

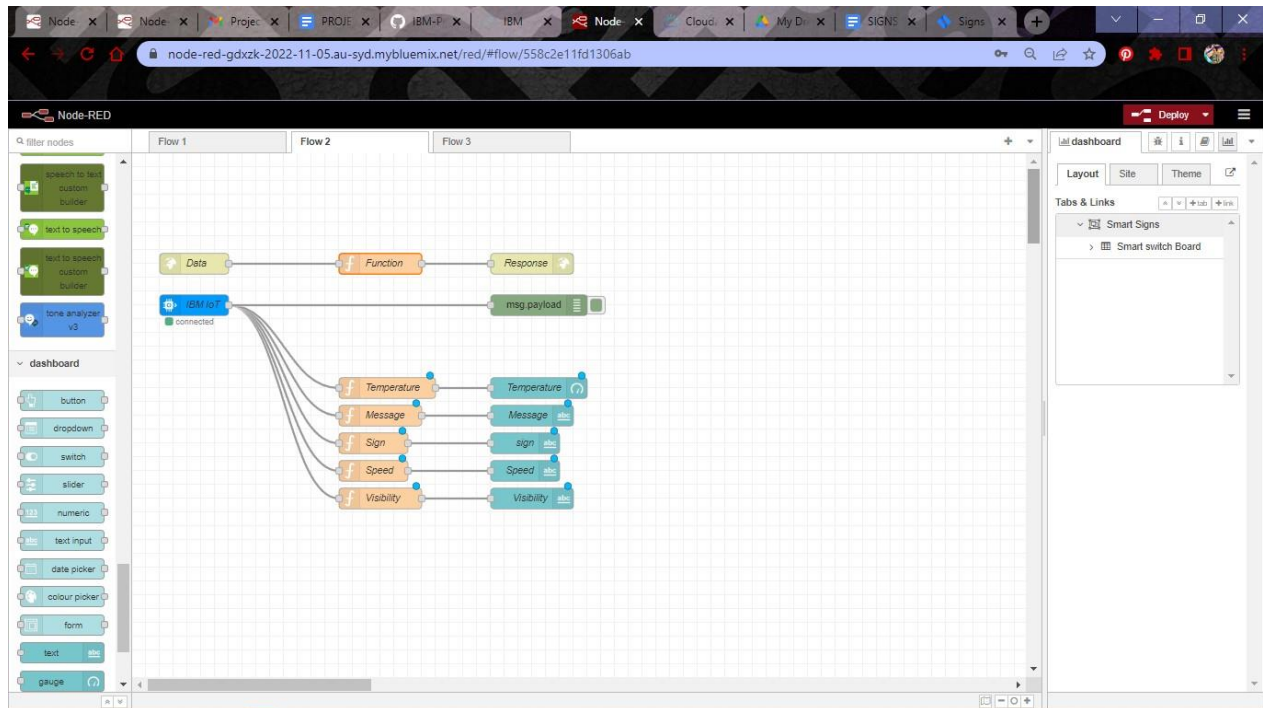
## **PROJECT DEVELOPMENT PHASE**

### **Sprint-4**

<b>TEAM ID</b>	<b>PNT2022TMID00922</b>
<b>PROJECT NAME</b>	<b>SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY</b>

