

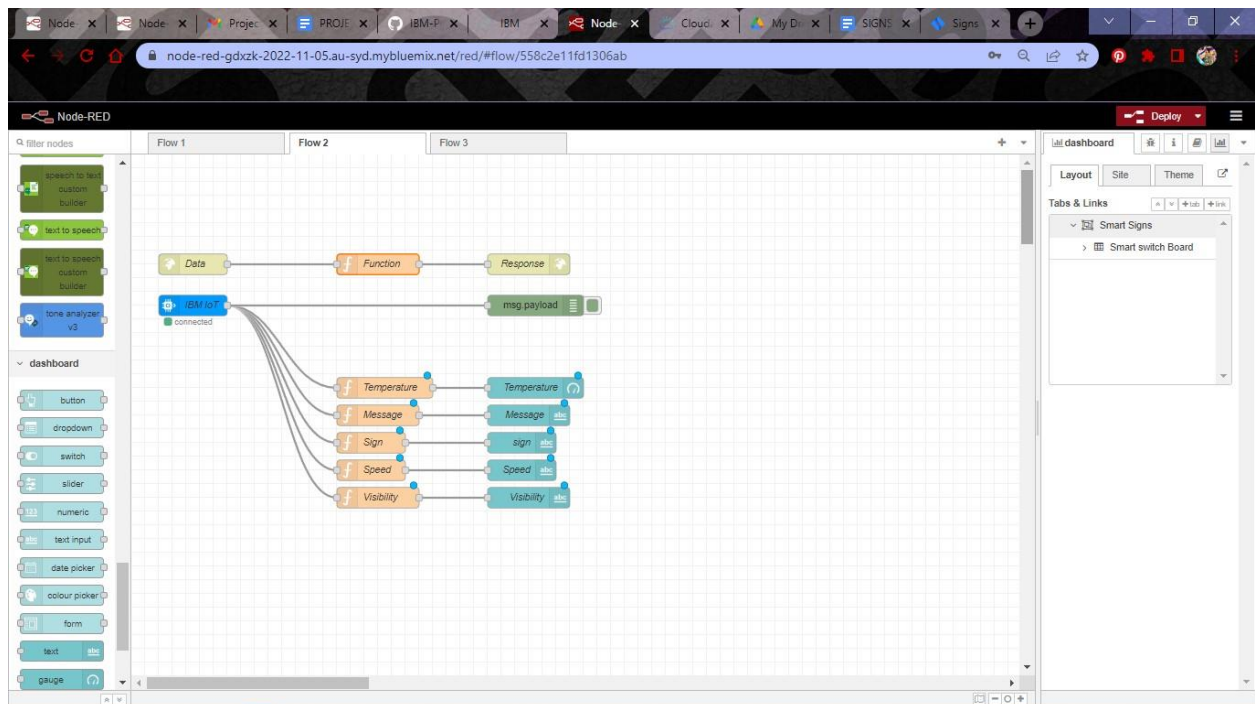
# PROJECT DEVELOPMENT PHASE

## Sprint-3

TEAM ID	PNT2022TMID31677
PROJECT NAME	SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

### DEVELOPING ROUTE BASED ON THE PROGRAM:

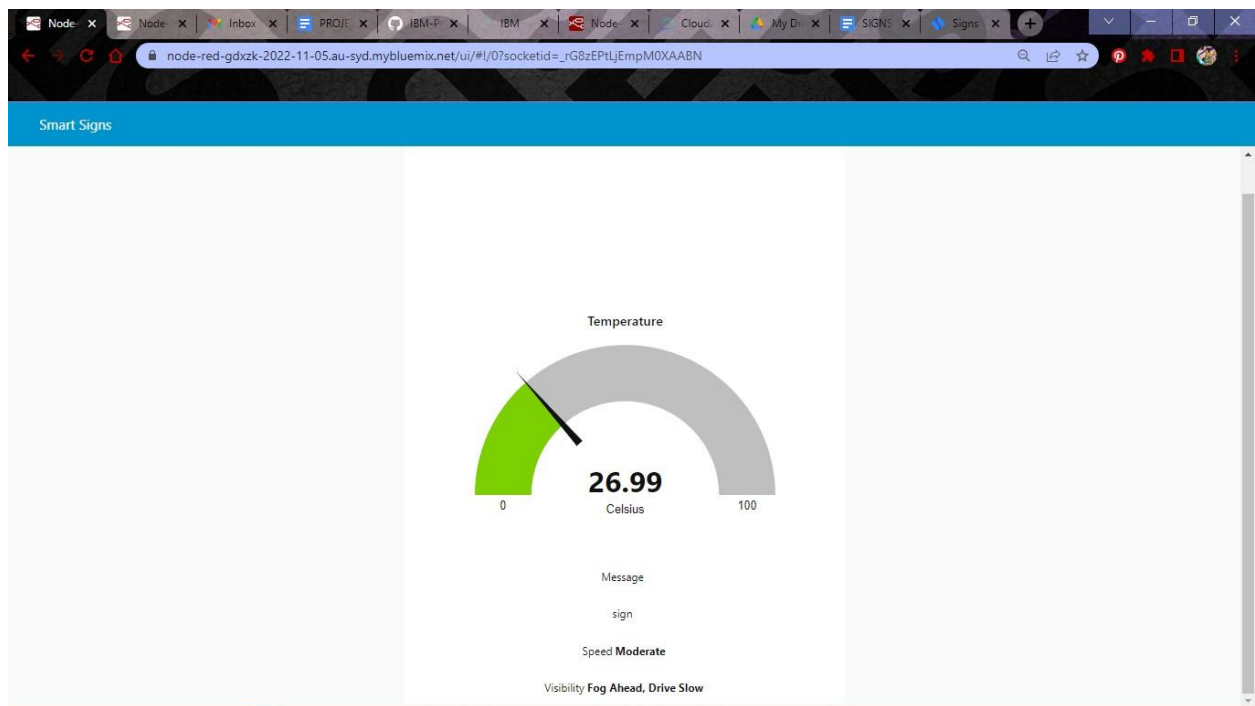
Here based on the project the routing is developed by using appropriate nodes.



