DEVELPE A PYTHON SCRIPT

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 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": "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 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("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"):
```

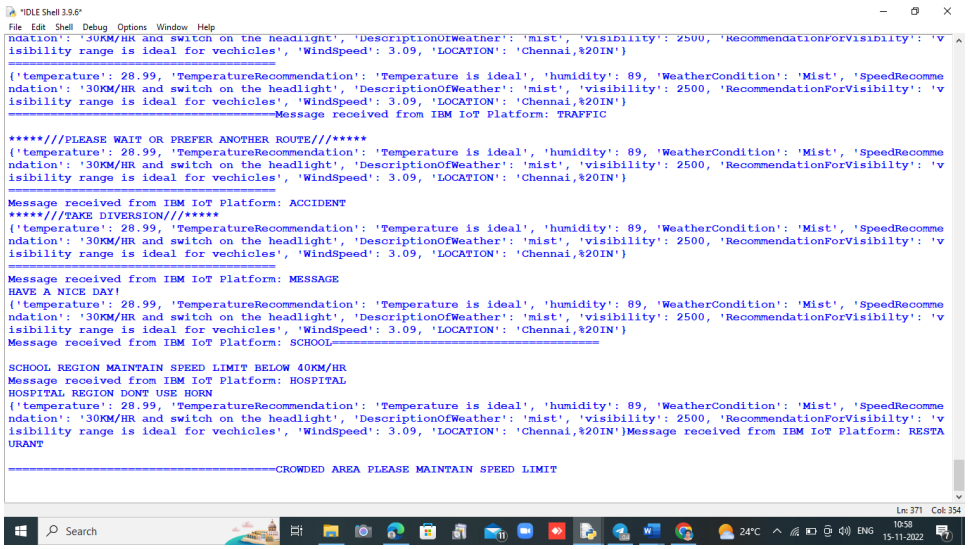
```
        SpeedRecommendation = "30KM/HR"
        #print("SPEED RECOMMENDATION : 30KM/HR")
    elif (main == "Mist"):
        SpeedRecommendation = "30KM/HR and switch on the headlight"
        #print("SPEED RECOMMENDATION : 30KM/HR and switch on the
Headlight")
    elif (main == "Thunderstorm"):
        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
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("123456","json",mydata)
```

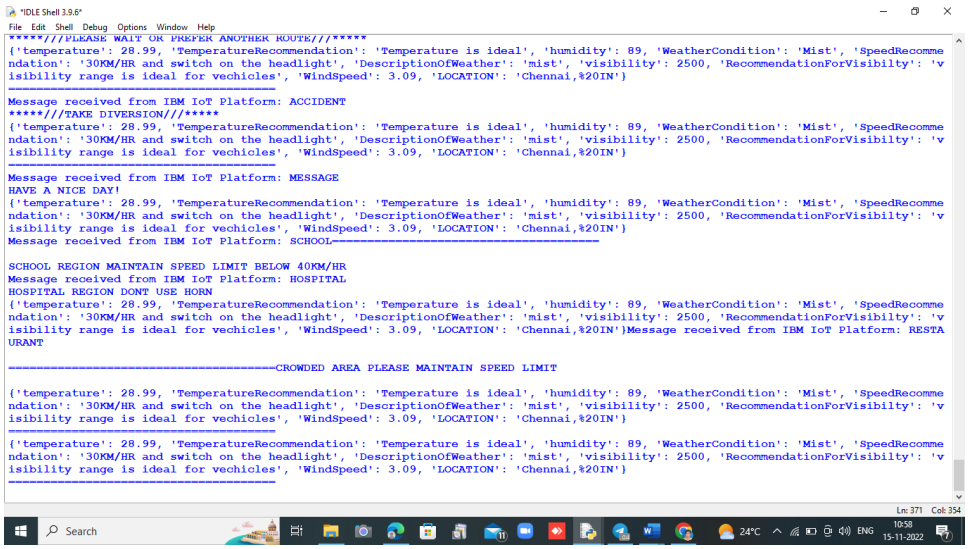
client.commandCallback = myCommandCallback

OUTPUT :

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

(The URL given for open weathermap is for location Chennai)




IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
*****///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, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', '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, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', '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, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', '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, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', '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, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', '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, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}

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15-11-2022