

Project Development Phase Sprint IV

Date	20 November 2022
Team ID	PNT2022TMID14814
Project Name	Project - Signs with smart connectivity for Better road safety

Code for print the random temperature, Road signs, Speed limit, Message:

(RandomValues.py)

```
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
    #Configuration
    "identity": {
        "orgId": "c3wgxI",
        "typeId": "ajai",
        "deviceId": "12345"
    },
    #API Key
    "auth": {
        "token": "123456789"
    }
}

#Receiving callbacks from IBM IOT platform
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
```

#OpenWeatherMap Credentials

BASE_URL = "https://api.openweathermap.org/data/2.5/weather?"

CITY = "Salem, IN"

URL = BASE_URL + "q=" + CITY + "&units=metric"&appid=" + "89be0f13dfa2290d36b53a07b5e6823e"

while True:

 response = requests.get(URL)

 if response.status_code == 200:

 data = response.json()

 main = data['main']

 temperature = main['temp']

 humidity = main['humidity']

 pressure = main['pressure']

 report = data['visibility']

 #messge part

 msg=random.randint(0,5)

 if msg==1:

 message="GO SLOW, SCHOOL ZONE AHEAD"

 elif msg==2:

 message="NEED HELP, POLICE STATION AHEAD"

 elif msg==3:

 message="EMERGENCY, HOSPITAL NEARBY"

 elif msg==4:

 message="DINE IN, RESTAURENT AVAILABLE"

 elif msg==5:

 message="PETROL BUNK NEARBY"

 else:

 message=""

 #Speed Limit part

 speed=random.randint(0,150)

 if speed>=100:

 speedMsg=" Limit Exceeded"

 elif speed>=60 and speed<100:

 speedMsg="Moderate"

 else:

 speedMsg="Slow"

 #Diversion part

 sign=random.randint(0,5)

 if sign==1:

 signMsg="Right Diversion"

 elif sign==2:

 signMsg="Speed Breaker"

 elif sign==3:

 signMsg="Left Diversion"

 elif sign==4:

 signmsg="U Turn"

 else:

 signMsg=""

 #Visibility

 if temperature < 24:

 visibility="Fog Ahead, Drive Slow"

 elif temperature < 20:

 visibility="Bad Weather"

 else:

 visibility="Clear Weather"

else:

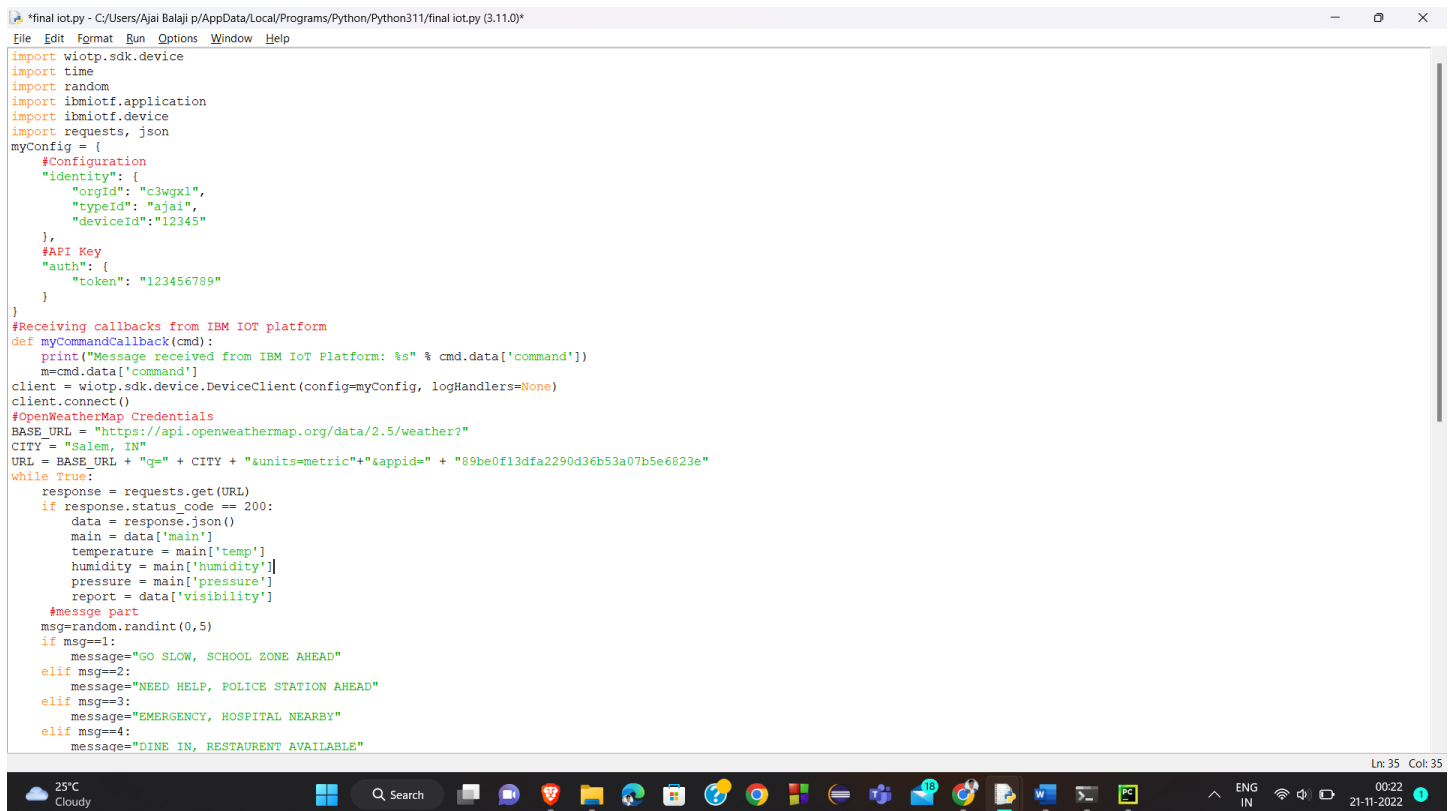
 print("Error in the HTTP request")

```

        myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg, 'Speed':speedMsg,
        'Visibility':visibility}
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
#PUBLISHING TO IOT WATSON
        print("Published data Successfully: ", myData)
        print("_____")
        _____")
        client.commandCallback = myCommandCallback
        time.sleep(5)
client.disconnect()

```

Python Simulation:



```

*final iot.py - C:/Users/Ajai Balaji p/AppData/Local/Programs/Python/Python311/final iot.py (3.11.0)*
File Edit Format Run Options Window Help
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json
myConfig = {
    #Configuration
    "identity": {
        "orgId": "c3wgx1",
        "typeId": "ajai",
        "deviceId": "12345"
    },
    #API Key
    "auth": {
        "token": "123456789"
    }
}
#Receiving callbacks from IBM IOT platform
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
#OpenWeatherMap Credentials
BASE_URL = "https://api.openweathermap.org/data/2.5/weather?"
CITY = "Salem, IN"
URL = BASE_URL + "q=" + CITY + "&units=metric"&appid=" + "89be0f13dfa2290d36b53a07b5e6823e"
while True:
    response = requests.get(URL)
    if response.status code == 200:
        data = response.json()
        main = data['main']
        temperature = main['temp']
        humidity = main['humidity']
        pressure = main['pressure']
        report = data['visibility']
    #message part
    msg=random.randint(0,5)
    if msg==1:
        message="GO SLOW, SCHOOL ZONE AHEAD"
    elif msg==2:
        message="NEED HELP, POLICE STATION AHEAD"
    elif msg==3:
        message="EMERGENCY, HOSPITAL NEARBY"
    elif msg==4:
        message="DINE IN, RESTAURENT AVAILABLE"

```

Import wiotp-sdk & ibmiotf:

```
Command Prompt
(c) Microsoft Corporation. All rights reserved.

C:\Users\Ajai Balaji p>pip install wiotp-sdk
Requirement already satisfied: wiotp-sdk in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (0.11.0)
Requirement already satisfied: requests>=2.21.0 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from wiotp-sdk) (2.28.1)
Requirement already satisfied: pyyaml>=3.13 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from wiotp-sdk) (6.0)
Requirement already satisfied: requests-toolbelt>=0.8.0 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from wiotp-sdk) (0.10.1)
Requirement already satisfied: pytz>=2018.9 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from wiotp-sdk) (2022.6)
Requirement already satisfied: iso8601>=0.1.12 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from wiotp-sdk) (1.1.0)
Requirement already satisfied: paho-mqtt>=1.5.0 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from wiotp-sdk) (1.6.1)
Requirement already satisfied: idna<4,>=2.5 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.21.0->wiotp-sdk) (3.4)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.21.0->wiotp-sdk) (2.1.1)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.21.0->wiotp-sdk) (2022.9.24)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.21.0->wiotp-sdk) (1.26.12)

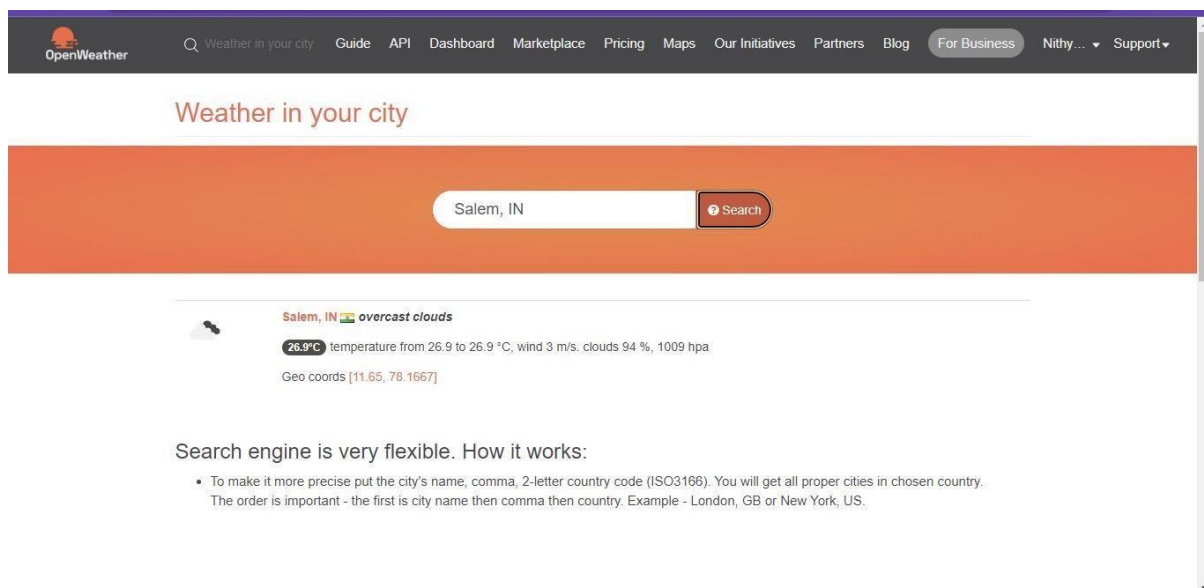
C:\Users\Ajai Balaji p>
```

```
Command Prompt
Microsoft Windows [Version 10.0.22621.819]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Ajai Balaji p>pip install ibmiotf
Requirement already satisfied: ibmiotf in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (0.4.0)
Requirement already satisfied: iso8601>=0.1.12 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from ibmiotf) (1.1.0)
Requirement already satisfied: pytz>=2017.3 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from ibmiotf) (2022.6)
Requirement already satisfied: paho-mqtt>=1.3.1 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from ibmiotf) (1.6.1)
Requirement already satisfied: requests>=2.18.4 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from ibmiotf) (2.28.1)
Requirement already satisfied: requests_toolbelt>=0.8.0 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from ibmiotf) (0.10.1)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.18.4->ibmiotf) (2022.9.24)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.18.4->ibmiotf) (1.26.12)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.18.4->ibmiotf) (2.1.1)
Requirement already satisfied: idna<4,>=2.5 in c:\users\ajai balaji p\appdata\local\packages\pythonsoftwarefoundation.python.3.10_qbz5n2kfra8p0\localcache\local-packages\python310\site-packages (from requests>=2.18.4->ibmiotf) (3.4)

C:\Users\Ajai Balaji p>
```

OpenWeatherMap (Ex., Salem, IN):



Python IDLE Output:

