SPRINT 4

Date	18 November 2022
Team ID	PNT2022TMID16188
Project Name	Project – Signs with Smart Connectivity for Better Road Safety

SPRINT	FUNCTIONAL REQUIREMENT (EPIC)	USER STORY/TASK	STORY POINTS	PRIORITY	TEAM MEMBERS
Sprint-4	Local server/software run	Write a python program that outputs results given the inputs like weather and location.	1	LOW	SOWMYA B, SHAMYUKDHA PV, VIJAYALAKSHMI C V, VAISHNAVI N
Sprint 4	Push the server/software to cloud.	Push the code from Sprint 1 to cloud so it can be accessed from anywhere.	2	MEDIUM	SOWMYA B, SHAMYUKDHA PV, VIJAYALAKSHMI C V, VAISHNAVI N.

STEP 1:

PYTHON CODE STIMULATION

project1.py - C:\Users\Dell\Downloads\project1.py (3.7.9)

File Edit Format Run Options Window Help

```
        message="SLOW DOWN, SCHOOL IS NEAR"
      elif msg==2:
        message="NEED HELP, POLICE STATION AHED"
      elif msg==3:
        message="EMERGENCY, HOSPITAL NEARBY"
      elif msg==4:
        message="DINE IN, RESTAURENT AVAILABLE"
      else:
        message=""
#Speed Limit part
      speed=random.randint(0,150)
      if speed>=100:
        speedMsg=" Limit Exceeded"
      elif speed>=60 and speed<100:
        speedMsg="Moderate"
      else:
        speedMsg="Slow"

#Diversion 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 < 24:
        visibility="Fog Ahead, Drive Slow"
      elif temperature < 20:
        visibility="Bad Weather"
      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)
#PUBLISHING TO IOT WATSON
   print("Published data Successfully: %s", myData)

client.disconnect()
```

Ln: 1 Col: 0

26°C Partly sunny

ENG IN 10:41 18-11-2022

PYTHON CODE:

```
import wiotp.sdk.device import time import random import ibmiotf.application import
ibmiotf.device

import requests, json


myConfig = { #Configuration

   "identity": {

"orgId": "d5zx56",

"typeId": "Connectivity123", "deviceId":"ESP32"},

#API Key

"auth": {

"token": "9514598766"

}

}


#Receiving callbacks from IBM IOT platform
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.commandCallback= myCommandCallback
client.connect()


#OpenWeatherMap Credentials

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

CITY = "Chennai"

URL = BASE_URL + "q=" + CITY + "&units=metric"+"&appid=" +

"9cca583812b638930cefd580106f6c58"


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==2:        message="NEED HELP, POLICE
STATION AHED"      elif msg==3:

        message="EMERGENCY, HOSPITAL NEARBY"
elif msg==4:

        message="DINE IN, RESTAURENT AVAILABLE"
else:

        message="" #Speed Limit
part
speed=random.randint(0,150)
if speed>=100:

        speedMsg=" Limit Exceeded"
elif speed>=60 and speed<100:

        speedMsg="Moderate"
else:

        speedMsg="Slow"


#Diversion 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 < 24:
```

```
        visibility="Fog Ahead, Drive Slow"
elif temperature < 20:
        visibility="Bad Weather"
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)
#PUBLISHING TO IOT WATSON
   print("Published data Successfully: %s", myData)


client.disconnect()
```

