

PYTHON SCRIPT TO MONITOR TEMPERATURE, PH, TURBIDITY IN RIVER **WATER**

PROGRAM:

```
import time

import sys

import ibmiotf.application
import ibmiotf.device

import random


#provide Your IBM Watson Device Credentials

organization = "m89nt2"

deviceType = "arduino"

deviceId = "123"

authMethod = "token"

authToken ="87654321"


#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}
```

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```
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" info the cloud as an event of
# type"greetings"10 times
deviceCli.connect()

while True:

    #Get sensor Data from DHT11

    temp=random.randint(90,110)

    pH=random.randint(0,14)

    turbidity=random.randint(0,100)

    data = { 'Temperature' : temp, 'pH': pH, 'Turbidity':turbidity }

    #print data

    def myOnPublishCallback():

        print ("published Temperature = %s C" % temp, "pH = is %s %" % pH, "Turbidity= is
        %s %" % turbidity,"to IBM Watson")

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

    if not success:

        print("Not connected to IOTF")

    time.sleep(10)
```

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```
deviceCli.commandCallback = myCommandCallback
```

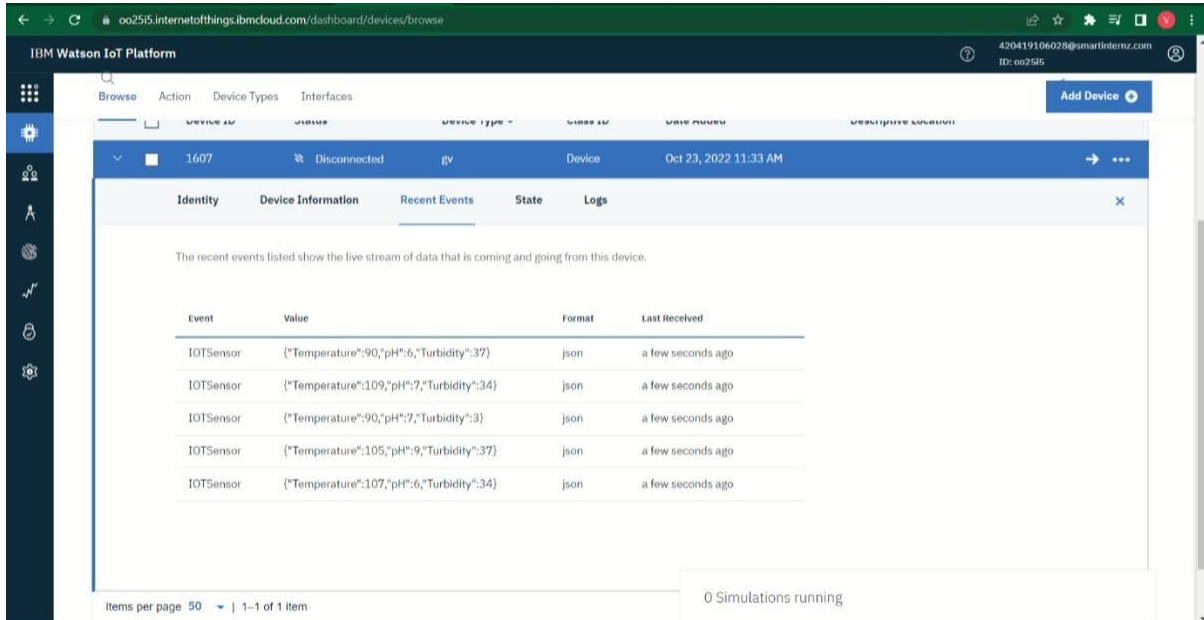
```
deviceCli.disconnect()
```

OUTPUT:

