

Project Development Phase

Delivery of Sprint 3

Date	12 November 2022
Team ID	PNT2022TMID21494
Project Name	Project –Gas leakage monitoring and alerting system for industries
Marks	20 marks

Code:

```
import time

import sys

import ibmiotf.application

import ibmiotf.device

import random


#Provide your IBM Watson Device Credentials

organization = "0zi0vb"

deviceType = "gas"

deviceId = "11111"

authMethod = "-use-token-auth"

authToken = "54K5h+CW6(RXFZVFGX"


# Initialize GPIO


def myCommandCallback(cmd):

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

    status=cmd.data['command']

    if status=="alarmon":

        print ("Alarm is on")

    elif (status == "alarmoff") :

        print ("Alarm is off")
```

```
elif status == "sprinkleron":  
    print("Sprinkler is OFF")  
elif status == "sprinkleron":  
    print("Sprinkler 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)
```

```
    gas=random.randint(0,100)
```

```
    data = { 'temp' : temp, 'Humid': Humid, 'gas' : gas }
```

```
    #print data
```

```
def myOnPublishCallback():  
    print ("Published Temperature = %s C" % temp, "Humidity = %s %" % Humid, "Gas_Level =  
%s %" % gas, "to IBM Watson")  
  
    success = deviceCli.publishEvent("IoTSensor", "json", data,  
qos=0,on_publish=myOnPublishCallback)  
  
    if not success:  
        print("Not connected to  
IoT")time.sleep(1)  
  
    deviceCli.commandCallback = myCommandCallback  
  
# Disconnect the device and application from the  
clouddeviceCli.disconnect()
```

On deploying the code – To publish the values :

```
D:\sem7\New folder>python data.py
2022-11-19 12:51:50,886 ibmiotf.device.Client INFO Connected successfully: d:0zi0vb:gas:11111
Published Temperature = 36 C Humidity = 50 % Gas_Level =40 % to IBM Watson
Published Temperature = 22 C Humidity = 54 % Gas_Level =48 % to IBM Watson
Published Temperature = 0 C Humidity = 92 % Gas_Level =25 % to IBM Watson
Published Temperature = 38 C Humidity = 99 % Gas_Level =17 % to IBM Watson
Published Temperature = 64 C Humidity = 15 % Gas_Level =63 % to IBM Watson
Published Temperature = 76 C Humidity = 61 % Gas_Level =92 % to IBM Watson
Published Temperature = 14 C Humidity = 18 % Gas_Level =3 % to IBM Watson
Published Temperature = 44 C Humidity = 78 % Gas_Level =28 % to IBM Watson
Published Temperature = 31 C Humidity = 60 % Gas_Level =10 % to IBM Watson
Published Temperature = 87 C Humidity = 97 % Gas_Level =98 % to IBM Watson
Published Temperature = 69 C Humidity = 98 % Gas_Level =49 % to IBM Watson
Published Temperature = 67 C Humidity = 88 % Gas_Level =11 % to IBM Watson
Published Temperature = 60 C Humidity = 79 % Gas_Level =69 % to IBM Watson
Published Temperature = 75 C Humidity = 57 % Gas_Level =99 % to IBM Watson
Published Temperature = 68 C Humidity = 53 % Gas_Level =79 % to IBM Watson
Published Temperature = 11 C Humidity = 7 % Gas_Level =74 % to IBM Watson
Published Temperature = 40 C Humidity = 67 % Gas_Level =53 % to IBM Watson
Published Temperature = 86 C Humidity = 73 % Gas_Level =100 % to IBM Watson
Published Temperature = 61 C Humidity = 55 % Gas_Level =75 % to IBM Watson
Published Temperature = 63 C Humidity = 43 % Gas_Level =54 % to IBM Watson
Published Temperature = 51 C Humidity = 5 % Gas_Level =88 % to IBM Watson
Published Temperature = 10 C Humidity = 83 % Gas_Level =59 % to IBM Watson
Published Temperature = 85 C Humidity = 64 % Gas_Level =50 % to IBM Watson
Published Temperature = 58 C Humidity = 29 % Gas_Level =21 % to IBM Watson
Published Temperature = 70 C Humidity = 38 % Gas_Level =43 % to IBM Watson
Published Temperature = 74 C Humidity = 1 % Gas_Level =89 % to IBM Watson
```

Device – gas is connected:

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons for navigation. The main content area has a 'Browse' tab selected, with 'All Devices' and 'Diagnose' buttons. Below this, a message states: 'This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.' A search bar labeled 'Search by Device ID' is present. To the right, there is a 'Device Simulator' toggle switch and icons for filters and refresh. The table below lists the devices:

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
> <input type="checkbox"/>	11111	Connected	gas	Device	Nov 19, 2022 12:50 PM	
> <input type="checkbox"/>	12345	Disconnected	gasleakge	Device	Nov 18, 2022 11:11 PM	

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1 Simulation running

Values are published to IOT WATSON Device:

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for various functions. The main content area displays details for a device with ID '11111', which is 'Connected' and has a type of 'gas'. The 'Recent Events' tab is selected, showing a table of events. Below the table, a message states '1 Simulation running'.

Event	Value	Format	Last Received
IoTSensor	{"temp":28,"Humid":40,"gas":29}	json	a few seconds ago
IoTSensor	{"temp":9,"Humid":93,"gas":31}	json	a few seconds ago
IoTSensor	{"temp":21,"Humid":30,"gas":68}	json	a few seconds ago
IoTSensor	{"temp":95,"Humid":39,"gas":18}	json	a few seconds ago
IoTSensor	{"temp":60,"Humid":33,"gas":19}	json	a few seconds ago

1 Simulation running