

SPRINT -1

Date	29 October 2022
Team id	PNT2022TMID01284
Project name	Real Time River Water Quality Monitoring And Control System
Maximum marks	20 marks

In Sprint – 1, we have done simulation creation. We connected the sensor Arduino with python code

PYTHON CODE :

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

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

```
organization = "ofq2bm" deviceType =
```

```
"water_monitoring" deviceId =
```

```
"water_quality" authMethod = "token"
```

```
authToken = "YC9348OI6xz(Pqb7pL"
```

```
# Initialize GPIO
```

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

```
status=cmd.data['command']    if status=="lighton":
```

```
print ("led is on")    elif status == "lightoff":
```

```
    print ("led is off")
```

```
else :
```

```
    print ("please send proper command") try:
```

```
        deviceOptions = {"org": organization, "type": deviceType, "id": deviceId,
```

```
"authmethod": 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

    turbidity=random.randint(0,110)
    pHLevel=random.randint(0,10)    temperature
    = random.randint(0,110)

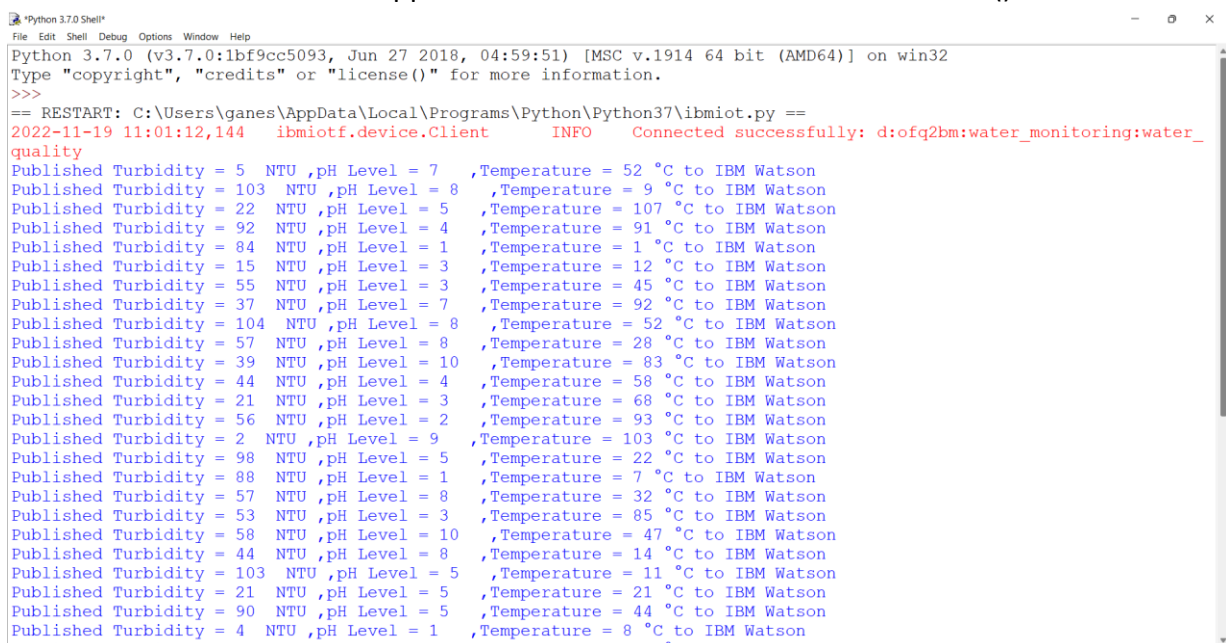
    data = { 'turbidity' : turbidity, 'pHLevel': pHLevel , 'temperature':temperature }
    #print data    def
myOnPublishCallback():
    print ("Published Turbidity = %s NTU" % turbidity, ", " "pH Level = %s " % pHLevel, ", "
"Temperature = %s °C"% temperature, "to IBM Watson")

    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()

```



```

Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
== RESTART: C:\Users\ganes\AppData\Local\Programs\Python\Python37\ibmiot.py ==
2022-11-19 11:01:12,144 ibmiotf.device.Client INFO Connected successfully: d:ofq2bm:water_monitoring:water_
quality
Published Turbidity = 5 NTU ,pH Level = 7 ,Temperature = 52 °C to IBM Watson
Published Turbidity = 103 NTU ,pH Level = 8 ,Temperature = 9 °C to IBM Watson
Published Turbidity = 22 NTU ,pH Level = 5 ,Temperature = 107 °C to IBM Watson
Published Turbidity = 92 NTU ,pH Level = 4 ,Temperature = 91 °C to IBM Watson
Published Turbidity = 84 NTU ,pH Level = 1 ,Temperature = 1 °C to IBM Watson
Published Turbidity = 15 NTU ,pH Level = 3 ,Temperature = 12 °C to IBM Watson
Published Turbidity = 55 NTU ,pH Level = 3 ,Temperature = 45 °C to IBM Watson
Published Turbidity = 37 NTU ,pH Level = 7 ,Temperature = 92 °C to IBM Watson
Published Turbidity = 104 NTU ,pH Level = 8 ,Temperature = 52 °C to IBM Watson
Published Turbidity = 57 NTU ,pH Level = 8 ,Temperature = 28 °C to IBM Watson
Published Turbidity = 39 NTU ,pH Level = 10 ,Temperature = 83 °C to IBM Watson
Published Turbidity = 44 NTU ,pH Level = 4 ,Temperature = 58 °C to IBM Watson
Published Turbidity = 21 NTU ,pH Level = 3 ,Temperature = 68 °C to IBM Watson
Published Turbidity = 56 NTU ,pH Level = 2 ,Temperature = 93 °C to IBM Watson
Published Turbidity = 2 NTU ,pH Level = 9 ,Temperature = 103 °C to IBM Watson
Published Turbidity = 98 NTU ,pH Level = 5 ,Temperature = 22 °C to IBM Watson
Published Turbidity = 88 NTU ,pH Level = 1 ,Temperature = 7 °C to IBM Watson
Published Turbidity = 57 NTU ,pH Level = 8 ,Temperature = 32 °C to IBM Watson
Published Turbidity = 53 NTU ,pH Level = 3 ,Temperature = 85 °C to IBM Watson
Published Turbidity = 58 NTU ,pH Level = 10 ,Temperature = 47 °C to IBM Watson
Published Turbidity = 44 NTU ,pH Level = 8 ,Temperature = 14 °C to IBM Watson
Published Turbidity = 103 NTU ,pH Level = 5 ,Temperature = 11 °C to IBM Watson
Published Turbidity = 21 NTU ,pH Level = 5 ,Temperature = 21 °C to IBM Watson
Published Turbidity = 90 NTU ,pH Level = 5 ,Temperature = 44 °C to IBM Watson
Published Turbidity = 4 NTU ,pH Level = 1 ,Temperature = 8 °C to IBM Watson

```

lot Sensor is connected and data is published.

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar labeled 'Search by Device ID' is present. The main content area shows a table of devices. The first device, 'water_quality', is in a 'Connected' state. Below the device list, a detailed view for 'water_quality' is shown, including tabs for 'Identity', 'Device Information', 'Recent Events', 'State', and 'Logs'. The 'Recent Events' tab is active, displaying a list of events from the 'IoTSensor' device. Each event contains a JSON payload with turbidity, pHLevel, and temperature data. A status indicator at the bottom right shows '1 Simulation running'.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
water_quality	Connected	water_monitoring	Device	Nov 17, 2022 9:48 AM	

Event	Value	Format	Last Received
IoTSensor	{"turbidity":103,"pHLevel":1,"temperature":38}	json	a few seconds ago
IoTSensor	{"turbidity":94,"pHLevel":8,"temperature":94}	json	a few seconds ago
IoTSensor	{"turbidity":106,"pHLevel":9,"temperature":6}	json	a few seconds ago
IoTSensor	{"turbidity":74,"pHLevel":7,"temperature":100}	json	a few seconds ago
IoTSensor	{"turbidity":37,"pHLevel":4,"temperature":68}	json	a few seconds ago

1 Simulation running