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (tags/v3.7.0:1bf5cc5093, 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/vaishnavi/AppData/Local/Programs/python/python37/python_script.py
2022-11-05 19:59:06.719 IBMiot.DeviceClient INFO Connected successfully: d:002515:gv:1607
published Temperature = 90 C pH = is 7 % Turbidity= is 2 % to IBM Watson
published Temperature = 100 C pH = is 6 % Turbidity= is 17 % to IBM Watson
published Temperature = 95 C pH = is 3 % Turbidity= is 66 % to IBM Watson
published Temperature = 100 C pH = is 9 % Turbidity= is 93 % to IBM Watson
published Temperature = 95 C pH = is 4 % Turbidity= is 34 % to IBM Watson
published Temperature = 92 C pH = is 1 % Turbidity= is 27 % to IBM Watson
published Temperature = 104 C pH = is 2 % Turbidity= is 18 % to IBM Watson
published Temperature = 102 C pH = is 9 % Turbidity= is 38 % to IBM Watson
published Temperature = 94 C pH = is 10 % Turbidity= is 74 % to IBM Watson
published Temperature = 94 C pH = is 5 % Turbidity= is 71 % to IBM Watson
published Temperature = 102 C pH = is 12 % Turbidity= is 100 % to IBM Watson
published Temperature = 91 C pH = is 12 % Turbidity= is 72 % to IBM Watson
published Temperature = 92 C pH = is 0 % Turbidity= is 71 % to IBM Watson
published Temperature = 99 C pH = is 10 % Turbidity= is 31 % to IBM Watson
published Temperature = 106 C pH = is 4 % Turbidity= is 17 % to IBM Watson
published Temperature = 109 C pH = is 0 % Turbidity= is 22 % to IBM Watson
published Temperature = 102 C pH = is 8 % Turbidity= is 20 % to IBM Watson
published Temperature = 90 C pH = is 1 % Turbidity= is 87 % to IBM Watson
published Temperature = 93 C pH = is 9 % Turbidity= is 56 % to IBM Watson
published Temperature = 107 C pH = is 14 % Turbidity= is 73 % to IBM Watson
published Temperature = 98 C pH = is 0 % Turbidity= is 28 % to IBM Watson
published Temperature = 101 C pH = is 11 % Turbidity= is 22 % to IBM Watson
published Temperature = 100 C pH = is 0 % Turbidity= is 90 % to IBM Watson
published Temperature = 90 C pH = is 8 % Turbidity= is 37 % to IBM Watson
published Temperature = 104 C pH = is 9 % Turbidity= is 52 % to IBM Watson
published Temperature = 103 C pH = is 2 % Turbidity= is 88 % to IBM Watson
published Temperature = 102 C pH = is 0 % Turbidity= is 60 % to IBM Watson
published Temperature = 98 C pH = is 4 % Turbidity= is 1 % to IBM Watson
published Temperature = 97 C pH = is 10 % Turbidity= is 58 % to IBM Watson
published Temperature = 101 C pH = is 3 % Turbidity= is 66 % to IBM Watson
published Temperature = 107 C pH = is 6 % Turbidity= is 44 % to IBM Watson
published Temperature = 109 C pH = is 11 % Turbidity= is 47 % to IBM Watson
published Temperature = 102 C pH = is 14 % Turbidity= is 32 % to IBM Watson
published Temperature = 90 C pH = is 10 % Turbidity= is 26 % to IBM Watson
published Temperature = 91 C pH = is 11 % Turbidity= is 77 % to IBM Watson
published Temperature = 96 C pH = is 12 % Turbidity= is 86 % to IBM Watson
published Temperature = 95 C pH = is 6 % Turbidity= is 20 % to IBM Watson
published Temperature = 92 C pH = is 0 % Turbidity= is 51 % to IBM Watson
published Temperature = 95 C pH = is 3 % Turbidity= is 70 % to IBM Watson
published Temperature = 104 C pH = is 11 % Turbidity= is 98 % to IBM Watson
published Temperature = 91 C pH = is 8 % Turbidity= is 39 % to IBM Watson
published Temperature = 103 C pH = is 1 % Turbidity= is 99 % to IBM Watson
published Temperature = 101 C pH = is 6 % Turbidity= is 56 % to IBM Watson
published Temperature = 94 C pH = is 7 % Turbidity= is 27 % to IBM Watson
published Temperature = 90 C pH = is 4 % Turbidity= is 52 % to IBM Watson
published Temperature = 107 C pH = is 10 % Turbidity= is 73 % to IBM Watson
published Temperature = 110 C pH = is 9 % Turbidity= is 22 % to IBM Watson
published Temperature = 92 C pH = is 3 % Turbidity= is 80 % to IBM Watson
```

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PUBLISHING DATA TO IBM CLOUD:



The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes the IBM logo and the text "IBM Watson IoT Platform". The main content area shows the details for a specific device, identified by ID "1607". The device is currently "Disconnected". The "Recent Events" tab is selected, showing a table of data points received from the device. The table has four columns: "Event", "Value", "Format", and "Last Received". The data points are JSON objects containing "Temperature", "pH", and "Turbidity" values. The status "0 Simulations running" is visible at the bottom right.

Event	Value	Format	Last Received
IOTSensor	{"Temperature":90,"pH":6,"Turbidity":37}	json	a few seconds ago
IOTSensor	{"Temperature":109,"pH":7,"Turbidity":34}	json	a few seconds ago
IOTSensor	{"Temperature":90,"pH":7,"Turbidity":3}	json	a few seconds ago
IOTSensor	{"Temperature":105,"pH":9,"Turbidity":37}	json	a few seconds ago
IOTSensor	{"Temperature":107,"pH":6,"Turbidity":34}	json	a few seconds ago