

DEVELOP A PYTHON CODE

DATE	14 November 2022
TEAM ID	PNT2022TMID52158
PROJECT NAME	Smart Farmer - IoT Enabled Smart Farming Application

PYTHON CODE:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "w9kxol"
deviceType = "123"
deviceId = "1234"
authMethod = "token"
authToken = "987654321"

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="lighton":
        print ("led is on")
    elif status == "lightoff":
        print ("led is off")
    else :
        print ("please send proper command")

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-
method": authMethod, "auth-token": authToken}
    deviceCli = ibmiotf.device.Client(deviceOptions)
    #.....

except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()
```

```
# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type
"greeting" 10 times
deviceCli.connect()
```

```
while True:
```

```
    #Get Sensor Data from DHT11
```

```
    temp=random.randint(90,110)
```

```
    Humid=random.randint(60,100)
```

```
    data = { 'temp' : temp, 'Humid': Humid }
```

```
    #print data
```

```
    def myOnPublishCallback():
```

```
        print ("Published Temperature = %s C" % temp, "Humidity = %s %" % Humid, "to
IBM Watson")
```

```
        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
```

```
        if not success:
```

```
            print("Not connected to IoT")
```

```
            time.sleep(10)
```

```
        deviceCli.commandCallback = myCommandCallback
```

```
# Disconnect the device and application from the cloud
```

```
deviceCli.disconnect()
```

OUT PUT:

```
4444.py - C:\Users\Benedict\AppData\Local\Programs\Python\Python37\4444.py (3.7.0)
File Edit Format Run Options Window Help

import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "w9kxol"
deviceType = "123"
deviceId = "1234"
authMethod = "token"
authToken = "987654321"

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="lighton":
        print ("led is on")
    elif status == "lightoff":
        print ("led is off")
    else :
        print ("please send proper command")

try:
    deviceOptions = {"org": organization, "type": deviceType}
    deviceCli = ibmiotf.device.Client(deviceOptions)
    #.....

except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()
```

```
Python 3.7.0 Shell
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
== RESTART: C:/Users/Benedict/AppData/Local/Programs/Python/Python37/4444.py ==
2022-11-13 23:34:40,838 ibmiotf.device.Client INFO Connected successfully: d:w9kxol:123:1234
Published Temperature = 108 C Humidity = 94 % to IBM Watson
Published Temperature = 94 C Humidity = 61 % to IBM Watson
Published Temperature = 92 C Humidity = 71 % to IBM Watson
Published Temperature = 94 C Humidity = 81 % to IBM Watson
Published Temperature = 108 C Humidity = 69 % to IBM Watson
Published Temperature = 103 C Humidity = 97 % to IBM Watson
Published Temperature = 108 C Humidity = 66 % to IBM Watson
Published Temperature = 103 C Humidity = 67 % to IBM Watson
Published Temperature = 95 C Humidity = 96 % to IBM Watson
Published Temperature = 109 C Humidity = 63 % to IBM Watson
Published Temperature = 91 C Humidity = 89 % to IBM Watson
Published Temperature = 109 C Humidity = 100 % to IBM Watson
Published Temperature = 106 C Humidity = 79 % to IBM Watson
Published Temperature = 90 C Humidity = 92 % to IBM Watson
Published Temperature = 101 C Humidity = 75 % to IBM Watson
Published Temperature = 101 C Humidity = 100 % to IBM Watson
Published Temperature = 102 C Humidity = 100 % to IBM Watson
Published Temperature = 92 C Humidity = 80 % to IBM Watson
Published Temperature = 104 C Humidity = 62 % to IBM Watson
Published Temperature = 99 C Humidity = 61 % to IBM Watson
Published Temperature = 99 C Humidity = 78 % to IBM Watson
Published Temperature = 106 C Humidity = 80 % to IBM Watson
Published Temperature = 104 C Humidity = 79 % to IBM Watson
Published Temperature = 98 C Humidity = 62 % to IBM Watson
Published Temperature = 98 C Humidity = 88 % to IBM Watson
Published Temperature = 98 C Humidity = 92 % to IBM Watson
Published Temperature = 93 C Humidity = 68 % to IBM Watson
```

GETTING THE VALUES IN IBM IOT PLATFORM:

The screenshot displays the IBM Watson IoT Platform dashboard. The top navigation bar includes tabs for 'Browse', 'Action', 'Device Types', and 'Interfaces'. A user profile is visible in the top right corner with the email '962919104005@emartinternz.com' and ID 'w9kxol'.

The main content area shows a list of devices. Two devices are listed:

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
123	Disconnected	raspberrypi	Device	Nov 5, 2022 10:34 PM	
1234	Disconnected	123	Device	Nov 6, 2022 6:11 PM	

The device with ID 1234 is selected, and its details are shown in a modal window. The modal has tabs for 'Identity', 'Device Information', 'Recent Events', 'State', and 'Logs'. The 'Recent Events' tab is active, displaying a table of recent events:

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

Event	Value	Format	Last Received
IoTSensor	{"temp":109,"Humid":75}	json	a few seconds ago
IoTSensor	{"temp":95,"Humid":89}	json	a few seconds ago
IoTSensor	{"temp":101,"Humid":75}	json	a few seconds ago
IoTSensor	{"temp":100,"Humid":68}	json	a few seconds ago
IoTSensor	{"temp":107,"Humid":85}	json	a few seconds ago

The bottom of the image shows a Windows taskbar with the search bar, task view button, and several application icons. The system tray on the right indicates a temperature of 24°C, cloudy weather, and the time 11:44 PM on 13-11-2022.