

TEAM ID: PNT2022TMID42599

PROJECT: Real time water quality monitoring and control system

SPRINT 3

Publish Data to cloud and integrate it to the web and app

Python code:

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

#Provide your IBM Watson Device Credentials
organization = "c285f8"
deviceType = "Temperature_sensor"
deviceId = "Temp12"
authMethod = "token"
authToken = "Temp0123"

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    control=cmd.data['command']
    if control=="MotorON":
        print("Motor is ON")
    if control=="MotorOFF":
        print("Motor is OFF")
```

```

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
deviceCli.connect()
while True:
    #Get Sensor Data from DHT11
    temp=random.randint(0,50)
    ph=random.randint(0,14)
    turb=random.randint(0,300)
    humid=random.randint(0,70)
    nitro=random.randint(0,10)
    data = {'temp': temp, 'ph' : ph, 'turb': turb, 'humid': humid, 'nitro': nitro }
    #print data

    def myOnPublishCallback():
        print ("Temperature = %s" % temp, "PH Level = %s C" % ph, "Turbidity = %s
C" % turb,"Humidity = %s" % humid,"Nitrate = %s" % nitro )

    success=deviceCli.publishEvent("IoTSensor", "json", data,
qos=0,on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to lotf")
        time.sleep(10)

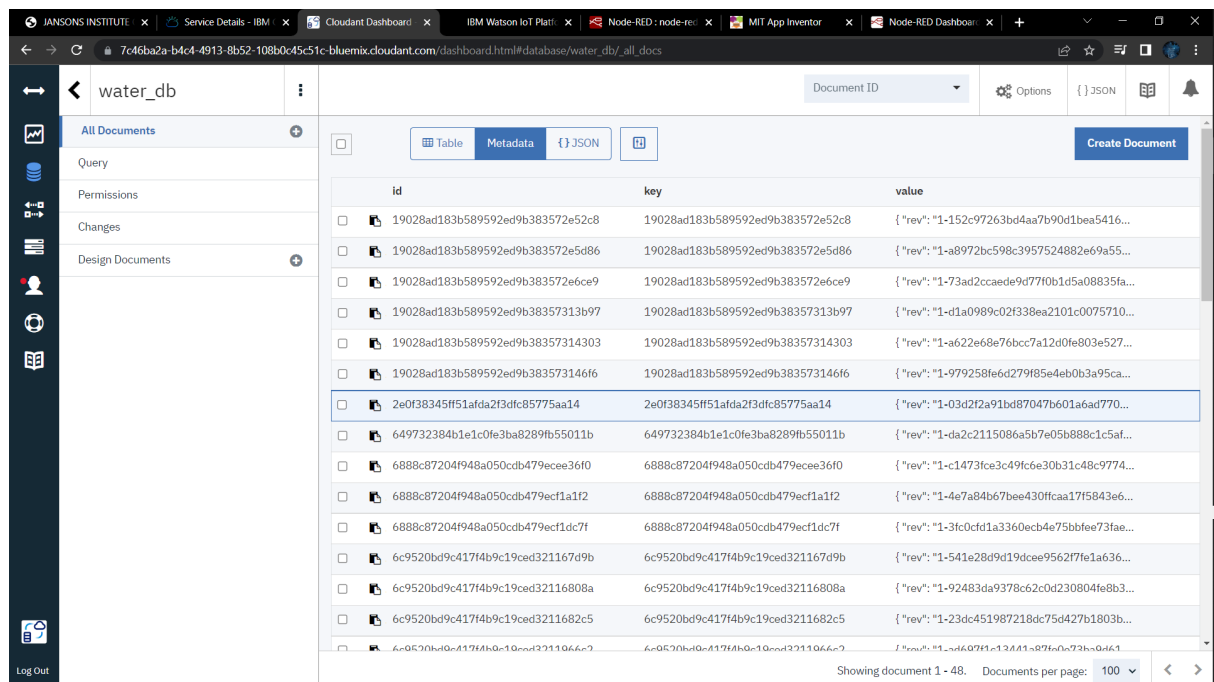
```

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



