

SPRINT – 1 DELIVERY

Team ID	PNT2022TMID47191
Project Name	Real-Time River Water Quality Monitoring and Control System

PYTHON PROGRAM:-

```
import time import sys
import ibmiotf.application
```

```
import ibmiotf.device import
random
```

#Provide your IBM Watson Device

```
Credentials organization = "7wqirt" deviceType
= "raspberrypi" deviceId = "12345" authMethod
= "token" authToken = "123456789"
```

```
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 random value function

```
temp=random.randint(0,50) ph=random.uniform(0.0,14.0)
```

```
turb=random.uniform(0.0,3.0)
```

```
data1={'temp':temp,'ph':ph,'turb':turb,'str1':"Not safe to drink"}
```

```
data2={'temp':temp,'ph':ph,'turb':turb,'str2':"safe to drink"}
```

#print data

```
def myOnPublishCallback():
```

```
    print ("Published Temperature = %s C" % temp,"Ph = %.1f " % ph,"Turbidity = %.1f  
NTU" % turb, "to IBM Watson")
```

```
    if((temp > 6 and temp < 20) and (ph > 6.5 and ph < 8.5) and turb < 1):
```

```
        print(data2) else:
```

```
        print(data1)
```

```
    success = deviceCli.publishEvent("IoTSensor", "json", data1 or data2, qos=2,  
on_publish=myOnPublishCallback)
```

if not success:

print("Not connected to IoTF")

time.sleep(20)

Disconnect the device and application from the cloud

deviceCli.disconnect()

OUTPUT:

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
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\Arun Prasad V\AppData\Local\Programs\Python\Python37\y.py ==
2022-11-08 14:44:32.006 IBMiotf.device.client INFO Connected successfully: d:7wqirt:raspberrypi:12345
Published Temperature = 25 C Ph = 4.0 Turbidity = 1.7 NTU to IBM Watson
('temp': 25, 'ph': 4.008843170620842, 'turb': 1.6685171546617292, 'str1': 'Not safe to drink')
Published Temperature = 13 C Ph = 12.9 Turbidity = 2.0 NTU to IBM Watson
('temp': 13, 'ph': 12.910709067311084, 'turb': 1.9896687105621376, 'str1': 'Not safe to drink')
Published Temperature = 17 C Ph = 7.3 Turbidity = 1.6 NTU to IBM Watson
('temp': 17, 'ph': 7.279174028321403, 'turb': 1.5744146656831783, 'str1': 'Not safe to drink')
Published Temperature = 17 C Ph = 8.8 Turbidity = 2.9 NTU to IBM Watson
('temp': 17, 'ph': 8.772369156413223, 'turb': 2.9057665782375413, 'str1': 'Not safe to drink')
Published Temperature = 28 C Ph = 8.3 Turbidity = 0.1 NTU to IBM Watson
('temp': 28, 'ph': 8.294675872542246, 'turb': 0.06379099776931008, 'str1': 'Not safe to drink')
Published Temperature = 25 C Ph = 5.1 Turbidity = 1.5 NTU to IBM Watson
('temp': 25, 'ph': 5.146384012439278, 'turb': 1.548283925486118, 'str1': 'Not safe to drink')
Published Temperature = 12 C Ph = 12.9 Turbidity = 0.0 NTU to IBM Watson
('temp': 12, 'ph': 12.902129206936976, 'turb': 0.030282886309795698, 'str1': 'Not safe to drink')
Published Temperature = 4 C Ph = 5.4 Turbidity = 2.2 NTU to IBM Watson
('temp': 4, 'ph': 5.430311325053765, 'turb': 2.1574300292791415, 'str1': 'Not safe to drink')
Published Temperature = 16 C Ph = 2.6 Turbidity = 0.2 NTU to IBM Watson
('temp': 16, 'ph': 2.622234024889428, 'turb': 0.18176557662345472, 'str1': 'Not safe to drink')
Published Temperature = 34 C Ph = 0.5 Turbidity = 2.0 NTU to IBM Watson
('temp': 34, 'ph': 0.49396959041823085, 'turb': 2.0157767911790003, 'str1': 'Not safe to drink')
Published Temperature = 36 C Ph = 1.0 Turbidity = 0.1 NTU to IBM Watson
('temp': 36, 'ph': 1.0381425820719237, 'turb': 0.0649364727948285, 'str1': 'Not safe to drink')
Published Temperature = 31 C Ph = 8.3 Turbidity = 0.8 NTU to IBM Watson
('temp': 31, 'ph': 8.284073625903849, 'turb': 0.8495317624711473, 'str1': 'Not safe to drink')
Published Temperature = 10 C Ph = 12.4 Turbidity = 2.0 NTU to IBM Watson
('temp': 10, 'ph': 12.367262128319883, 'turb': 1.9584053699954844, 'str1': 'Not safe to drink')
Published Temperature = 37 C Ph = 13.5 Turbidity = 2.1 NTU to IBM Watson
('temp': 37, 'ph': 13.53131155593934, 'turb': 2.1400948816251875, 'str1': 'Not safe to drink')
Published Temperature = 7 C Ph = 1.6 Turbidity = 2.3 NTU to IBM Watson
('temp': 7, 'ph': 1.592304061664799, 'turb': 2.2840994637464496, 'str1': 'Not safe to drink')
Published Temperature = 41 C Ph = 0.4 Turbidity = 3.0 NTU to IBM Watson
('temp': 41, 'ph': 0.4150817548826986, 'turb': 2.9856398854956274, 'str1': 'Not safe to drink')
Published Temperature = 16 C Ph = 8.2 Turbidity = 2.2 NTU to IBM Watson
('temp': 16, 'ph': 8.184804636562617, 'turb': 2.230496403767554, 'str1': 'Not safe to drink')
Published Temperature = 29 C Ph = 7.2 Turbidity = 0.8 NTU to IBM Watson
('temp': 29, 'ph': 7.206629020560021, 'turb': 0.8352702291587533, 'str1': 'Not safe to drink')
Published Temperature = 36 C Ph = 5.6 Turbidity = 1.0 NTU to IBM Watson
('temp': 36, 'ph': 5.618917513274784, 'turb': 0.9665483324196, 'str1': 'Not safe to drink')
Published Temperature = 31 C Ph = 13.6 Turbidity = 1.3 NTU to IBM Watson
('temp': 31, 'ph': 13.572113369709404, 'turb': 1.260962847501804, 'str1': 'Not safe to drink')
Published Temperature = 7 C Ph = 7.4 Turbidity = 2.0 NTU to IBM Watson
('temp': 7, 'ph': 7.351907317079302, 'turb': 1.9859643917718763, 'str1': 'Not safe to drink')
```