

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 = "oo25i5"

deviceType = "gv"

deviceId = "1607"

authMethod = "token"

authToken = "12341607"


#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" 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)

```

deviceCli.commandCallback = myCommandCallback

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\vaishnavi\G\AppData\Local\Programs\Python\Python37\python_script.py
2022-11-05 19:53:06,719 ibmiotf.device.Client 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 8 % 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
```

PUBLISHING DATA TO IBM CLOUD:

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons for navigation. The main content area shows a device named '1607' with a status of 'Disconnected' and a last update time of 'Oct 23, 2022 11:33 AM'. Below this, the 'Recent Events' tab is selected, showing a table of live data events.

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

At the bottom of the interface, there is a status bar indicating 'Items per page: 50' and '0 Simulations running'.