## 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\paulj\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": "xfxok5",
        "typeId": "NodeMCU",
        "deviceId": "6385476358"
    },
    #API Key
    "auth": {
        "token": "9384731286"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    mcmd.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 = "Magercoil"
URL = BASE_URL + "q=" + "chennai" + "&appid=" + "01df65417ab3968e3fc2a38c4ee27bb"

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)

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```

```
randomSensorData.py - C:\Users\paulj\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==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()

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```

## 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 = "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']
```

```
  
#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"

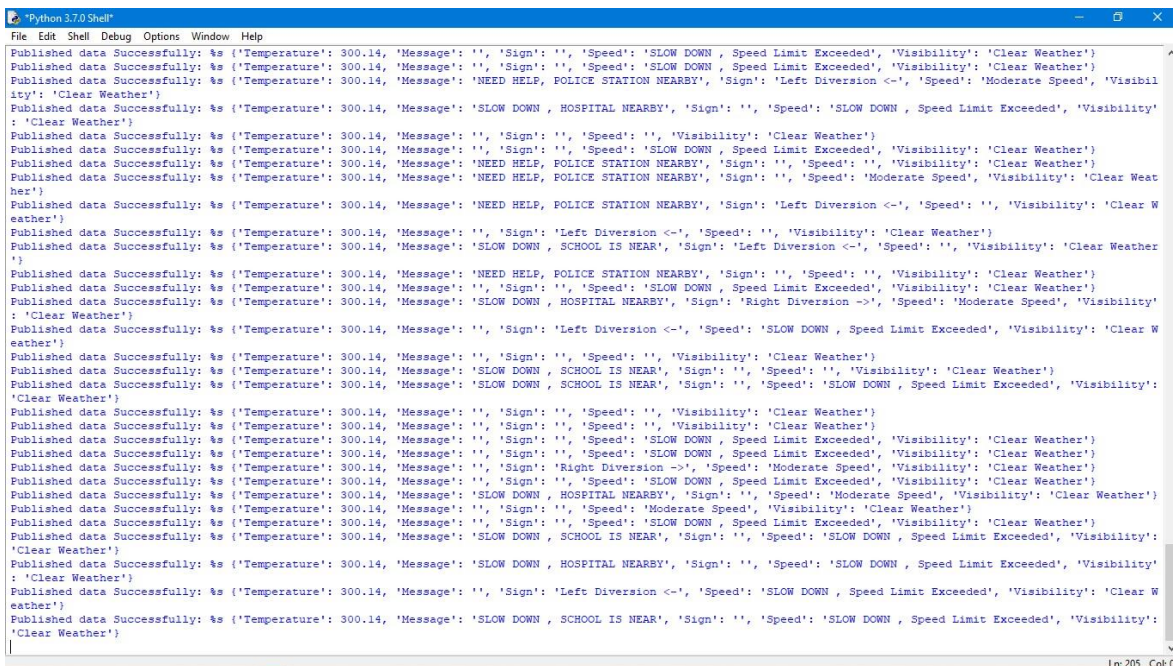
else:
    print("Error in the HTTP request")
    myData={'Temperature':temperature, 'Message':message,
'Sign':signMsg, 'Speed':speedMsg, 'Visibility':visibility}
    client.publishEvent(eventId="status", msgFormat="json",
data=myData, qos=0, onPublish=None)

```

```
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.

A screenshot of a Python 3.7.0 Shell window. The window title is "Python 3.7.0 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The main text area displays the output of the code, which consists of 20 lines of "Published data Successfully: %s" followed by a dictionary containing 'Temperature', 'Message', 'Sign', 'Speed', and 'Visibility'. The data is repeated every 5 lines with varying values for each field. The status bar at the bottom right shows "Ln: 205 Col: 0".

```
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': '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': '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': 'Moderate 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': '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
```