

Project Development Phase

Project Development Template (Sprint-3)

Date	15 November 2022
Team ID	PNT2022TMID29879
Project Name	Project-Real-Time River Water Monitoring And Control Systems

Python code for water monitoring and control:

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

#Provide your IBM Watson Device Credentials
organization = "jna6wp"
deviceType = "waterdevicetype1"
deviceId = "waterdeviceid1"
authMethod = "token"
authToken = "AEjav?k5ni?ox@EU0+"

#Initialize GPIO

def myCommandCallback(cmd) :
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="motoron":
        print ("motor is on")
    else :
        print ("motor is off")
    #print(cmd)
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 for      DHT 11

    pHvalue=random.randint(1,14)
    Turbidity=random.randint(1,1000)
```

```

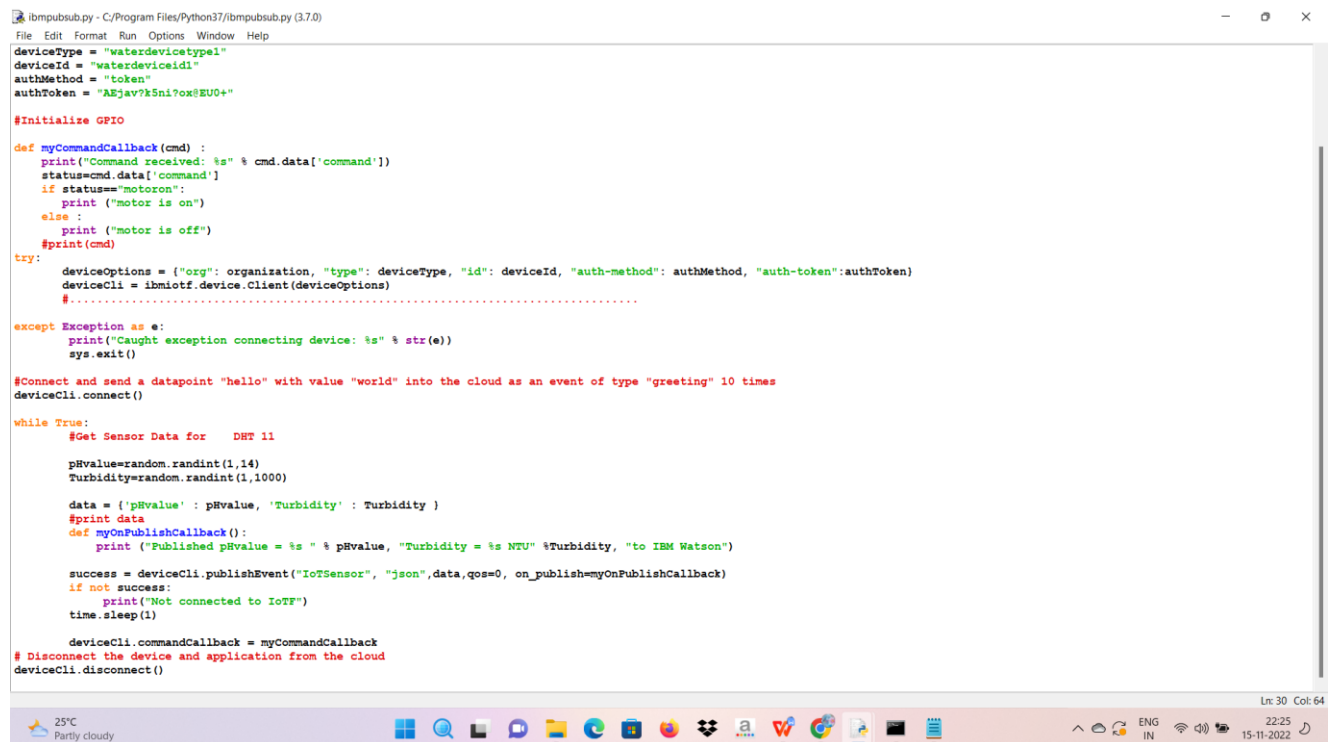
data = {'pHvalue' : pHvalue, 'Turbidity' : Turbidity }
#print data
def myOnPublishCallback():
    print ("Published pHvalue = %s " % pHvalue, "Turbidity = %s NTU" %Turbidity, "to IBM Watson")

success = deviceCli.publishEvent("IoTSensor", "json",data,qos=0, on_publish=myOnPublishCallback)
if not success:
    print("Not connected to IoTTF")
time.sleep(1)

deviceCli.commandCallback = myCommandCallback
# Disconnect the device and application from the cloud
deviceCli.disconnect()

```

PYTHON IDE DISPLAY:



```

lbmpubsub.py - C:/Program Files/Python37/lbmpubsub.py (3.7.0)
File Edit Format Run Options Window Help

deviceType = "waterdeviceType1"
deviceId = "waterdeviceId1"
authMethod = "token"
authToken = "AEjav7k5ni7ox$EU0+"

#Initialize GPIO

def myCommandCallback(cmd) :
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="motoron":
        print ("motor is on")
    else :
        print ("motor is off")
    #print (cmd)

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 for DHT 11
    pHvalue=random.randint(1,14)
    Turbidity=random.randint(1,1000)

    data = {'pHvalue' : pHvalue, 'Turbidity' : Turbidity }
    #print data
    def myOnPublishCallback():
        print ("Published pHvalue = %s " % pHvalue, "Turbidity = %s NTU" %Turbidity, "to IBM Watson")

    success = deviceCli.publishEvent("IoTSensor", "json",data,qos=0, on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to IoTTF")
    time.sleep(1)

    deviceCli.commandCallback = myCommandCallback
# Disconnect the device and application from the cloud
deviceCli.disconnect()

```

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Python output:

```
*Python 3.7.0 Shell*
File Edit Shell Debug Options Window Help
Published pHValue = 10 Turbidity = 991 NTU to IBM Watson
Published pHValue = 8 Turbidity = 759 NTU to IBM Watson
Published pHValue = 10 Turbidity = 927 NTU to IBM Watson
Published pHValue = 13 Turbidity = 287 NTU to IBM Watson
Published pHValue = 14 Turbidity = 744 NTU to IBM Watson
Published pHValue = 9 Turbidity = 85 NTU to IBM Watson
Published pHValue = 11 Turbidity = 485 NTU to IBM Watson
Published pHValue = 2 Turbidity = 687 NTU to IBM Watson
Published pHValue = 4 Turbidity = 219 NTU to IBM Watson
Published pHValue = 14 Turbidity = 24 NTU to IBM Watson
Published pHValue = 13 Turbidity = 999 NTU to IBM Watson
Published pHValue = 5 Turbidity = 137 NTU to IBM Watson
Published pHValue = 13 Turbidity = 240 NTU to IBM Watson
Published pHValue = 5 Turbidity = 977 NTU to IBM Watson
Published pHValue = 11 Turbidity = 767 NTU to IBM Watson
Published pHValue = 6 Turbidity = 892 NTU to IBM Watson
Published pHValue = 10 Turbidity = 959 NTU to IBM Watson
Published pHValue = 9 Turbidity = 820 NTU to IBM Watson
Published pHValue = 6 Turbidity = 699 NTU to IBM Watson
Published pHValue = 1 Turbidity = 157 NTU to IBM Watson
Published pHValue = 8 Turbidity = 86 NTU to IBM Watson
Published pHValue = 6 Turbidity = 754 NTU to IBM Watson
Published pHValue = 3 Turbidity = 655 NTU to IBM Watson
Published pHValue = 12 Turbidity = 955 NTU to IBM Watson
Published pHValue = 1 Turbidity = 189 NTU to IBM Watson
Published pHValue = 8 Turbidity = 816 NTU to IBM Watson
Published pHValue = 4 Turbidity = 604 NTU to IBM Watson
Published pHValue = 5 Turbidity = 702 NTU to IBM Watson
Published pHValue = 8 Turbidity = 493 NTU to IBM Watson
Published pHValue = 14 Turbidity = 595 NTU to IBM Watson
Published pHValue = 4 Turbidity = 851 NTU to IBM Watson
Published pHValue = 6 Turbidity = 425 NTU to IBM Watson
Published pHValue = 13 Turbidity = 663 NTU to IBM Watson
Published pHValue = 10 Turbidity = 827 NTU to IBM Watson
Published pHValue = 14 Turbidity = 689 NTU to IBM Watson
Published pHValue = 4 Turbidity = 360 NTU to IBM Watson
Published pHValue = 3 Turbidity = 921 NTU to IBM Watson
Published pHValue = 12 Turbidity = 922 NTU to IBM Watson
Published pHValue = 6 Turbidity = 580 NTU to IBM Watson
Published pHValue = 4 Turbidity = 292 NTU to IBM Watson
Published pHValue = 8 Turbidity = 278 NTU to IBM Watson
Published pHValue = 2 Turbidity = 533 NTU to IBM Watson
Published pHValue = 13 Turbidity = 904 NTU to IBM Watson
Published pHValue = 3 Turbidity = 348 NTU to IBM Watson
Published pHValue = 11 Turbidity = 555 NTU to IBM Watson
Published pHValue = 13 Turbidity = 658 NTU to IBM Watson
```

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