

## DEVELOP THE PYTHON CODE

Date	18 NOVEMBER 2022
Team ID	PNT2022TMID11119
Project Name	Smart farmer-IOT enabled smart Farming Application

### Python Code:

```
#IBM Watson IOT Platform
```

```
#pip install wiotp-sdk
```

```
import wiotp.sdk.device
```

```
import time
```

```
import random
```

```
import requests, json
```

```
ms=0
```

```
api_key = "a0db30a689a774b93ffcb58ef2eddfda"
```

```
base_url = "http://api.openweathermap.org/data/2.5/weather?"
```

```
city_name = 'Chennai, IN'
```

```
complete_url = base_url + "appid=" + api_key + "&q=" + city_name
```

```
status='motor off'
```

```
myConfig = {
```

```
    "identity": {
```

```
        "orgId": "17lsro",
```

```
    "typeId": "MyDeviceType",
```

```
    "deviceId": "12345"
```

```

    },
    "auth": {
        "token": "GkatKdiUS?UVHKvnAD"
    }
}

```

```

def myCommandCallback(cmd):

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

    m=cmd.data['command']

    if(m=="MOTOR ON"):

        print("MOTOR IS ON")

        global status

        status='motor on'

        myData={'temperature':temp,
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api
_weather_description':api_weather_description}

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

        print("Published data Successfully: %s", myData)

        time.sleep(2)

    elif(m=="MOTOR OFF"):

        print("MOTOR IS OFF")

```

```
status='motor off'
```

```
myData={'temperature':temp,  
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':  
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api_  
_weather_description':api_weather_description}
```

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

```
print("Published data Successfully: %s", myData)
```

```
time.sleep(2)
```

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

```
while True:
```

```
    response = requests.get(complete_url)
```

```
    x = response.json()
```

```
    if x["cod"] != "404":
```

```
        y = x["main"]
```

```
        api_temperature = y["temp"]
```

```
api_pressure = y["pressure"]
```

```
api_humidity = y["humidity"]
```

```
z = x["weather"]
```

```
api_weather_description = z[0]["description"]
```

```
temp=random.randint(-20,125)
```

```
hum=random.randint(0,100)
```

```
soilmoisture=random.randint(0,1023)#analog sensor
```

```
sm_percentage=(soilmoisture/1023)*100
```

```
sm_percentage=int(sm_percentage)
```

```
myData={'temperature':temp,  
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':  
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api_  
_weather_description':api_weather_description}
```

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

```
print("Published data Successfully: %s", myData)
```

```
client.commandCallback = myCommandCallback
```

```
time.sleep(2)
```

time.sleep(2) client.disconnect()

```
api python mit app.py - C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -1\api python mit app.py (3.8.10)
File Edit Format Run Options Window Help
#IBM Watson IoT Platform
#pip install wiotp-sdk
import wiotp.sdk.device
import time
import random
import requests, json

ms=0
api_key = "a0db30a689a774b93ffcb58ef2eddfda"

base_url = "http://api.openweathermap.org/data/2.5/weather?"

city_name = 'Chennai, IN'

complete_url = base_url + "appid=" + api_key + "&q=" + city_name

status='motor off'
myConfig = {
    "identity": {
        "orgId": "17lsro",
        "typeId": "MyDeviceType",
        "deviceId": "12345"
    },
    "auth": {
        "token": "GkatKdiUS?UVHKvnAD"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
    if (m=="MOTOR ON"):
        print("MOTOR IS ON")
        global status
        status='motor on'
        myData={'temperature':temp, 'humidity':hum, 'soilmoisture':sm_percentage, 'status':status, 'api_temperature':api_temperature, 'api_pressure':api_pressure}
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
        print("Published data Successfully: %s", myData)

        time.sleep(2)

    #if (m=="MOTOR OFF"):
    #    print("MOTOR IS OFF")
    #    global status
    #    status='motor off'
    #    myData={'temperature':temp, 'humidity':hum, 'soilmoisture':sm_percentage, 'status':status, 'api_temperature':api_temperature, 'api_pressure':api_pressure}
    #    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    #    print("Published data Successfully: %s", myData)
    #    time.sleep(2)

Ln: 14 Col: 0
```

```
api python mit app.py - C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -1\api python mit app.py (3.8.10)
File Edit Format Run Options Window Help

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

while True:
    response = requests.get(complete_url)
    x = response.json()
    if x["cod"] != "404":

        y = x["main"]

        api_temperature = y["temp"]

        api_pressure = y["pressure"]

        api_humidity = y["humidity"]

        z = x["weather"]

        api_weather_description = z[0]["description"]

        temp=random.randint(-20,125)
        hum=random.randint(0,100)
        soilmoisture=random.randint(0,1023)#analog sensor
        sm_percentage=(soilmoisture/1023)*100
        sm_percentage=int(sm_percentage)
        myData={'temperature':temp, 'humidity':hum, 'soilmoisture':sm_percentage, 'status':status, 'api_temperature':api_temperature, 'api_pressure':api_pressure, 'api_weather_description':api_weather_description}
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
        print("Published data Successfully: %s", myData)
        client.commandCallback = myCommandCallback
        time.sleep(2)

time.sleep(2)
client.disconnect()

Ln: 15 Col: 0
```

## Running of Python Code:

```
IDLE Shell 3.8.10*
File Edit Shell Debug Options Window Help
Python 3.8.10 (tags/v3.8.10:3d8993a, May 3 2021, 11:48:03) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
~ RESTART: C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -1\api python mit app.py
2022-11-13 10:02:58,056 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:\7lsro:MyDeviceType:12345
Published data Successfully: %s {'temperature': 122, 'humidity': 88, 'soilmoisture': 11, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 1
014, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': -17, 'humidity': 4, 'soilmoisture': 97, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 29, 'humidity': 36, 'soilmoisture': 96, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 81, 'humidity': 68, 'soilmoisture': 90, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 10, 'humidity': 4, 'soilmoisture': 3, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 1014
, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 32, 'humidity': 53, 'soilmoisture': 35, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': -17, 'humidity': 99, 'soilmoisture': 81, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 1
014, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 116, 'humidity': 58, 'soilmoisture': 52, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 1
014, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 21, 'humidity': 4, 'soilmoisture': 77, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 101
4, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}

~ RESTART: C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -1\api python mit app.py
2022-11-13 10:03:19,663 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:\7lsro:MyDeviceType:12345
Published data Successfully: %s {'temperature': 59, 'humidity': 13, 'soilmoisture': 36, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': -20, 'humidity': 40, 'soilmoisture': 54, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 1
014, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': -9, 'humidity': 74, 'soilmoisture': 24, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 27, 'humidity': 96, 'soilmoisture': 17, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 18, 'humidity': 76, 'soilmoisture': 96, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 28, 'humidity': 69, 'soilmoisture': 94, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 10
14, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}
Published data Successfully: %s {'temperature': 6, 'humidity': 72, 'soilmoisture': 98, 'status': 'motor off', 'api_temperature': 298.14, 'api_pressure': 101
4, 'api_humidity': 94, 'api_weather_description': 'light intensity drizzle'}

Ln: 17 Col: 0
```