OUTPUT OF PYTHON CODE:

```
*Python 3.7.9 Shell*
File  Edit  Shell  Debug  Options  Window  Help
Published data Successfully: %s {'Temperature': 27.99, 'Message': '', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': 'NEED HELP, POLICE STATION AHED', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': '', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': 'SLOW DOWN, SCHOOL IS NEAR', 'Sign': '', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
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Published data Successfully: %s {'Temperature': 27.99, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': 'DINE IN, RESTAURENT AVAILABLE', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
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Published data Successfully: %s {'Temperature': 27.99, 'Message': '', 'Sign': '', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': '', 'Sign': '', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Left Diversion', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
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Published data Successfully: %s {'Temperature': 27.99, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
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Published data Successfully: %s {'Temperature': 27.99, 'Message': 'DINE IN, RESTAURENT AVAILABLE', 'Sign': '', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 27.99, 'Message': 'NEED HELP, POLICE STATION AHED', 'Sign': '', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Ln: 156  Col: 0
26°C
Partly sunny
ENG
IN
10:42
18-11-2022
```
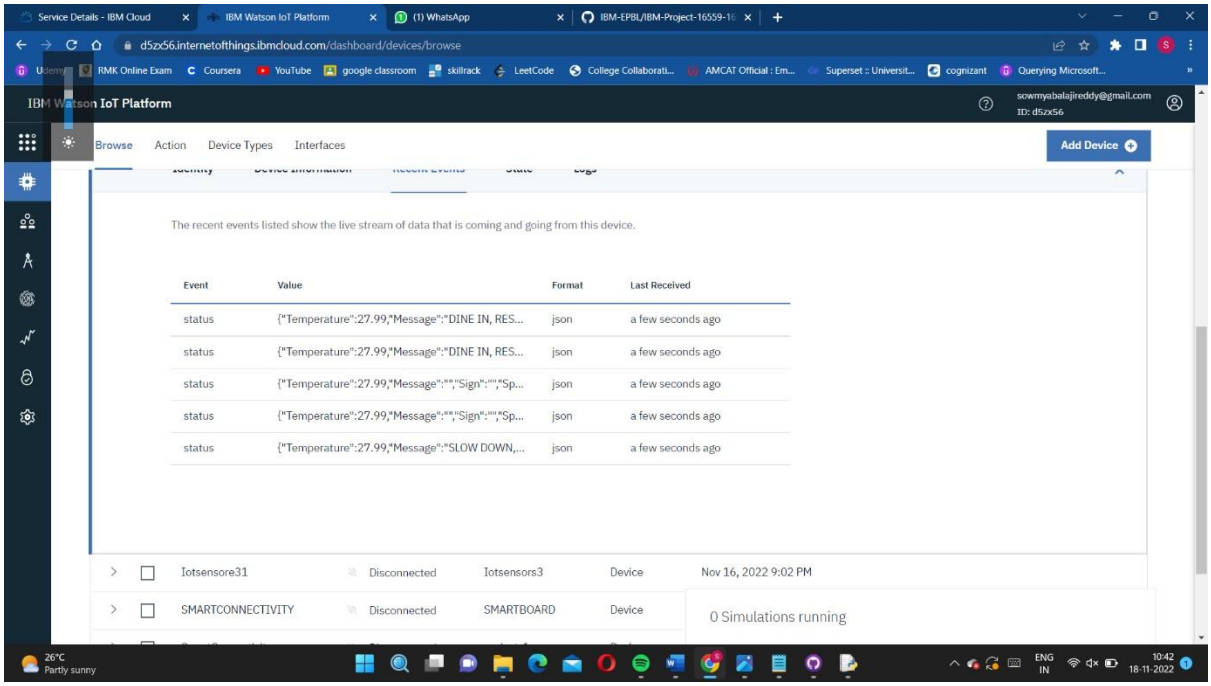

STEP 2:

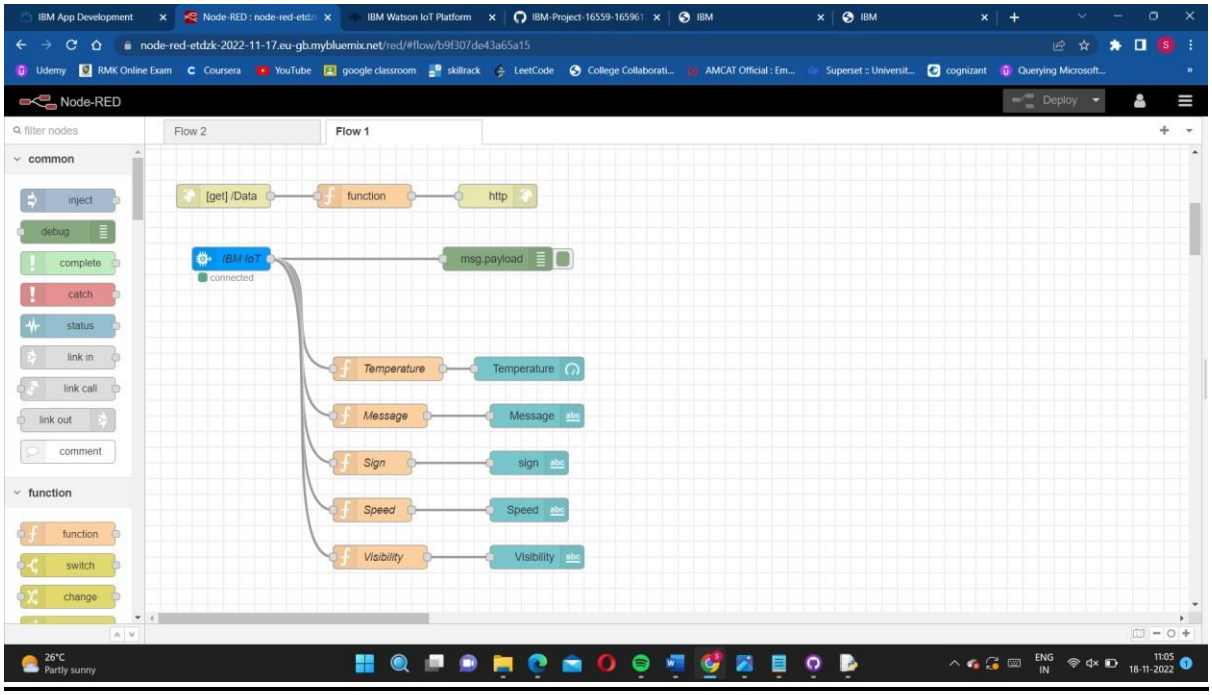
IOT DEVICE- IOT PLATFORM

By running the code in python IDLE ,the data is published in IBM cloud.



