

Project Development

Delivery Of Sprint-2

Date	12 Nov. 22
Team Id	PNT2022TMID51073
Project Name	SmartFarmer - IoT Enabled Smart Farming Application

PROGRAM

```
import time
```

```
import sys
```

```
import ibmiotf.application
```

```
import ibmiotf.device
```

```
import random
```

```
#Provide your IBM Watson Device Credentials
```

```
organization = "hzu4n4"
```

```
deviceType = "abi"
```

```
deviceId = "2790"
```

```
authMethod = "token"
```

```
authToken = "ObNY5tR3)*hIq473Y0"
```

```
global y
```

```
# Initialize GPIO
```

```
def myCommandCallback(cmd):
```

```
    print("Command received: %s" % cmd.data['command'])
```

```
    status=cmd.data['command']
```

```

if status=="motoron":

    print ("motor is on")

if status=="motoroff" :

    print ("motor is off")

if status=="manual" :

    print ("Motor Control is in Manual Mode")

if status=="automatic" :

    print ("Motor control is in Automatic Mode")

    if soilmoisture > 600:

        print ("motor is on")

```

```

#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 from DHT11

temp=random.randint(0,100)

Humid=random.randint(0,100)

soilmoisture=random.randint(0,1023)

Phlevel=random.randint(0,14)

y=soilmoisture


data = { 'temp' : temp, 'Humid': Humid,'soilmoisture' : soilmoisture , 'Phlevel' : Phlevel }

#print data

def myOnPublishCallback():

    print ("Published Temperature = %s C" % temp, "Humidity = %s %" % Humid,"Soil Moisture is %s
    %" % soilmoisture,"PH level is %s" % Phlevel ,"to IBM Watson")


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

if not success:

    print("Not connected to IoT")

time.sleep(10)


deviceCli.commandCallback = myCommandCallback


# Disconnect the device and application from the cloud

deviceCli.disconnect()

```

```
Vabipy - C:/Users/ELCOT/AppData/Local/Programs/Python/Python37/Vabipy (3.7.4)
File Edit Format Run Options Window Help

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

#Provide your IBM Watson Device Credentials
organization = "hzu4n4"
deviceType = "abi"
deviceId = "2790"
authMethod = "token"
authToken = "ObNYStR3)*hiq473Y0"
global y
# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="motoron":
        print ("motor is on")
    if status=="motoroff" :
        print ("motor is off")
    if status=="manual" :
        print ("Motor Control is in Manual Mode")
    if status=="automatic" :
        print ("Motor control is in Automatic Mode")
        if soilmoisture > 600:
            print ("motor is on")

    #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("Unable to connect to device: %s" % str(e))
```

