

Develop A Python Script To Publish And Subscribe To IBM IoT Platform

Project Title	SmartFarmer – IoT Enabled Smart Farming Application
Team ID	PNT2022TMID03604
Content	Python Script

Python Code:

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

#Provide your IBM Watson Device Credentials
organization = "x0fxss" #replace the ORG ID
deviceType = "Testing"#replace the Device type wi
deviceId = "Testdevice1"#replace Device ID
authMethod = "token"
authToken = "123456789" #Replace the authtoken
# Initialize GPIO

#Receives Command from Node-red
def myCommandCallback(cmd):
    print ("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="motoron":
        print ("motor is on")
    elif status == "motoroff" :
        print ("motor is off")
    elif status == "motor30" :
        print ("motor is on for 30 minutes")

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(0,100)
    Humid=random.randint(0,100)
    soilmoisture=random.randint(0,100)

    data = { 'temp' : temp, 'Humid': Humid, 'soilmoisture': soilmoisture }
    #print data
    def myOnPublishCallback():
        print ("Published Temperature = %s C" % temp, "Humidity = %s %" % Humid, "soilmoisture = %s %"
%soilmoisture, "to IBM Watson")

    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to IoT")
        time.sleep(5)

    deviceCli.commandCallback = myCommandCallback

# 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\charu\Downloads\ibmiotpublishsubscribe.py =====
2022-11-11 15:56:49,907 ibmiotf.device.Client INFO Connected successfully: d:x0fxss:Testing:Testdevice1
Published Temperature = 8 C Humidity = 44 % soilmoisture = 3 % to IBM Watson
Published Temperature = 13 C Humidity = 95 % soilmoisture = 43 % to IBM Watson
Published Temperature = 78 C Humidity = 83 % soilmoisture = 83 % to IBM Watson
Published Temperature = 100 C Humidity = 52 % soilmoisture = 60 % to IBM Watson
Published Temperature = 45 C Humidity = 93 % soilmoisture = 16 % to IBM Watson
Published Temperature = 53 C Humidity = 12 % soilmoisture = 59 % to IBM Watson
Published Temperature = 15 C Humidity = 49 % soilmoisture = 32 % to IBM Watson
Published Temperature = 37 C Humidity = 73 % soilmoisture = 25 % to IBM Watson
```

IBM Watson IoT Platform

?

312819106035@smartinternz.com

ID: x0fxss

Browse

Action

Device Types

Interfaces

Add Device +

>

1234

Disconnected

Noder

Device

24 Oct 2022 09:50

▼

Testdevice1

Connected

Testing

Device

11 Nov 2022 15:08

→ ...

Identity

Device Information

Recent Events

State

Logs

X

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":59,"Humid":96,"soilmoisture":100}	json	a few seconds ago
IoTSensor	{"temp":26,"Humid":59,"soilmoisture":99}	json	a few seconds ago
IoTSensor	{"temp":74,"Humid":13,"soilmoisture":96}	json	a few seconds ago
IoTSensor	{"temp":79,"Humid":24,"soilmoisture":28}	json	a few seconds ago

Node-RED

Deploy

filter nodes

tcp out

tcp request

udp in

udp out

input

ibmiot in

output

ibmiot out

sequence

split

join

sort

Flow 1

Flow 1

IBM IoT

connected

Humidity

temp

Soil Moisture

Motor ON

Motor OFF

Motor for 30 minutes

IBM IoT

connected

debug 2

Humidity Gauge

Temperature Gauge

Soil Moisture Gauge

debug

current flow

all

11/11/2022, 4:00:06 PM node: debug 2

iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json :

msg.payload : Object

{ temp: 61, Humid: 10, soilmoisture: 54 }

11/11/2022, 4:00:06 PM node: debug 2

iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json :

msg.payload : Object

{ temp: 61, Humid: 73, soilmoisture: 38 }

11/11/2022, 4:00:06 PM node: debug 2

iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json :

msg.payload : Object

{ temp: 4, Humid: 82, soilmoisture: 10 }

11/11/2022, 4:00:06 PM node: debug 2

iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json :

msg.payload : Object

{ temp: 56, Humid: 26, soilmoisture: 48 }

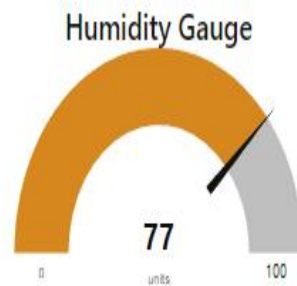
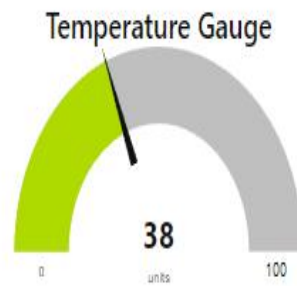
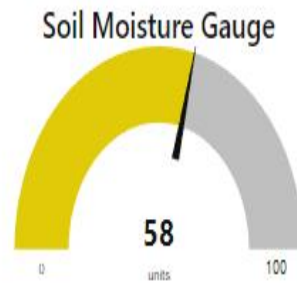
11/11/2022, 4:00:12 PM node: debug 2

iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json :

msg.payload : Object

{ temp: 13, Humid: 23, soilmoisture: 19 }

Default



▲ Group 2

MOTOR ON

MOTOR OFF

MOTOR FOR 30 MINUTES

Published Temperature = 25 C Humidity = 32 % soilmoisture = 86 % to IBM Watson

Published Temperature = 27 C Humidity = 16 % soilmoisture = 26 % to IBM Watson

Command received: motoron

motor is on

Command received: motoron

motor is on

Published Temperature = 10 C Humidity = 69 % soilmoisture = 82 % to IBM Watson

Published Temperature = 75 C Humidity = 37 % soilmoisture = 2 % to IBM Watson

Published Temperature = 63 C Humidity = 59 % soilmoisture = 11 % to IBM Watson

Published Temperature = 31 C Humidity = 20 % soilmoisture = 43 % to IBM Watson

Published Temperature = 47 C Humidity = 38 % soilmoisture = 95 % to IBM Watson

Published Temperature = 62 C Humidity = 5 % soilmoisture = 93 % to IBM Watson

Command received: motoroff

motor is off

Command received: motor30

motor is on for 30 minutes

Published Temperature = 19 C Humidity = 99 % soilmoisture = 96 % to IBM Watson

Published Temperature = 6 C Humidity = 56 % soilmoisture = 85 % to IBM Watson