

DEVELOPE A PYTHON SCRIPT

DATE	17– 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 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": "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 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("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 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  
rVisibilty":RecommendationForVisibilty,"WindSpeed":Windspeed,"LOCATIO  
N":AREA }
```

```
print(mydata)
```

```
client.publishEvent("12345","json",mydata)
```

```
client.commandCallback = myCommandCallback
```

OUTPUT :

**THE DATA RECEIVED FROM THE ROAD SAFETY OFFICE
REGARDING SCHOOL, HOSPITAL AND RESTAUARANT WAS
RECEIVED IN PYTHON CODE**

(The URL given for open weather map is for location Chennai)

```

C:\Python390\Shell>
File Edit Shell Debug Options Window Help
Python 3.9.0 (tags/v3.9.0:9cf6752, Oct 5 2020, 15:34:40) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
2022-11-14 23:13:44.734 wiot.sdk.device.client.DeviceClient INFO Connected successfully: d:7f5hee:testdevicetype:12345
=====
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
=====
Message received from IBM IoT Platform: ACCIDENT
****//TAKE DIVERSION//****
Message received from IBM IoT Platform: ACCIDENT
****//TAKE DIVERSION//****
Message received from IBM IoT Platform: TRAFFIC({'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'})
****//PLEASE WAIT OR PREFER ANOTHER ROUTE//****
=====
Message received from IBM IoT Platform: MESSAGE
HAVE A NICE DAY!
Message received from IBM IoT Platform: HOSPITAL
HOSPITAL REGION DONT USE HORN
Message received from IBM IoT Platform: SCHOOL
SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR
Message received from IBM IoT Platform: RESTAURANT
CROWDED AREA PLEASE MAINTAIN SPEED LIMIT
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
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=====
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
=====
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
=====

```