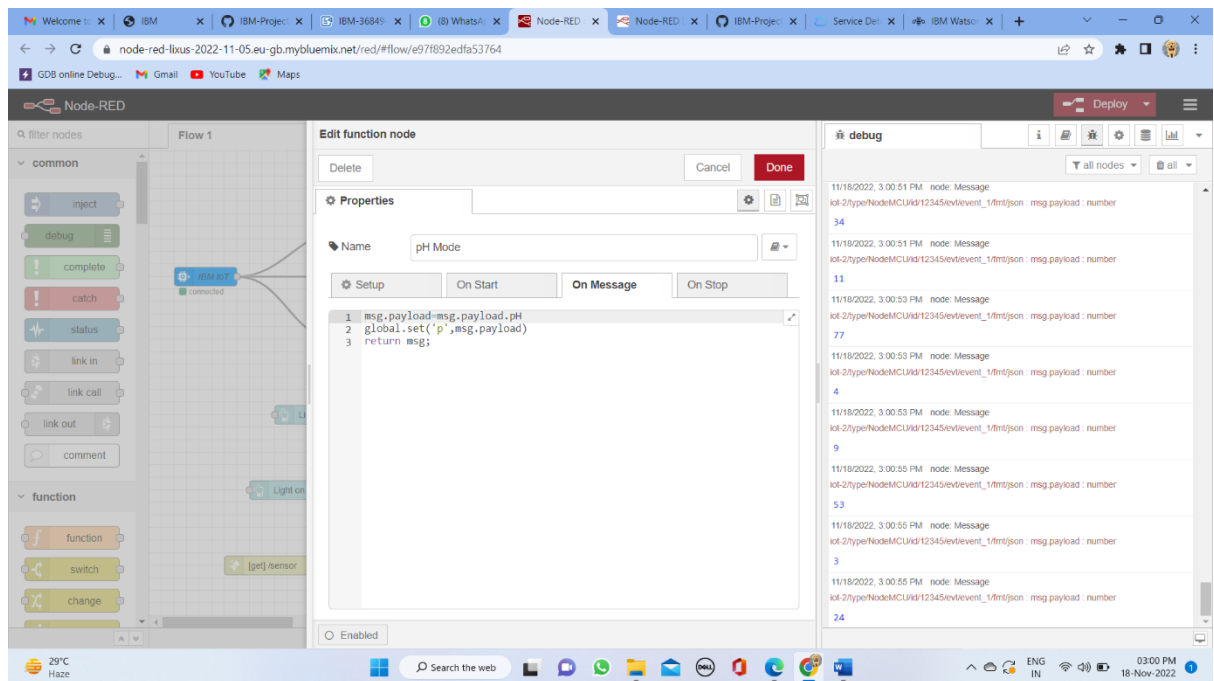
TEAM ID	PNT2022TMID23797
PROJECT NAME	REAL TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM

## FULL ARCHITECTURE





## CONNECTING NODES TO IBM WATSON



node-red-lixus-2022-11-05-gb.mybluemix.net/red/#flow/e97f892edfa53764

Node-RED

Flow 1

common

function

Inject

Debug

Complete

Catch

Status

Link In

Link Call

Link Out

Comment

Function

Switch

Change

Light on

get sensor

Edit function node

Delete

Cancel

Done

Properties

Name

Turbidity Mode

Setup

On Start

On Message

On Stop

1 msg.payload=msg.payload.turbid

2 global.set('tu',msg.payload)

3 return msg;

debug

11/18/2022, 3:00:57 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

64

11/18/2022, 3:00:57 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

85

11/18/2022, 3:00:59 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

45

11/18/2022, 3:00:59 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

27

11/18/2022, 3:00:59 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

51

11/18/2022, 3:01:00 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

24

11/18/2022, 3:01:00 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

39

11/18/2022, 3:01:00 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

28

29°C Haze

Search the web

ENG IN

03:01 PM 18-Nov-2022

node-red-lixus-2022-11-05-gb.mybluemix.net/red/#flow/e97f892edfa53764

Node-RED

Flow 1

common

function

Inject

Debug

Complete

Catch

Status

Link In

Link Call

Link Out

Comment

Function

Switch

Change

Light on

get sensor

Edit function node

Delete

Cancel

Done

Properties

Name

Temperature Mode

Setup

On Start

On Message

On Stop

1 msg.payload=msg.payload.temp

2 global.set('te',msg.payload)

3 return msg;

debug

11/18/2022, 3:01:02 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

100

11/18/2022, 3:01:02 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

85

11/18/2022, 3:01:04 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

17

11/18/2022, 3:01:04 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

81

11/18/2022, 3:01:04 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

12

11/18/2022, 3:01:06 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

89

11/18/2022, 3:01:06 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

60

11/18/2022, 3:01:06 PM node: Message

iot-2?type=NodeMCUId12345&event=1\_tfm/son : msg.payload : number

85

29°C Haze

Search the web

ENG IN

03:01 PM 18-Nov-2022

## CONNECTING LIGHT SWITCHING TO IBM WATSON

This screenshot shows the Node-RED web interface in a browser. The main workspace displays a flow named 'Flow 1' with the following components: a 'Light off' button node, a 'Light on' button node, a '[get] sensor' node, and a '[get] control' node. The 'Light on' button is currently selected, and its configuration panel is open on the right. The configuration for the 'Light on' button is as follows:

- Group: [control] control
- Size: auto
- Icon: optional icon
- Label: Light on
- Tooltip: optional tooltip
- Color: optional text/icon color
- Background: optional background color
- When clicked, send:
  - Payload: {} ("command":"motoron")
  - Topic: msg.topic
- If msg arrives on input, emulate a button click: ☐
- Enabled: ☒

The debug console on the right shows a series of messages from the 'kol-2/hyperNodeMCUv9/12345/rev/evnt\_1/frm/json' topic, with payloads of 'number' and values ranging from 25 to 87.

This screenshot shows the Node-RED web interface in a browser. The main workspace displays a flow named 'Flow 1' with the following components: a 'Temperature' sensor node, a 'Light off' button node, a 'Light on' button node, a '[get] sensor' node, and a '[get] control' node. The 'Light off' button is currently selected, and its configuration panel is open on the right. The configuration for the 'Light off' button is as follows:

- Group: [control] control
- Size: auto
- Icon: optional icon
- Label: Light off
- Tooltip: optional tooltip
- Color: optional text/icon color
- Background: optional background color
- When clicked, send:
  - Payload: {} ("command":"motoroff")
  - Topic: msg.topic
- If msg arrives on input, emulate a button click: ☐
- Enabled: ☒

The debug console on the right shows a series of messages from the 'kol-2/hyperNodeMCUv9/12345/rev/evnt\_1/frm/json' topic, with payloads of 'number' and values ranging from 27 to 99.

## IBM WATSON SIMULATION OUTPUT

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons for device management. The main content area displays a table of recent events. Below the table, there is a pagination control showing '1 of 1 page'. At the bottom right of the dashboard, a status indicator shows '1 Simulation running'.

Event	Value	Format	Last Received
event_1	{"pH":95,"temp":25,"turbid":56}	json	a few seconds ago
event_1	{"pH":44,"temp":2,"turbid":5}	json	a few seconds ago
event_1	{"pH":7,"temp":13,"turbid":49}	json	a few seconds ago
event_1	{"pH":95,"temp":5,"turbid":43}	json	a few seconds ago
event_1	{"pH":79,"temp":59,"turbid":29}	json	a few seconds ago

## NODE RED SIMULATION OUTPUT

The screenshot shows the Node-RED debug console. The top bar includes a 'debug' tab and various icons for message inspection. The console displays a list of messages received from a node. Each message is a JSON object with a specific payload value.

```
11/18/2022, 3:07:25 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
64

11/18/2022, 3:07:28 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
86

11/18/2022, 3:08:24 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
72

11/18/2022, 3:08:25 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
32

11/18/2022, 3:08:26 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
87

11/18/2022, 3:09:24 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
2

11/18/2022, 3:09:25 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
58

11/18/2022, 3:09:26 PM node: Message
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json : msg.payload : number
25
```