```
Python 3.7.3 Shell  
File Edit Shell Debug Options Window Help  
Python 3.7.3 (v3.7.3:ef4ec6d12, Mar 25 2019, 22:22:05) [MSC v.1916 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license()" for more information.  
>>>  
RESTART: C:\Users\RENUGHA\Desktop\ibm water project\ibm water project python.py  
2022-11-24 00:28:43,753  ibmiotf.device.Client  INFO  Connected successfully: d1c285f0:Temperature_sensor:Temp12  
Temperature = 3 PH Level = 10 C Turbidity = 43 C Humidity = 41 Nitrate = 3  
Temperature = 40 PH Level = 3 C Turbidity = 193 C Humidity = 10 Nitrate = 5  
Temperature = 36 PH Level = 7 C Turbidity = 252 C Humidity = 53 Nitrate = 2  
Temperature = 40 PH Level = 4 C Turbidity = 216 C Humidity = 16 Nitrate = 5  
Temperature = 39 PH Level = 10 C Turbidity = 86 C Humidity = 68 Nitrate = 3  
Temperature = 22 PH Level = 7 C Turbidity = 34 C Humidity = 70 Nitrate = 5  
Temperature = 32 PH Level = 10 C Turbidity = 90 C Humidity = 58 Nitrate = 0  
Temperature = 6 PH Level = 6 C Turbidity = 238 C Humidity = 36 Nitrate = 2  
Temperature = 36 PH Level = 6 C Turbidity = 72 C Humidity = 6 Nitrate = 7  
Temperature = 27 PH Level = 4 C Turbidity = 17 C Humidity = 60 Nitrate = 6  
Temperature = 3 PH Level = 14 C Turbidity = 292 C Humidity = 67 Nitrate = 7  
Temperature = 32 PH Level = 13 C Turbidity = 212 C Humidity = 18 Nitrate = 0  
Temperature = 31 PH Level = 5 C Turbidity = 135 C Humidity = 68 Nitrate = 5  
Temperature = 41 PH Level = 10 C Turbidity = 34 C Humidity = 20 Nitrate = 6  
Temperature = 30 PH Level = 7 C Turbidity = 254 C Humidity = 43 Nitrate = 4  
Temperature = 44 PH Level = 11 C Turbidity = 128 C Humidity = 61 Nitrate = 10  
Temperature = 50 PH Level = 11 C Turbidity = 182 C Humidity = 67 Nitrate = 8  
Command received: MotorON  
Motor is ON  
Temperature = 26 PH Level = 10 C Turbidity = 70 C Humidity = 21 Nitrate = 5  
Command received: MotorOFF  
Motor is OFF  
Temperature = 27 PH Level = 4 C Turbidity = 75 C Humidity = 6 Nitrate = 5  
|
```

Cloudant DB for saving the data form the sensors



The screenshot shows the Cloudant Dashboard interface for a database named 'water_db'. The left sidebar contains navigation options: All Documents, Query, Permissions, Changes, and Design Documents. The main area displays a table of documents. Each document has an 'id', a 'key', and a 'value' field. The 'value' field contains a JSON object with a 'rev' property and a long string of sensor data.

id	key	value
19028ad183b589592ed9b383572e52c8	19028ad183b589592ed9b383572e52c8	{ "rev": "1-152c97263bd4aa7b90d1bea5416..." }
19028ad183b589592ed9b383572e5d86	19028ad183b589592ed9b383572e5d86	{ "rev": "1-a8972bc598c3957524882e69a55..." }
19028ad183b589592ed9b383572e6ce9	19028ad183b589592ed9b383572e6ce9	{ "rev": "1-73ad2ccae9d77f0b1d5a08835fa..." }
19028ad183b589592ed9b38357313b97	19028ad183b589592ed9b38357313b97	{ "rev": "1-d1a0989c02f338ea2101c0075710..." }
19028ad183b589592ed9b38357314303	19028ad183b589592ed9b38357314303	{ "rev": "1-a622e68e76bcc7a12d0fe803e527..." }
19028ad183b589592ed9b383573146f6	19028ad183b589592ed9b383573146f6	{ "rev": "1-979258fe6d279f85e4eb0b3a95ca..." }
2e0f38345f51afda2f3dfc85775aa14	2e0f38345f51afda2f3dfc85775aa14	{ "rev": "1-03d2f2a91bd87047b601a6ad770..." }
649732384b1e1c0fe3ba8289fb55011b	649732384b1e1c0fe3ba8289fb55011b	{ "rev": "1-da2c2115086a5b7e05b888c1c5af..." }
6888c87204f948a050cdb479ecce36f0	6888c87204f948a050cdb479ecce36f0	{ "rev": "1-c1473fce3c49f6c30b31c48c9774..." }
6888c87204f948a050cdb479ecf1a1f2	6888c87204f948a050cdb479ecf1a1f2	{ "rev": "1-4e7a84b67bee430ffcaa17f5843e6..." }
6888c87204f948a050cdb479ecf1dc7f	6888c87204f948a050cdb479ecf1dc7f	{ "rev": "1-3fc0cfd1a3360ecb4e75bfbfe73fae..." }
6c9520bd9c417f4b9c19ced321167d9b	6c9520bd9c417f4b9c19ced321167d9b	{ "rev": "1-541e28d9d19dcee956277fe1a636..." }
6c9520bd9c417f4b9c19ced32116808a	6c9520bd9c417f4b9c19ced32116808a	{ "rev": "1-92483da93786c62c0d230804fe8b3..." }
6c9520bd9c417f4b9c19ced3211682c5	6c9520bd9c417f4b9c19ced3211682c5	{ "rev": "1-23dc451987218dc75d427b1803b..." }

Showing document 1 - 48. Documents per page: 100