

# Project development

## Phase sprint-4

Team id	PNT2022TMID33212
Project name	Signs with smart connectivity for better road safety

**Code for (random temperature,road signs , speed limit , message):**

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

myConfig = {
    #Configuration
    "identity": {
        "orgId": "o3esl6",
        "typeId": "HAYAN24",
        "deviceId": "HAYAN24id"
    },
    #API Key
    "auth": {
        "token": "hayanthika2411"
    }
}
```

#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 = "Dindigul, IN"
```

```
URL = BASE_URL + "q=" + CITY + "&units=metric"&"&appid=" + "f58e4720c739a54c439aba9b05176839"
```

```
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:

```
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": "o3es16",
        "typeId": "HAYAN24",
        "deviceId": "HAYAN24id"
    },
    #API Key
    "auth": {
        "token": "hayanthika2411"
    }
}
#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 = "Dindigul, IN"
URL = BASE_URL + "q=" + CITY + "&units=metric"&appid=" + "f58e4720c739a54c439aba9b05176835"

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)
        #send msg to IBM IOT platform
```

## Import wiotp-sdk and ibm iot :

```
Microsoft Windows [Version 10.0.19044.2251]
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C:\Users\HP\AppData\Local\Programs\Python\Python37\Scripts>pip install wiotp-sdk
Collecting wiotp-sdk
  Downloading wiotp-sdk-0.11.0.tar.gz (96 kB)
    ----- 96.2/96.2 kB 239.4 kB/s eta 0:00:00
  Preparing metadata (setup.py) ... done
Requirement already satisfied: iso8601>=0.1.12 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from wiotp-sdk) (1.1.0)
Requirement already satisfied: pytz>=2018.9 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from wiotp-sdk) (2022.6)
Collecting pyyaml>=3.13
  Downloading PyYAML-6.0-cp37-cp37m-win_amd64.whl (153 kB)
    ----- 153.2/153.2 kB 915.1 kB/s eta 0:00:00
Requirement already satisfied: paho-mqtt>=1.5.0 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from wiotp-sdk) (1.6.1)
Requirement already satisfied: requests>=2.21.0 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from wiotp-sdk) (2.28.1)
Requirement already satisfied: requests-toolbelt>=0.8.0 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from wiotp-sdk) (0.10.1)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.21.0->wiotp-sdk) (1.26.12)
Requirement already satisfied: idna<4,>=2.5 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.21.0->wiotp-sdk) (3.4)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.21.0->wiotp-sdk) (2022.9.24)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.21.0->wiotp-sdk) (2.1.1)
Installing collected packages: pyyaml, wiotp-sdk
  DEPRECATION: wiotp-sdk is being installed using the legacy 'setup.py install' method, because it does not have a 'pyproject.toml' and the 'wheel' package is not installed. pip 23.1 will enforce this behaviour change. A possible replacement is to enable the '--use-pep517' option. Discussion can be found at https://github.com/pypa/pip/issues/8559
  Running setup.py install for wiotp-sdk ... done
Successfully installed pyyaml-6.0 wiotp-sdk-0.11.0

C:\Users\HP\AppData\Local\Programs\Python\Python37\Scripts>
```

```


Microsoft Windows [Version 10.0.19044.2251]
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:\Users\HP\AppData\Local\Programs\Python\Python37\Scripts>pip install ibmiotf
Requirement already satisfied: ibmiotf in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (0.4.0)
Requirement already satisfied: iso8601>=0.1.12 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from ibmiotf) (1.1.0)
Requirement already satisfied: pytz>=2017.3 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from ibmiotf) (2022.6)
Requirement already satisfied: paho-mqtt>=1.3.1 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from ibmiotf) (1.6.1)
Requirement already satisfied: requests>=2.18.4 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from ibmiotf) (2.28.1)
Requirement already satisfied: requests-toolbelt>=0.8.0 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from ibmiotf) (0.10.1)
Requirement already satisfied: idna<4,>=2.5 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.18.4->ibmiotf) (3.4)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.18.4->ibmiotf) (2.1.1)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.18.4->ibmiotf) (1.26.12)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\hp\appdata\local\programs\python\python37\lib\site-packages (from requests>=2.18.4->ibmiotf) (2022.9.24)

:\Users\HP\AppData\Local\Programs\Python\Python37\Scripts>


```

## OpenWeatherMap – (Ex : Dindigul,IN):



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### Weather in your city



Dindigul, IN broken clouds


**27.5°C** Temperature from 27.5 to 27.5 °C, wind 2.39 m/s, clouds 58 %, 1010 hpa


Geo coords [10 35, 77 95]


Search engine is very flexible. How it works:

- To make it more precise put the city's name, comma, 2-letter country code (ISO3166). You will get all proper cities in chosen country. The order is important - the first is city name then comma then country. Example - London, GB or New York, US.

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## Python IDLE Output:



```
Python 3.6.5 Shell
File Edit Shell Debug Options Window Help

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Speed Breaker', 'Speed': 'Limit Exceeded', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'GO SLOW, SCHOOL / COLLEGE ZONE AHEAD', 'Sign': 'Right Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'PETROL BUNK NEARBY', 'Sign': 'Speed Breaker', 'Speed': 'Limit Exceeded', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Speed Breaker', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': '', 'Sign': '', 'Speed': 'Limit Exceeded', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'NEED HELP, POLICE STATION AHEAD', 'Sign': 'Left Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}

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```