

SPRINT 4 -USN 6

DATE	15– NOVEMBER-2022
TEAM ID	PNT2022TMID42266
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 OF 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": "vrpc8b",
        "typeId": "Ecedevice",    #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 WHEN 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("123456","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
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 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

```

```
rVisibility":RecommendationForVisibilty,"WindSpeed":Windspeed,"LOCATION":AREA}
```

```
print(mydata)
```

```
client.publishEvent("123456","json",mydata)
```

```
client.commandCallback = myCommandCallback
```

OUTPUT :

THE DATA RECEIVED FROM THE ROAD SAFETY OFFICE REGARDING TRAFFIC, ACCIDENT AND MESSAGE WAS RECEIVED IN PYTHON CODE

```
"IDLE Shell 3.9.6"
File Edit Shell Debug Options Window Help
{ "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: TRAFFIC
*****//PLEASE WAIT OR PREFER 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
```

