

SPRINT 4 -USN 7

DATE	15- NOVEMBER-2022
TEAM ID	PNT2022TMID42266
PROJECT NAME	SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

Project link:

<https://node-red-zeori-2022-11-05.eu-gb.mybluemix.net/ui/>

Python Code:

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new.py - E:/COLLEGE/IBM/new.py (3.9.6)
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#OPENWEATHER MAP(SPRINT 2)-(REQUIREMENT 1 OF THE PROJECT TO GET WEATHER DATA)
#TRAFFIC AND FATAL SITUATION ALERT BY ROADSAFETY CONTROL OFFICE(SPRINT 3) - (REQUIREMENT 2 OF THE PROJECT TO DISPLAY THE ALERT AND DIV
#HOSPITAL,SCHOOL AND PEOPLE CROWDED AREA LIKE RESTAURANT SIGNS DISPLAYED SPEED RECOMMENDATION ARE PROVIDED(SPRINT 4) - (REQUIREMENT 3

import wiotp.sdk.device #importing library files for connecting with CLOUD,sdk=software development kit
import requests #for API request
import json #converting it to json(key:values)
import sys
myConfig = {
    "identity": {
        "orgId": "vrpe0b",
        "typeId": "Ecodevice", #configuration wit CLOUD,finding identity
        "deviceId": "123456"
    },
    "auth": {
        "token": "Mukil@12" #authenticating with cloud device
    }
}
#TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHWN THE
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None) #initialising device client with above myconfig detail
client.connect()
ALERT=""
NOTIFY=""
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
    #THIS IF COMDITION BLOCK IS FOR TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHEN THE MESSAGE WAS RECEIVED F
    ALERT=""
    NOTIFY=""
    if(m=="TRAFFIC"):
        ALERT="TRAFFIC - PLEASE WAIT OR PREFER ANOTHER ROUTE"
        print("*****//PLEASE WAIT OR PREFER ANOTHER ROUTE//*****")
    elif(m=="ACCIDENT"):
        ALERT="ACCIDENT - TAKE DIVERSION"
        print("*****//TAKE DIVERSION//*****")
    elif(m=="MESSAGE"):
        ALERT="HAVE A NICE DAY!"
    Ln: 1 Col: 0
```

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elif(m=="MESSAGE"):
    ALERT="HAVE A NICE DAY!"
    print("HAVE A NICE DAY!")
    #THE BELOW CONDITION BLOCK IS TO DISPLAY HOSPITAL ,SCHOOL, AND RESTAURANT REGIONED AREA AND SPEED RECOMMENDATION
if(m=="SCHOOL"):
    NOTIFY="SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR"
    print("SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR")
elif(m=="HOSPITAL"):
    NOTIFY="HOSPITAL REGION DONT USE HORN"
    print("HOSPITAL REGION DONT USE HORN")
elif(m=="RESTAURANT"):
    NOTIFY="CROWDED AREA PLEASE MAINTAIN SPEED LIMIT"
    print("CROWDED AREA PLEASE MAINTAIN SPEED LIMIT")
mydata={}
if(m=="TRAFFIC" or m=="ACCIDENT" or m=="MESSAGE"):
    mydata={"SITUATION":ALERT}
elif(m=="SCHOOL"or m=="HOSPITAL" or m=="RESTAURANT" ):
    mydata={"CAUTION":NOTIFY}
client.publishEvent("123456","json",mydata)
while True:
    print("=====")
    AREA = "Chennai,%20IN"
    weatherData = requests.get("https://api.openweathermap.org/data/2.5/weather?q=" + AREA + "&appid=b966927276060e981c650a5ca4409f8b6")
    a=weatherData.text
    b=json.loads(a)
    temp = b["main"]["temp"]
    humi = b["main"]["humidity"]
    main = b["weather"][0]["main"] #0th index is taken from the object
    description = b["weather"][0]["description"]
    visibility = b["visibility"]
    Windspeed = b["wind"]["speed"]

    TemperatureRecommendation = ""

    SpeedRecommendation = ""

    RecommendationForVisibilty = ""
```

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#print("Temperature(cecius) :",b["main"]["temp"])
if (temp>33):
    TemperatureRecommendation="Temperature is higher than ideal value"
    #print("Temperature is higher than ideal value")
elif (temp<19):
    TemperatureRecommendation="Temperature is lower than ideal value"
    #print("Temperature is lower than ideal value")
else:
    TemperatureRecommendation="Temperature is ideal"
    #print("Temperature is ideal ")
#print("Humidity :",b["main"]["humidity"])
#print("WeatherCondition", (b["weather"][0]["main"]))
if (main == "Rain"):
    rain = b["rain"]["1h"]
    SpeedRecommendation = "30KM/HR ,ROAD WILL BE SLIPPERY"
    #print("Rain:",b["rain"]["1h"])
    #print("SPEED RECOMMENDATION : 30KM/HR ,ROAD WILL BE SLIPPERY")
elif (main == "Drizzle"):
    SpeedRecommendation = "30KM/HR"
    #print("SPEED RECOMMENDATION : 30KM/HR")
elif (main == "Mist"):
    SpeedRecommendation = "30KM/HR and switch on the headlight"
    #print("SPEED RECOMMENDATION : 30KM/HR and switch on the Headlight")
elif (main == "Thunderstorm"):
    SpeedRecommendation = "30KM/HR and stay away in the open place"
    #print("SPEED RECOMMENDATION : 30KM/HR and stay away in the open place")
elif (main == "Clouds"):
    SpeedRecommendation = "MAINTAIN NORMAL SPEED LIMIT UPTO 50 KM/HR"
    #print("SPEED RECOMMENDATION : 30KM/HR and stay away in the open place")
#print("Description of weather :", (b["weather"][0]["description"]))
#print("visibility", (b["visibility"]))
if (visibility<1000):
    RecommendationPorVisibilty = "SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT"
else:
    RecommendationPorVisibilty = "visibility range is ideal for vehciles"
#print("SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT")
mydata={"temperature":temp, "TemperatureRecommendation":TemperatureRecommendation, "humiditv":humi, "WeatherCondition":main, "SpeedRe
```

```
new.py - E:/COLLEGE/IBM/new.py (3.9.6)
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if (main == "Rain"):
    rain = b["rain"]["lh"]
    SpeedRecommendation = "30KM/HR ,ROAD WILL BE SLIPPERY"
    #print("Rain:",b["rain"]["lh"])
    #print("SPEED RECOMMENDATION : 30KM/HR ,ROAD WILL BE SLIPPERY")
elif (main == "Drizzle"):
    SpeedRecommendation = "30KM/HR"
    #print("SPEED RECOMMENDATION : 30KM/HR")
elif (main == "Mist"):
    SpeedRecommendation = "30KM/HR and switch on the headlight"
    #print("SPEED RECOMMENDATION : 30KM/HR and switch on the Headlight")
elif (main == "Thunderstorm"):
    SpeedRecommendation = "30KM/HR and stay away in the open place"
    #print("SPEED RECOMMENDATION : 30KM/HR and stay away in the open place")
elif (main == "Clouds"):
    SpeedRecommendation = "MAINTAIN NORMAL SPEED LIMIT UPTO 50 KM/HR"
    #print("SPEED RECOMMENDATION : 30KM/HR and stay away in the open place")
#print("Description of weather :", (b["weather"][0]["description"]))
#print("visibility", (b["visibility"]))
if (visibility<1000):
    RecommendationForVisibilty = "SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT"
else:
    RecommendationForVisibilty = "visibility range is ideal for vehciles"
#print("SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT")
mydata={"temperature":temp, "TemperatureRecommendation":TemperatureRecommendation,"humidity":humi,"WeatherCondition":main,"SpeedRe
print(mydata)
client.publishEvent("12345","json",mydata)
client.commandCallback = myCommandCallback

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```

Python Output:

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"DLE Shell 3.9.6"
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ndation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'v
isibility range is ideal for vehciles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')

{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
ndation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'v
isibility range is ideal for vehciles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
-----Message received from IBM IoT Platform: TRAFFIC

*****//PLEASE WAIT OR PREFER ANOTHER ROUTE//*****
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
ndation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'v
isibility range is ideal for vehciles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
-----
Message received from IBM IoT Platform: ACCIDENT
*****//TAKE DIVERSION//*****
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
ndation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'v
isibility range is ideal for vehciles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
-----
Message received from IBM IoT Platform: MESSAGE
HAVE A NICE DAY!
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
ndation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'v
isibility range is ideal for vehciles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
-----
Message received from IBM IoT Platform: SCHOOL=====
SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR
Message received from IBM IoT Platform: HOSPITAL
HOSPITAL REGION DONT USE HORN
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
ndation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'v
isibility range is ideal for vehciles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}Message received from IBM IoT Platform: RESTA
URANT

=====CROWDED AREA PLEASE MAINTAIN SPEED LIMIT

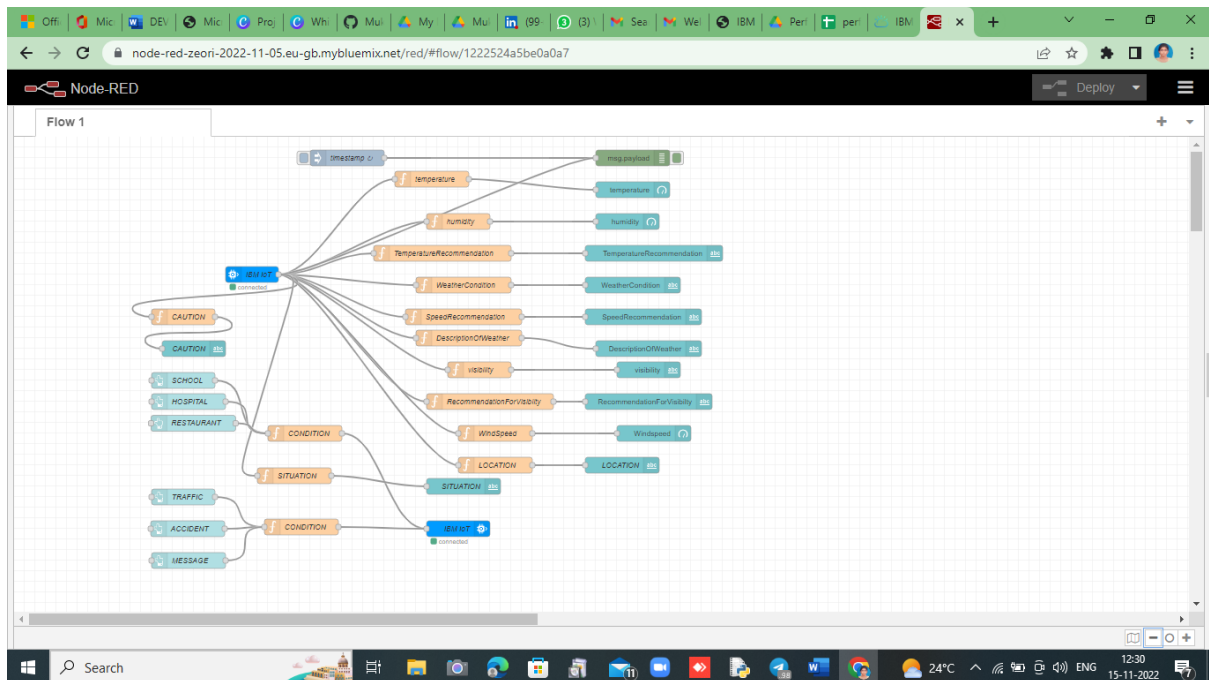
Ln: 271 Col: 354
```

```
File Edit Shell Debug Options Window Help
*****//PLEASE WAIT OR PREPARE ANOTHER ROUTE//*****
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}

Message received from IBM IoT Platform: ACCIDENT
*****//TAKE DIVERSION//*****
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}

Message received from IBM IoT Platform: MESSAGE
HAVE A NICE DAY!
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}
Message received from IBM IoT Platform: SCHOOL-----
SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR
Message received from IBM IoT Platform: HOSPITAL
HOSPITAL REGION DONT USE HORN
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}
Message received from IBM IoT Platform: RESTAURANT
-----CROWDED AREA PLEASE MAINTAIN SPEED LIMIT
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}
{'temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}
```

Node red Interface:



RESULT:

