

## **Assignment – 3**

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**Application Id – SPS\_APL\_20210012580**

**Aim** - Develop a code to upload the water tank level and light intensity values to the IBM IoT platform and visualize them in the web application.

**Components Required** –

1. NODE - RED
2. Integrated Iot Device
3. Python
4. IBM Cloud

**Working** - We develop a code using python which behaves as virtual device to send and receive the data.

The python code continuously sends random light intensity data and Water level to the IBM cloud which is then visualized in the web application created using NODE-Red.

## Python Code –

```
import wiotp.sdk.device

import time

import random


myConfig = {

    "identity": {

        "orgId": "d7luey",

        "typeId": "WaterAndLight",

        "deviceId": "5682"

    },

    "auth": {

        "token": "12345678"

    }

}


client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)

client.connect()

while True:

    waterLevel=random.randint(0,100)

    lightIntensity=random.randint(0,100)

    myData={'level':waterLevel, 'intensity':lightIntensity}

    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)

    print("Published data Successfully: %s", myData)

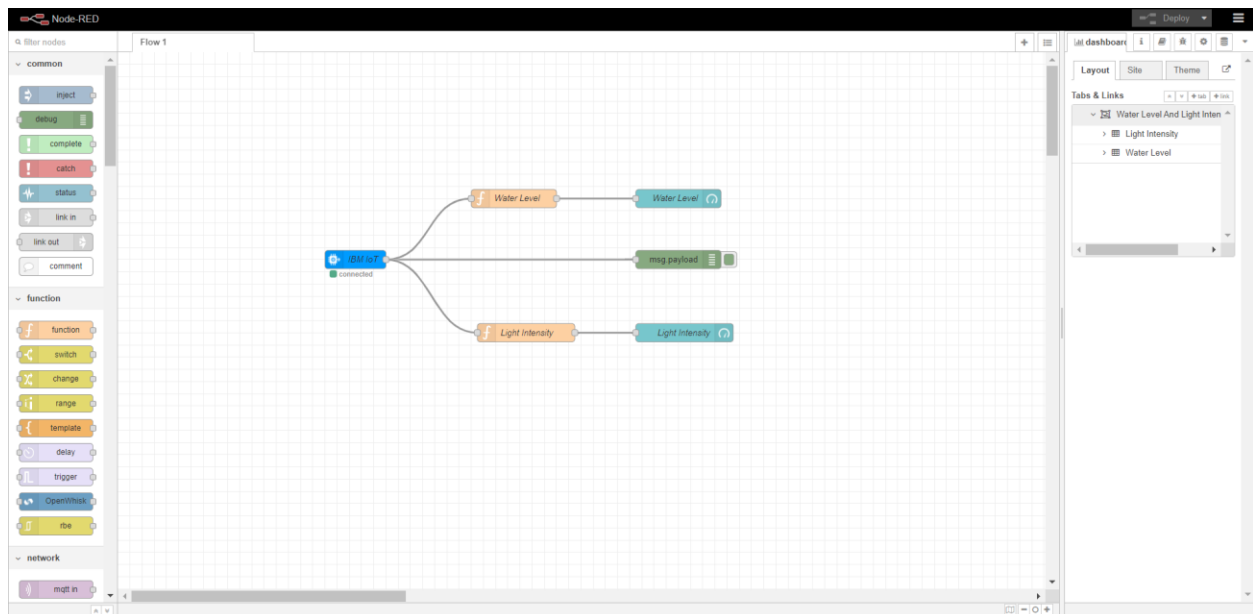
    time.sleep(2)


client.disconnect()
```

## Device Status And Details

5682	Connected	WaterAndLight	Device	Jul 9, 2021 9:01 PM
<b>Identity</b> <b>Device Information</b> <b>Recent Events</b> <b>State</b> <b>Logs</b>				
Device ID	5682			
Device Type	WaterAndLight			
Date Added	Jul 9, 2021 9:01 PM			
Added By	ayushkumar.singh2019@vitstudent.ac.in			
Connection Status	<b>Connected</b> Connection Time: Jul 11, 2021 7:36 PM Client Address: 157.42.111.123 SecureToken			

## Node Red flow



## Recent Events on device

5682	Connected	WaterAndLight	Device	Jul 9, 2021 9:01 PM	→ ...
Identity	Device Information	Recent Events	State	Logs	×
The recent events listed show the live stream of data that is coming and going from this device.					
Event	Value	Format	Last Received		
status	{"level":31,"intensity":38}	json	a few seconds ago		
status	{"level":4,"intensity":48}	json	a few seconds ago		
status	{"level":60,"intensity":55}	json	a few seconds ago		
status	{"level":13,"intensity":58}	json	a few seconds ago		
status	{"level":79,"intensity":30}	json	a few seconds ago		

## Python shell output

```
IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits() or "license()" for more information.
>>>
=== RESTART: F:\assignment\ASSIGNMENT3\iot_waterlevel_lightintensity_code.py ===
2021-07-11 19:36:40.125 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:d7luey:WaterAndLight:5682
Published data Successfully: %s ('level': 7, 'intensity': 99)
Published data Successfully: %s ('level': 25, 'intensity': 58)
Published data Successfully: %s ('level': 22, 'intensity': 10)
Published data Successfully: %s ('level': 71, 'intensity': 32)
Published data Successfully: %s ('level': 19, 'intensity': 72)
Published data Successfully: %s ('level': 73, 'intensity': 71)
Published data Successfully: %s ('level': 38, 'intensity': 23)
Published data Successfully: %s ('level': 33, 'intensity': 66)
Published data Successfully: %s ('level': 72, 'intensity': 14)
Published data Successfully: %s ('level': 61, 'intensity': 88)
Published data Successfully: %s ('level': 81, 'intensity': 87)
Published data Successfully: %s ('level': 91, 'intensity': 3)
Published data Successfully: %s ('level': 83, 'intensity': 48)
Published data Successfully: %s ('level': 56, 'intensity': 74)
Published data Successfully: %s ('level': 19, 'intensity': 99)
Published data Successfully: %s ('level': 70, 'intensity': 52)
Published data Successfully: %s ('level': 24, 'intensity': 88)
Published data Successfully: %s ('level': 26, 'intensity': 26)
Published data Successfully: %s ('level': 91, 'intensity': 82)
Published data Successfully: %s ('level': 55, 'intensity': 14)
Published data Successfully: %s ('level': 74, 'intensity': 21)
Published data Successfully: %s ('level': 5, 'intensity': 67)
Published data Successfully: %s ('level': 42, 'intensity': 55)
Published data Successfully: %s ('level': 45, 'intensity': 36)
Published data Successfully: %s ('level': 13, 'intensity': 72)
Published data Successfully: %s ('level': 47, 'intensity': 83)
Published data Successfully: %s ('level': 79, 'intensity': 30)
Published data Successfully: %s ('level': 13, 'intensity': 58)
Published data Successfully: %s ('level': 60, 'intensity': 55)
Published data Successfully: %s ('level': 4, 'intensity': 48)
Published data Successfully: %s ('level': 31, 'intensity': 38)
Published data Successfully: %s ('level': 85, 'intensity': 21)
Published data Successfully: %s ('level': 7, 'intensity': 8)
Published data Successfully: %s ('level': 80, 'intensity': 75)
Published data Successfully: %s ('level': 58, 'intensity': 52)
Published data Successfully: %s ('level': 41, 'intensity': 81)
Published data Successfully: %s ('level': 92, 'intensity': 60)
Published data Successfully: %s ('level': 62, 'intensity': 28)
Published data Successfully: %s ('level': 89, 'intensity': 90)
Published data Successfully: %s ('level': 38, 'intensity': 73)
Published data Successfully: %s ('level': 85, 'intensity': 21)
Published data Successfully: %s ('level': 43, 'intensity': 77)
```

## Web Page output

