

## Project Development

### Delivery Of Sprint-3

Date	13 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 IoTf")

time.sleep(10)


deviceCli.commandCallback = myCommandCallback


# Disconnect the device and application from the cloud

deviceCli.disconnect()

```

```
Vabi.py - C:/Users/ELCOT/AppData/Local/Programs/Python/Python37/Vabi.py (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 = "abi1"
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("Exception: %s" % e)
```

## OUTPUT

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

Python 3.7.4 (tags/v3.7.4:e09359112e, 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/Vabi.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 details for a device with ID 2790, which is 'Connected'. The device type is 'abi' and the class ID is 'Device'. The date added is 'Nov 12, 2022 7:09 PM'. Below this, there are tabs for 'Identity', 'Device Information', 'Recent Events', 'State', and 'Logs'. The 'Recent Events' tab is active, showing a table of recent events. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. The events are all from 'IoTSensor' and are in 'json' format. The values are JSON objects containing temperature, humidity, soil moisture, and ph level. The last received time for all events is 'a few seconds ago'. A status bar at the bottom right indicates '1 Simulation running'.

Event	Value	Format	Last Received
IoTSensor	{"temp":63,"Humid":24,"soilmoisture":376,"Phle...	json	a few seconds ago
IoTSensor	{"temp":5,"Humid":17,"soilmoisture":548,"Phlev...	json	a few seconds ago
IoTSensor	{"temp":22,"Humid":49,"soilmoisture":979,"Phle...	json	a few seconds ago
IoTSensor	{"temp":27,"Humid":5,"soilmoisture":497,"Phlev...	json	a few seconds ago
IoTSensor	{"temp":37,"Humid":98,"soilmoisture":781,"Phle...	json	a few seconds ago

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. The payload is a JSON object with four key-value pairs: 'temp' with value 6, 'Humid' with value 22, 'soilmoisture' with value 157, and 'Phlevel' with value 7.

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