## DEVELOPING ROUTE BASED ON THE PROGRAM:

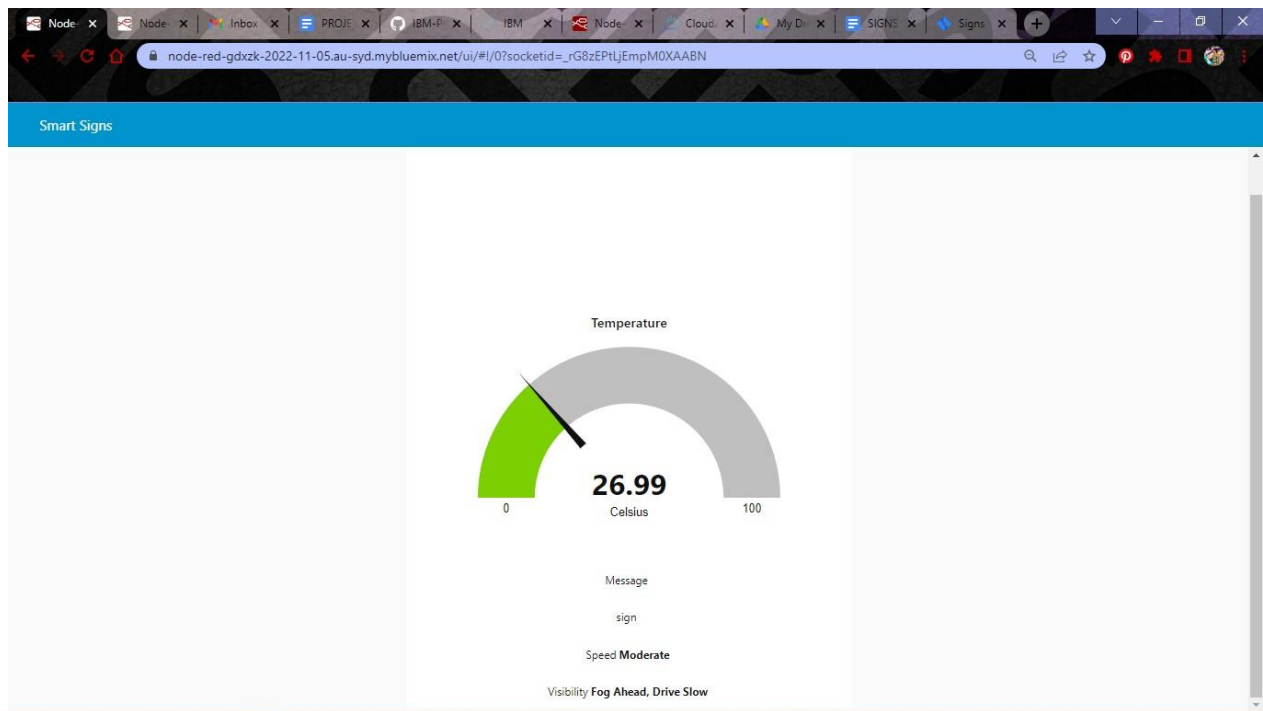
Here based on the project the routing is developed by using appropriate nodes.



## OUTPUT FOR NODE RED:

After making the proper connection between nodes the deploy button is enabled and the result is displayed on the node-red dashboard.

It shows the result in a diagrammatic structure.



CODE IN PYTHON IDLE :

PROGRAM:

```
randomSensorData.py - C:\Users\paul\OneDrive\Desktop\randomSensorData.py (3.7.0)
File Edit Format Run Options Window Help

import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
    #Configuration
    "identity": {
        "orgId": "xfxck9s",
        "typeId": "NodeMCU",
        "deviceId": "6385476398"
    },
    #API Key
    "auth": {
        "token": "9384731286"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    #cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

#OpenWeatherMap Credentials
BASE_URL = "https://api.openweathermap.org/data/2.5/weather?"
CITY = "Nagercoil"
URL = BASE_URL + "q=" + "chennai" + "&appid=" + "01df65417ab3968e3fc2a38c4aee27bb"

while True:
    response = requests.get(URL)
    if response.status_code == 200:
        data = response.json()
        main = data['main']
        temperature = main['temp']
        humidity = main['humidity']
        pressure = main['pressure']
        report = data['visibility']

    #message part
    msg=random.randint(0,5)
```

```
randomSensorData.py - C:\Users\paul\OneDrive\Desktop\randomSensorData.py (3.7.0)
File Edit Format Run Options Window Help

msg=random.randint(0,5)
if msg==1:
    message="SLOW DOWN , SCHOOL IS NEAR"
elif msg==3:
    message="SLOW DOWN , HOSPITAL NEARBY"
elif msg==4:
    message="NEED HELP, POLICE STATION NEARBY"
else:
    message=""

#Speed part
speed=random.randint(0,150)
if speed>100:
    speedMsg="SLOW DOWN , Speed Limit Exceeded"
elif speed>=60 and speed<100:
    speedMsg="Moderate Speed"
else:
    speedMsg=""

#Sign part
sign=random.randint(0,5)
if sign==1:
    signMsg="Right Diversion ->"
elif sign==3:
    signMsg="Left Diversion <-"
elif sign==5:
    signMsg="U Turn"
else:
    signMsg=""

#Visibility
if temperature<=50:
    visibility="Fog Ahead, Drive Slow"
else:
    visibility="Clear Weather"

else:
    print("Error in the HTTP request")
    myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg, 'Speed':speedMsg, 'Visibility':visibility}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(5)
client.disconnect()
```

## Program used in the code:

```
import wiotp.sdk.device
import time
```

```
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
    #Configuration
    "identity": {
        "orgId": "xfxok9",
        "typeId": "NodeMCU",
        "deviceId": "6385476358"
    },
    #API Key
    "auth": {
        "token": "9384731286"
    }
}
```

```
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" %
cmd.data['command'])
    m=cmd.data['command']
```

```
client = wiotp.sdk.device.DeviceClient(config=myConfig,
logHandlers=None)
client.connect()
```

```
#OpenWeatherMap Credentials
```

```
BASE_URL =
```

```
"https://api.openweathermap.org/data/2.5/weather?"
```

```
CITY = "Chennai"
```

```
URL = BASE_URL + "q=" + "chennai" + "&appid=" +  
"01df65417ab3968e3fc2a38c4aee27bb"
```

```
while True:
```

```
    response = requests.get(URL)
```

```
    if response.status_code == 200:
```

```
        data = response.json()
```

```
        main = data['main']
```

```
        temperature = main['temp']
```

```
        humidity = main['humidity']
```

```
        pressure = main['pressure']
```

```
        report = data['visibility']
```

```
    #messge part
```

```
    msg=random.randint(0,5)
```

```
    if msg==1:
```

```
        message="SLOW DOWN , SCHOOL IS NEAR"
```

```
    elif msg==3:
```

```
        message="SLOW DOWN , HOSPITAL NEARBY"
```

```
    elif msg==5:
```

```
        message="NEED HELP, POLICE STATION NEARBY"
```

```
    else:
```

```
        message=""
```

```
    #Speed part
```

```
    speed=random.randint(0,150)
```

```
    if speed>=100:
```

```
        speedMsg="SLOW DOWN , Speed Limit Exceeded"
```

```
    elif speed>=60 and speed<100:
```

```

        speedMsg="Moderate Speed"
    else:
        speedMsg=""

    #Sign part
    sign=random.randint(0,5)
    if sign==1:
        signMsg="Right Diversion ->"
    elif sign==3:
        signMsg="Left Diversion <-"
    elif sign==5:
        signmsg="U Turn"
    else:
        signMsg=""

    #Visibility
    if temperature<=50:
        visibility="Fog Ahead, Drive Slow"
    else:
        visibility="Clear Weather"

else:
    print("Error in the HTTP request")
    myData={'Temperature':temperature, 'Message':message,
'Sign':signMsg, 'Speed':speedMsg, 'Visibility':visibility}
    client.publishEvent(eventId="status", msgFormat="json",
data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(5)

```

client.disconnect()

## Output displayed in Python Idle:

The output of the code was displayed in python idle shell mode.

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': 'Left Diversion <-', 'Speed': 'Moderate Speed', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , HOSPITAL NEARBY', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': '', 'Speed': 'Moderate Speed', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': 'Left Diversion <-', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': 'Left Diversion <-', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': 'Left Diversion <-', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , HOSPITAL NEARBY', 'Sign': 'Right Diversion ->', 'Speed': 'Moderate Speed', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': 'Left Diversion <-', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'Right Diversion ->', 'Speed': 'Moderate Speed', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Moderate Speed', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , HOSPITAL NEARBY', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': '', 'Sign': 'Left Diversion <-', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Published data Successfully: %s ('Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather')
Ln 205 Col 0
```