STEP 3:

ESTABLISH NODE RED



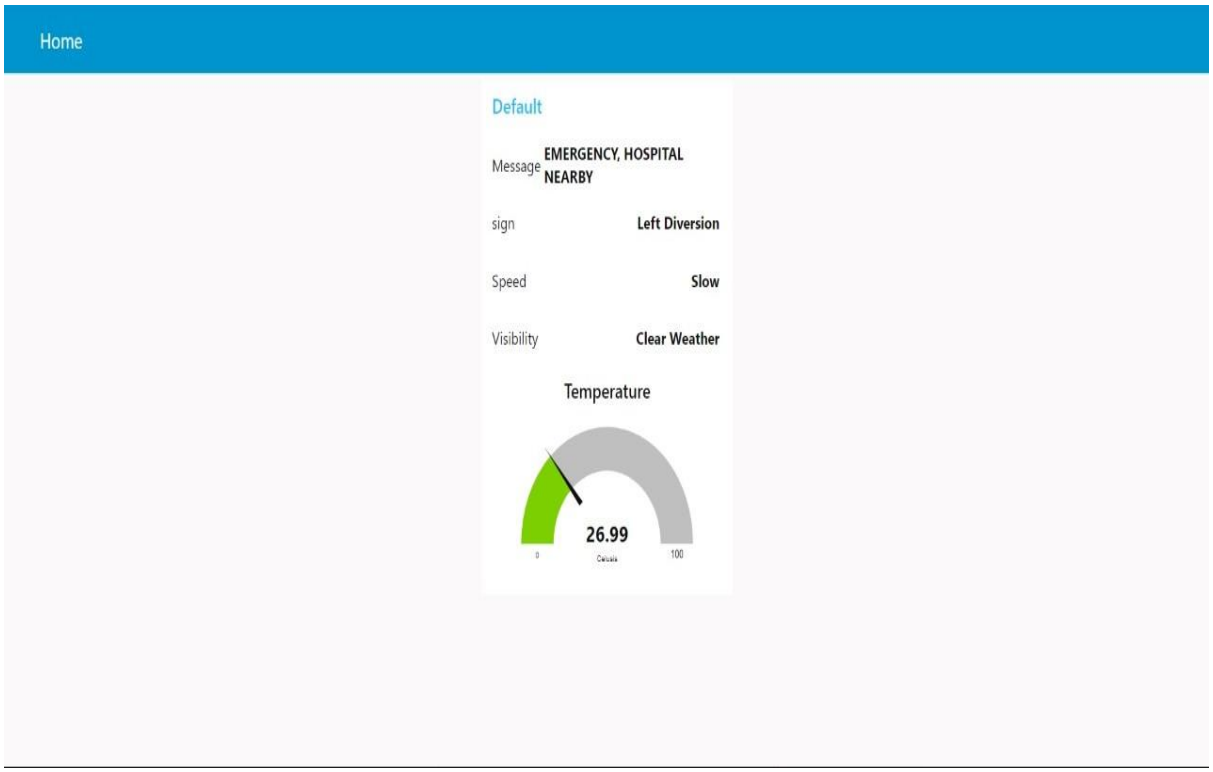
1. **"IBM IOT"** node connects the backend to Node RED UI

2. The function nodes such as **"Temperature"**, **"Message"**, **"Sign"**, **"Speed"** & **"Visibility"** extract the respective data out and provides them to the nodes **"Temperature"**, **"Message"**, **"Sign"**, **"Speed"** & **"Visibility"**.

```
// get Temperature
msg.payload = msg.payload.Tempreature;
return msg;


// get Message
msg.payload = msg.payload.Message;
return msg;


// get Visibility
msg.payload = msg.payload.visibility;
return msg;

// get Temperature
msg.payload = msg.payload.temperature;
return msg;


// get sign
msg.payload = msg.payload.sign;
return sign;


// get speed
msg.payload = msg.payload.speed;
return speed;
```

STEP 4:OUTPUT

After making the connection between the nodes, the deploy will be enabled and the result will be displayed on the nodered dashboard.



Thank you