PROJECT DEVELOPENT PHASE
SPRINT – 3 (USN-5)

DATE	**14– NOVEMBER-2022**
TEAM ID	**PNT2022TMID24018**
PROJECT NAME	**SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY**

PYTHON CODE :

#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 DIVERSION MESSAGE THAT WAS FROM ROAD SAFETY OFFICE

#HOSPITAL,SCHOOL AND PEOPLE CROWDED AREA LIKE RESTAURANT SIGNS DISPLAYED SPEED RECOMMENDATION ARE PROVIDED(SPRINT 4) - {REQUIREMENT 3 0F THE PROJECT TO DISPLAY HOSPITAL AND SCHOOL REGION BY THE ROAD SAFETY CONTROL OFFICE}

```
import wiotp.sdk.device  #importing library files for connecting with CLOUD,sdk=software developement kit

import requests  #for API request import json

#converting it to json(key:values) import sys


myConfig = {

   "identity": {

      "orgId": "7f5hee",

      "typeId": "testdevicetype",     #configuration wit CLOUD,finding identity "deviceId":"12345"
```

```
    },
    "auth": {
        "token": "AQCLi6rYJrcoiDpW6?"   #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 FROM THE ROAD SAFETY OFFICE
    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!"
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")
mydata1={}        if(m=="TRAFFIC" or m=="ACCIDENT" or
m=="MESSAGE"):
        mydata1={"SITUATION":ALERT}     elif(m=="SCHOOL"or
m=="HOSPITAL" or m=="RESTAURANT" ):
        mydata1={"CAUTION":NOTIFY}
client.publishEvent("12345","json",mydata1)




while True:
   print("====================================")
AREA = "Chennai,%20IN"
```

```
    weatherData =
requests.get("https://api.openweathermap.org/data/2.5/weather?q=" + AREA +
"&appid=b966927276060e981c650a5ca4409f8b&units=metric")
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 = ""


    #print("Temperature(celcius) :",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
5O 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):
```

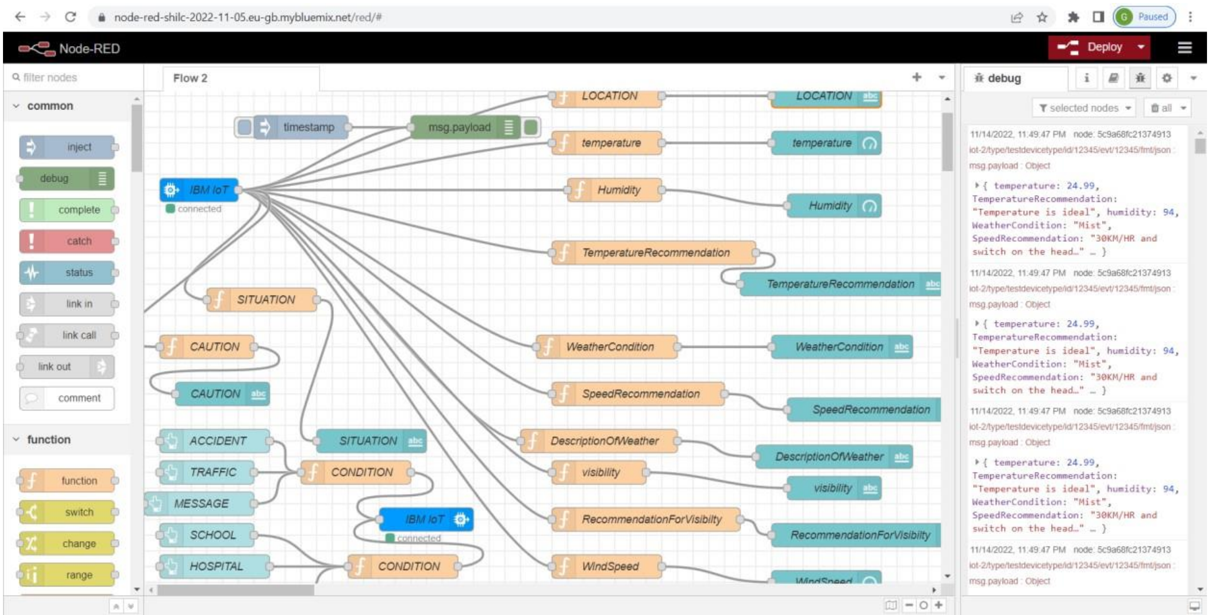
```
        RecommendationForVisibilty = "SPEED RECOMMENDATION :
30KM/HR and SWITCH ON THE HEAD LIGHT"
else:
        RecommendationForVisibilty = "visibility range is ideal for vechicles"


        #print("SPEED RECOMMENDATION : 30KM/HR and SWITCH ON
THE HEAD LIGHT")
    mydata={"temperature":temp,
"TemperatureRecommendation":TemperatureRecommendation,"humidity":hum
i,"WeatherCondition":main,"SpeedRecommendation":SpeedRecommendation
,"DescriptionOfWeather":description,"visibility":visibility,"RecommendationFo
rVisibilty":RecommendationForVisibilty,"WindSpeed":Windspeed,"LOCATIO
N":AREA}
    print(mydata)
client.publishEvent("12345","json",mydata)
client.commandCallback = myCommandCallback
```

OUTPUT RECEIVED WHEN THE INPUT WAS

RECEIVED FROM ROAD SAFETY OFFICE

THROUGH WEB UI

NODE RED INTERFACES :



WEB UI AFTER THE SPRINT PHASE 3: