

Project Development Phase

Delivery of Sprint 3

Date	12 November 2022
Team ID	PNT2022TMID47483
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 = "vq4nsy"
```

```
deviceType = "PNT2022TMID47483"
```

```
deviceId = "PNT2022TMID47483DEVICEID"
```

```
authMethod = "token"
```

```
authToken = "0vZoxRf8LrhADWKjb!"
```

```
# 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 cloud
deviceCli.disconnect()
```

Node-RED interface showing a flow for an IBM IoT device. The flow includes an inject node, a debug node, a complete node, a catch node, a status node, a link in node, a link call node, a link out node, and a comment node. The flow is connected to an IBM IoT device and triggers an Alarm On or Alarm Off event. The flow is titled "Flow 1".

Published Temperature = 72 C Humidity = 38 % Gas_Level = 93 % to IBM Watson
Published Temperature = 29 C Humidity = 58 % Gas_Level = 63 % to IBM Watson
Published Temperature = 71 C Humidity = 14 % Gas_Level = 87 % to IBM Watson
Published Temperature = 5 C Humidity = 32 % Gas_Level = 92 % to IBM Watson
Published Temperature = 51 C Humidity = 20 % Gas_Level = 82 % to IBM Watson
Published Temperature = 87 C Humidity = 10 % Gas_Level = 62 % to IBM Watson
Published Temperature = 35 C Humidity = 14 % Gas_Level = 19 % to IBM Watson
Published Temperature = 8 C Humidity = 28 % Gas_Level = 81 % to IBM Watson
Published Temperature = 69 C Humidity = 90 % Gas_Level = 50 % to IBM Watson
Published Temperature = 39 C Humidity = 0 % Gas_Level = 51 % to IBM Watson
Published Temperature = 68 C Humidity = 62 % Gas_Level = 27 % to IBM Watson
Published Temperature = 76 C Humidity = 89 % Gas_Level = 98 % to IBM Watson
Published Temperature = 99 C Humidity = 90 % Gas_Level = 12 % to IBM Watson
Published Temperature = 93 C Humidity = 36 % Gas_Level = 7 % to IBM Watson
Published Temperature = 98 C Humidity = 23 % Gas_Level = 40 % to IBM Watson
Published Temperature = 32 C Humidity = 72 % Gas_Level = 62 % to IBM Watson
Published Temperature = 55 C Humidity = 7 % Gas_Level = 80 % to IBM Watson
Published Temperature = 100 C Humidity = 74 % Gas_Level = 29 % to IBM Watson
Published Temperature = 64 C Humidity = 86 % Gas_Level = 13 % to IBM Watson
Published Temperature = 55 C Humidity = 5 % Gas_Level = 17 % to IBM Watson
Published Temperature = 12 C Humidity = 28 % Gas_Level = 37 % to IBM Watson
Published Temperature = 10 C Humidity = 54 % Gas_Level = 65 % to IBM Watson
Published Temperature = 30 C Humidity = 82 % Gas_Level = 82 % to IBM Watson
Published Temperature = 40 C Humidity = 95 % Gas_Level = 57 % to IBM Watson
Published Temperature = 28 C Humidity = 19 % Gas_Level = 17 % to IBM Watson
Published Temperature = 47 C Humidity = 66 % Gas_Level = 50 % to IBM Watson
Published Temperature = 58 C Humidity = 86 % Gas_Level = 50 % to IBM Watson
Published Temperature = 98 C Humidity = 19 % Gas_Level = 87 % to IBM Watson
Published Temperature = 12 C Humidity = 81 % Gas_Level = 40 % to IBM Watson
Published Temperature = 32 C Humidity = 79 % Gas_Level = 75 % to IBM Watson
Published Temperature = 37 C Humidity = 80 % Gas_Level = 24 % to IBM Watson
Published Temperature = 73 C Humidity = 59 % Gas_Level = 40 % to IBM Watson
Published Temperature = 51 C Humidity = 69 % Gas_Level = 34 % to IBM Watson
Published Temperature = 28 C Humidity = 13 % Gas_Level = 68 % to IBM Watson
Published Temperature = 28 C Humidity = 62 % Gas_Level = 7 % to IBM Watson
Published Temperature = 86 C Humidity = 69 % Gas_Level = 34 % to IBM Watson
Published Temperature = 48 C Humidity = 5 % Gas_Level = 40 % to IBM Watson
Published Temperature = 20 C Humidity = 51 % Gas_Level = 78 % to IBM Watson
Published Temperature = 2 C Humidity = 2 % Gas_Level = 64 % to IBM Watson
Published Temperature = 42 C Humidity = 86 % Gas_Level = 64 % to IBM Watson
Published Temperature = 95 C Humidity = 47 % Gas_Level = 99 % to IBM Watson
Published Temperature = 49 C Humidity = 16 % Gas_Level = 84 % to IBM Watson
Published Temperature = 59 C Humidity = 25 % Gas_Level = 66 % to IBM Watson
Published Temperature = 65 C Humidity = 100 % Gas_Level = 56 % to IBM Watson
Published Temperature = 48 C Humidity = 38 % Gas_Level = 38 % to IBM Watson
Published Temperature = 59 C Humidity = 25 % Gas_Level = 66 % to IBM Watson
Published Temperature = 65 C Humidity = 100 % Gas_Level = 56 % to IBM Watson
Published Temperature = 48 C Humidity = 38 % Gas_Level = 38 % to IBM Watson
Published Temperature = 54 C Humidity = 2 % Gas_Level = 26 % to IBM Watson
Published Temperature = 80 C Humidity = 72 % Gas_Level = 39 % to IBM Watson
Published Temperature = 48 C Humidity = 32 % Gas_Level = 72 % to IBM Watson
Published Temperature = 16 C Humidity = 2 % Gas_Level = 14 % to IBM Watson
Published Temperature = 3 C Humidity = 29 % Gas_Level = 84 % to IBM Watson
Published Temperature = 22 C Humidity = 3 % Gas_Level = 22 % to IBM Watson
Published Temperature = 28 C Humidity = 58 % Gas_Level = 23 % to IBM Watson
Published Temperature = 100 C Humidity = 57 % Gas_Level = 68 % to IBM Watson
Published Temperature = 37 C Humidity = 65 % Gas_Level = 30 % to IBM Watson
Published Temperature = 85 C Humidity = 9 % Gas_Level = 13 % to IBM Watson
Published Temperature = 68 C Humidity = 24 % Gas_Level = 36 % to IBM Watson
Published Temperature = 52 C Humidity = 62 % Gas_Level = 4 % to IBM Watson
Published Temperature = 63 C Humidity = 22 % Gas_Level = 98 % to IBM Watson
Published Temperature = 37 C Humidity = 79 % Gas_Level = 66 % to IBM Watson
Published Temperature = 80 C Humidity = 56 % Gas_Level = 63 % to IBM Watson
Published Temperature = 8 C Humidity = 89 % Gas_Level = 56 % to IBM Watson
Published Temperature = 28 C Humidity = 72 % Gas_Level = 20 % to IBM Watson
Published Temperature = 48 C Humidity = 76 % Gas_Level = 37 % to IBM Watson
Published Temperature = 52 C Humidity = 25 % Gas_Level = 90 % to IBM Watson
Published Temperature = 20 C Humidity = 50 % Gas_Level = 85 % to IBM Watson
Published Temperature = 59 C Humidity = 10 % Gas_Level = 3 % to IBM Watson
Published Temperature = 60 C Humidity = 55 % Gas_Level = 5 % to IBM Watson
Published Temperature = 97 C Humidity = 55 % Gas_Level = 87 % to IBM Watson
Published Temperature = 46 C Humidity = 73 % Gas_Level = 79 % to IBM Watson
Published Temperature = 92 C Humidity = 92 % Gas_Level = 82 % to IBM Watson
Published Temperature = 36 C Humidity = 11 % Gas_Level = 27 % to IBM Watson
Published Temperature = 71 C Humidity = 1 % Gas_Level = 40 % to IBM Watson
Published Temperature = 26 C Humidity = 6 % Gas_Level = 21 % to IBM Watson
Published Temperature = 97 C Humidity = 96 % Gas_Level = 54 % to IBM Watson
Published Temperature = 18 C Humidity = 63 % Gas_Level = 73 % to IBM Watson
Published Temperature = 65 C Humidity = 66 % Gas_Level = 75 % to IBM Watson
Published Temperature = 48 C Humidity = 76 % Gas_Level = 27 % to IBM Watson
Published Temperature = 89 C Humidity = 83 % Gas_Level = 57 % to IBM Watson
Published Temperature = 60 C Humidity = 23 % Gas_Level = 17 % to IBM Watson
Published Temperature = 2 C Humidity = 7 % Gas_Level = 10 % to IBM Watson
Published Temperature = 7 C Humidity = 53 % Gas_Level = 47 % to IBM Watson
Published Temperature = 17 C Humidity = 60 % Gas_Level = 74 % to IBM Watson
Published Temperature = 46 C Humidity = 2 % Gas_Level = 97 % to IBM Watson
Published Temperature = 90 C Humidity = 68 % Gas_Level = 30 % to IBM Watson
Published Temperature = 82 C Humidity = 8 % Gas_Level = 64 % to IBM Watson
Published Temperature = 90 C Humidity = 65 % Gas_Level = 0 % to IBM Watson
Published Temperature = 45 C Humidity = 75 % Gas_Level = 6 % to IBM Watson

```
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 = "wq4nsy"
deviceType = "PWT2022TMD47483"
deviceId = "PWT2022TMD47483DEVICEID"
authMethod = "token"
authToken = "0vz0aRf6lrhA2WKjb!"

# 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 ON")
    elif status == "sprinkleroff":
        print("Sprinkler is OFF")
    #print(cmd)

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-meth": 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
```