OUTPUT

```
"Python 3.7.4 Shell"
File Edit Shell Debug Options Window Help

Python 3.7.4 (tags/v3.7.4:09359112e, Jul 8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
==== RESTART: C:/Users/ELCOT/AppData/Local/Programs/Python/Python37/Vabipy.py ====
2022-11-12 19:13:16,346 ibmiotf.device.Client INFO Connected successfully: d:hzu4n4:abi:2790
Published Temperature = 66 C Humidity = 75 % Soil Moisture is 471 % PH level is 3 to IBM Watson
Published Temperature = 95 C Humidity = 80 % Soil Moisture is 26 % PH level is 5 to IBM Watson
Published Temperature = 37 C Humidity = 98 % Soil Moisture is 781 % PH level is 3 to IBM Watson
Published Temperature = 27 C Humidity = 5 % Soil Moisture is 497 % PH level is 11 to IBM Watson
Published Temperature = 22 C Humidity = 49 % Soil Moisture is 979 % PH level is 9 to IBM Watson
Published Temperature = 5 C Humidity = 17 % Soil Moisture is 548 % PH level is 11 to IBM Watson
Published Temperature = 63 C Humidity = 24 % Soil Moisture is 376 % PH level is 4 to IBM Watson
Published Temperature = 76 C Humidity = 70 % Soil Moisture is 284 % PH level is 3 to IBM Watson
Published Temperature = 27 C Humidity = 64 % Soil Moisture is 359 % PH level is 5 to IBM Watson
Published Temperature = 18 C Humidity = 92 % Soil Moisture is 780 % PH level is 13 to IBM Watson
Published Temperature = 5 C Humidity = 71 % Soil Moisture is 883 % PH level is 11 to IBM Watson
Published Temperature = 19 C Humidity = 80 % Soil Moisture is 258 % PH level is 8 to IBM Watson
Published Temperature = 88 C Humidity = 37 % Soil Moisture is 331 % PH level is 6 to IBM Watson
Published Temperature = 6 C Humidity = 22 % Soil Moisture is 157 % PH level is 7 to IBM Watson
Published Temperature = 19 C Humidity = 65 % Soil Moisture is 171 % PH level is 10 to IBM Watson
Published Temperature = 94 C Humidity = 93 % Soil Moisture is 818 % PH level is 7 to IBM Watson
Published Temperature = 86 C Humidity = 22 % Soil Moisture is 520 % PH level is 6 to IBM Watson
Published Temperature = 19 C Humidity = 58 % Soil Moisture is 542 % PH level is 3 to IBM Watson
Published Temperature = 26 C Humidity = 8 % Soil Moisture is 224 % PH level is 2 to IBM Watson
Published Temperature = 24 C Humidity = 93 % Soil Moisture is 922 % PH level is 3 to IBM Watson
Published Temperature = 9 C Humidity = 5 % Soil Moisture is 977 % PH level is 6 to IBM Watson
Published Temperature = 45 C Humidity = 100 % Soil Moisture is 900 % PH level is 8 to IBM Watson
Published Temperature = 64 C Humidity = 54 % Soil Moisture is 598 % PH level is 7 to IBM Watson
Published Temperature = 30 C Humidity = 87 % Soil Moisture is 469 % PH level is 10 to IBM Watson
Published Temperature = 58 C Humidity = 82 % Soil Moisture is 20 % PH level is 9 to IBM Watson
Published Temperature = 81 C Humidity = 100 % Soil Moisture is 576 % PH level is 0 to IBM Watson
Published Temperature = 76 C Humidity = 86 % Soil Moisture is 818 % PH level is 10 to IBM Watson
Published Temperature = 24 C Humidity = 75 % Soil Moisture is 716 % PH level is 1 to IBM Watson
Published Temperature = 95 C Humidity = 50 % Soil Moisture is 52 % PH level is 6 to IBM Watson
Published Temperature = 70 C Humidity = 63 % Soil Moisture is 445 % PH level is 13 to IBM Watson
Published Temperature = 38 C Humidity = 7 % Soil Moisture is 184 % PH level is 4 to IBM Watson
Published Temperature = 91 C Humidity = 0 % Soil Moisture is 877 % PH level is 11 to IBM Watson
Published Temperature = 19 C Humidity = 51 % Soil Moisture is 331 % PH level is 2 to IBM Watson
```

IBM WATSON CLOUD OUTPUT

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar is present with the text 'Search by Device ID'. The main content area displays a table of devices. The selected device is '2790', which is 'Connected' and of type 'abi'. Below the table, the 'Recent Events' tab is active, showing a list of events. The events are JSON payloads received from the device. A status indicator at the bottom right shows '1 Simulation running'.

Device ID	Status	Device Type	Class ID	Date Added
2790	Connected	abi	Device	Nov 12, 2022 7:09 PM

Event	Value	Format	Last Received
IoTSensor	{"temp":63,"Humid":24,"soilmoisture":376,"Phie...	json	a few seconds ago
IoTSensor	{"temp":5,"Humid":17,"soilmoisture":648,"Phiev...	json	a few seconds ago
IoTSensor	{"temp":22,"Humid":49,"soilmoisture":979,"Phie...	json	a few seconds ago
IoTSensor	{"temp":27,"Humid":5,"soilmoisture":497,"Phiev...	json	a few seconds ago
IoTSensor	{"temp":37,"Humid":98,"soilmoisture":781,"Phie...	json	a few seconds ago

1 Simulation running

The screenshot shows the 'Event Payload' view. It displays the event name 'IoTSensor' and the time received 'Nov 12, 2022 7:15 PM'. Below this, a code editor shows the JSON payload for the event.

```
1 {  
2   "temp": 6,  
3   "Humid": 22,  
4   "soilmoisture": 157,  
5   "Phlevel": 7  
6 }
```