SPRINT 2

**TOPIC : ** SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

TEAM ID: PNT2022 TMID06138

**DATE : ** 5 NOV 2022

SOFTWARE USED:

- Python
- IBM Watson IOT.

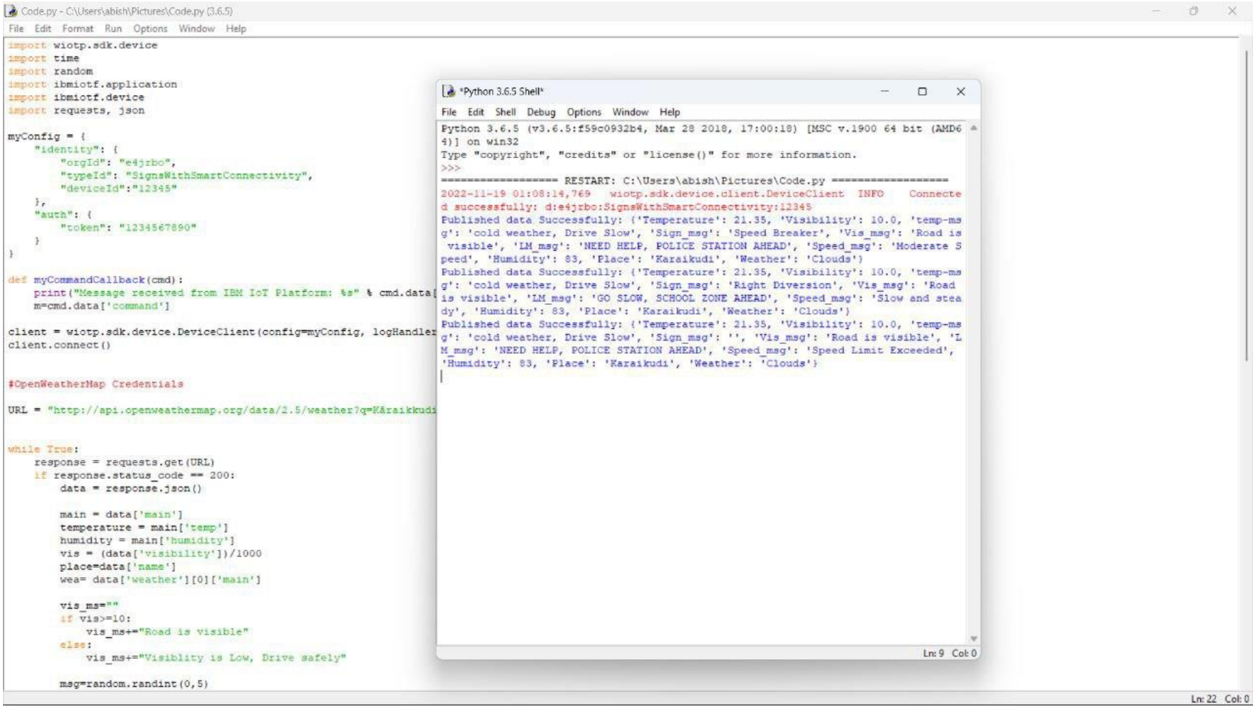
US 1: Developing a python script to communicate between open-weather API and IOT platform.

PYTHON CODE:

```
import wiotp.sdk.device

import time

import random

import ibmiotf.application

import ibmiotf.device

import requests, json


myConfig = {

    "identity": {

        "orgId": "e4jrbo",

        "typeId": "SignsWithSmartConnectivity",

        "deviceId":"12345"

    },
    "auth": {
        "token": "1234567890"
    }
}

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

URL = "http://api.openweathermap.org/data/2.5/weather?q=Kāraikkudi,IN&units=metric&appid=76e08ef85f6173baed5302d8d21a6d24"



while True:
    response = requests.get(URL)
    if response.status_code == 200:
        data = response.json()

        main = data['main']
        temperature = main['temp']
```

```
humidity = main['humidity']
vis = (data['visibility'])/1000
place=data['name']
wea= data['weather'][0]['main']

vis_ms=""
if vis>=10:
    vis_ms+="Road is visible"
else:
    vis_ms+="Visiblity is Low, Drive safely"

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=random.randint(0,150)
if speed>=100:
    speedMsg="Speed Limit Exceeded"
elif speed>=60 and speed<100:
    speedMsg="Moderate Speed"
else:
    speedMsg="Slow and steady"



if temperature < 24:
    visibility="cold weather, Drive Slow"
elif temperature < 20:
    visibility="Bad Weather, Be Careful"
else:
    visibility="Clear Weather, Safe Journey"



sign=random.randint(0,6)
if sign==1:
    signMsg="Right Diversion"
elif sign==2:
    signMsg="Speed Breaker"
elif sign==3:
    signMsg="Left Diversion"
elif sign==4:
    signmsg="U Turn"
elif sign==5:
    signMsg="Under Repair"
else:
```

```
            signMsg=""



        myData={'Temperature':temperature, 'Visibility':vis, 'temp-msg':visibility, 'Sign_msg':signMsg, 'Vis_msg':vis_ms, 'LM_msg':message, 'Speed_msg':speedMsg, 'Humidity':humidity, 'Place':place, 'Weather':wea}

        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)

        print("Published data Successfully:", myData)

        client.commandCallback = myCommandCallback

        time.sleep(2)

client.disconnect()
```


Code.py - C:\Users\abish\Pictures\Code.py (3.6.5)
File Edit Format Run Options Window Help
Ln: 22 Col: 0
Python 3.6.5 Shell
File Edit Shell Debug Options Window Help
Ln: 9 Col: 0

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

myConfig = {
    "identity": {
        "orgId": "e4jrbo",
        "typeId": "SignsWithSmartConnectivity",
        "deviceId":"12345"
    },
    "auth": {
        "token": "1234567890"
    }
}

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

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandler
client.connect()


#OpenWeatherMap Credentials

URL = "http://api.openweathermap.org/data/2.5/weather?q=Käraikkudi


while True:
    response = requests.get(URL)
    if response.status_code == 200:
        data = response.json()

        main = data['main']
        temperature = main['temp']
        humidity = main['humidity']
        vis = (data['visibility'])/1000
        place=data['name']
        wea= data['weather'][0]['main']

        vis_ms=""
        if vis>=10:
            vis_ms+="Road is visible"
        else:
            vis_ms+="Visiblity is Low, Drive safely"

        msg=random.randint(0,5)
```

```
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 17:00:18) [MSC v.1900 64 bit (AMD6
4)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
==================== RESTART: C:\Users\abish\Pictures\Code.py ====================
2022-11-19 01:08:14,769   wiotp.sdk.device.client.DeviceClient  INFO    Connecte
d successfully: d:e4jrbo:SignsWithSmartConnectivity:12345
Published data Successfully: {'Temperature': 21.35, 'Visibility': 10.0, 'temp-ms
g': 'cold weather, Drive Slow', 'Sign_msg': 'Speed Breaker', 'Vis_msg': 'Road is
 visible', 'LM_msg': 'NEED HELP, POLICE STATION AHEAD', 'Speed_msg': 'Moderate S
peed', 'Humidity': 83, 'Place': 'Karaikudi', 'Weather': 'Clouds'}
Published data Successfully: {'Temperature': 21.35, 'Visibility': 10.0, 'temp-ms
g': 'cold weather, Drive Slow', 'Sign_msg': 'Right Diversion', 'Vis_msg': 'Road
is visible', 'LM_msg': 'GO SLOW, SCHOOL ZONE AHEAD', 'Speed_msg': 'Slow and stea
dy', 'Humidity': 83, 'Place': 'Karaikudi', 'Weather': 'Clouds'}
Published data Successfully: {'Temperature': 21.35, 'Visibility': 10.0, 'temp-ms
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M_msg': 'NEED HELP, POLICE STATION AHEAD', 'Speed_msg': 'Speed Limit Exceeded',
'Humidity': 83, 'Place': 'Karaikudi', 'Weather': 'Clouds'}
```
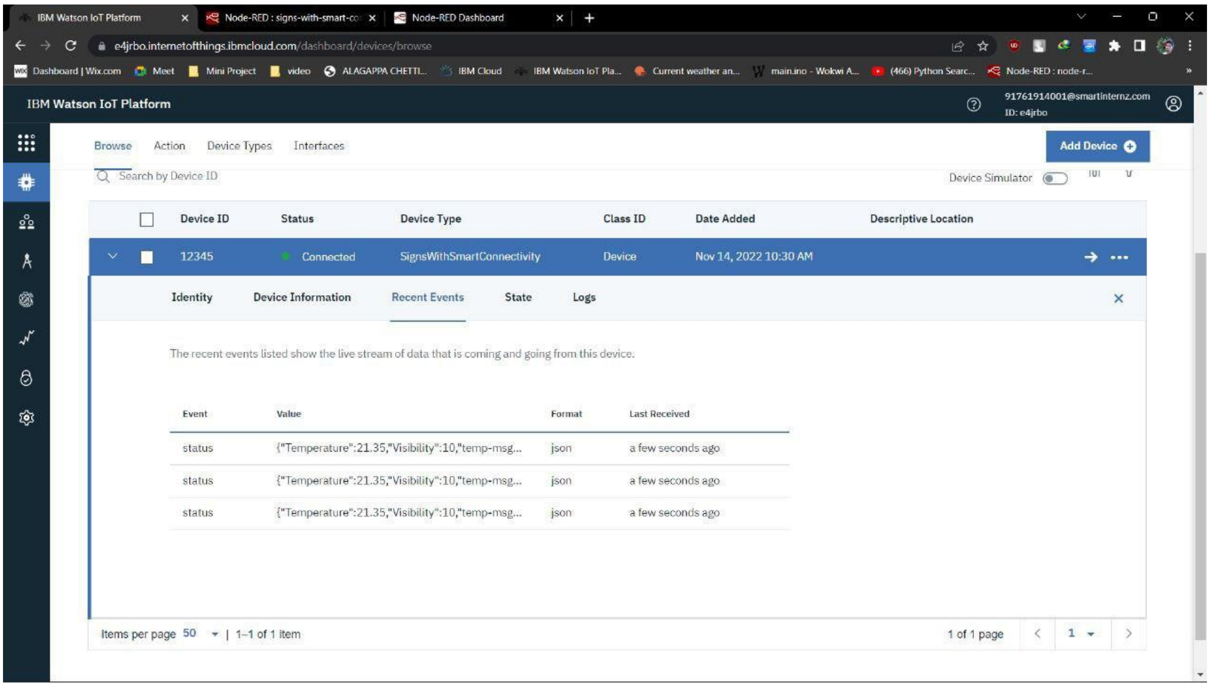

US 2: Getting data to IOT platform

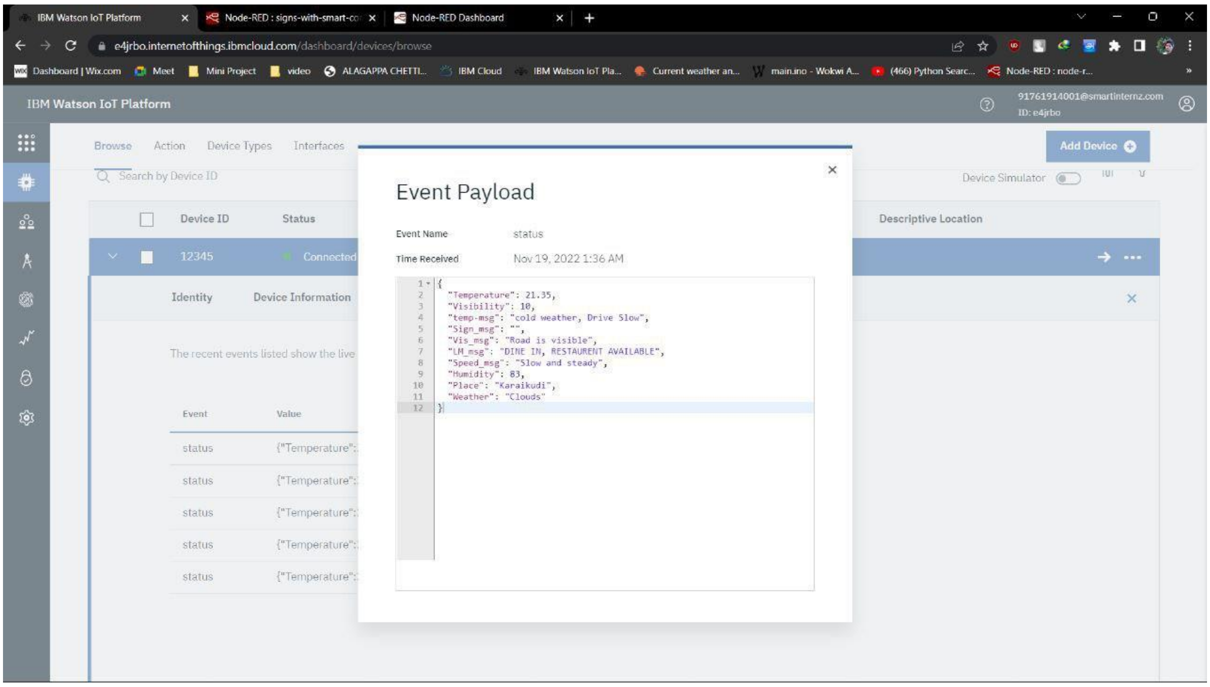


Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12345	Connected	SignsWithSmartConnectivity	Device	Nov 14, 2022 10:30 AM	

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status	{"Temperature":21.35,"Visibility":10,"temp-msg...	json	a few seconds ago
status	{"Temperature":21.35,"Visibility":10,"temp-msg...	json	a few seconds ago
status	{"Temperature":21.35,"Visibility":10,"temp-msg...	json	a few seconds ago

Items per page 50 | 1–1 of 1 item   1 of 1 page



Event Payload

Event Name status

Time Received Nov 19, 2022 1:36 AM

```
{
  "Temperature": 21.35,
  "Visibility": 10,
  "temp-msg": "cold weather, Drive Slow",
  "Sign_msg": "",
  "Vis_msg": "Road is visible",
  "LM_msg": "DINE IN, RESTAURENT AVAILABLE",
  "Speed_msg": "Slow and steady",
  "Humidity": 83,
  "Place": "Karaikudi",
  "Weather": "Clouds"
}
```