

PROJECT DEVELOPMENT PHASE

SPRINT 1

Date	16 November 2022
Team ID	PNT2022TMID13542
Project name	Hazardous area monitoring for industrial power plants by IoT
Maximum marks	2 marks

ANALYZE THE PREREQUISITES

Needed prerequisites for real time river water quality monitoring and control system using Internet Of Things (IoT) were

- ❖ IBM Watson IoT Platform
- ❖ Node-RED Service
- ❖ Cloudant DB

Python code:

```
import time

import sys

import ibmiotf.application

import ibmiotf.device

import random

organization = "67yqBw"

deviceType = "Nodemcu"

deviceId = "123"

authMethod = "token"

authToken = "12345678"

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,"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()

deviceCli.connect()

while True:

gasconcentration = random.randint(90,110)

    Humidity =random.randint(90,110)

    Temperature = random.randint(90,110)

    data = {'gasconcentration' :gasconcentration,'Humidity' : Humidity,'Temperature' :Temperature}

    def myOnPublishCallback():

print(" GasConcentration = %s PPM" % gasconcentration, "to IBM Watson")

print(" Humidity = %s%%" % Humidity, "to IBM Watson")

print(" Temperature = %s C" % Temperature, "to IBM Watson")

        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)

        if not success:

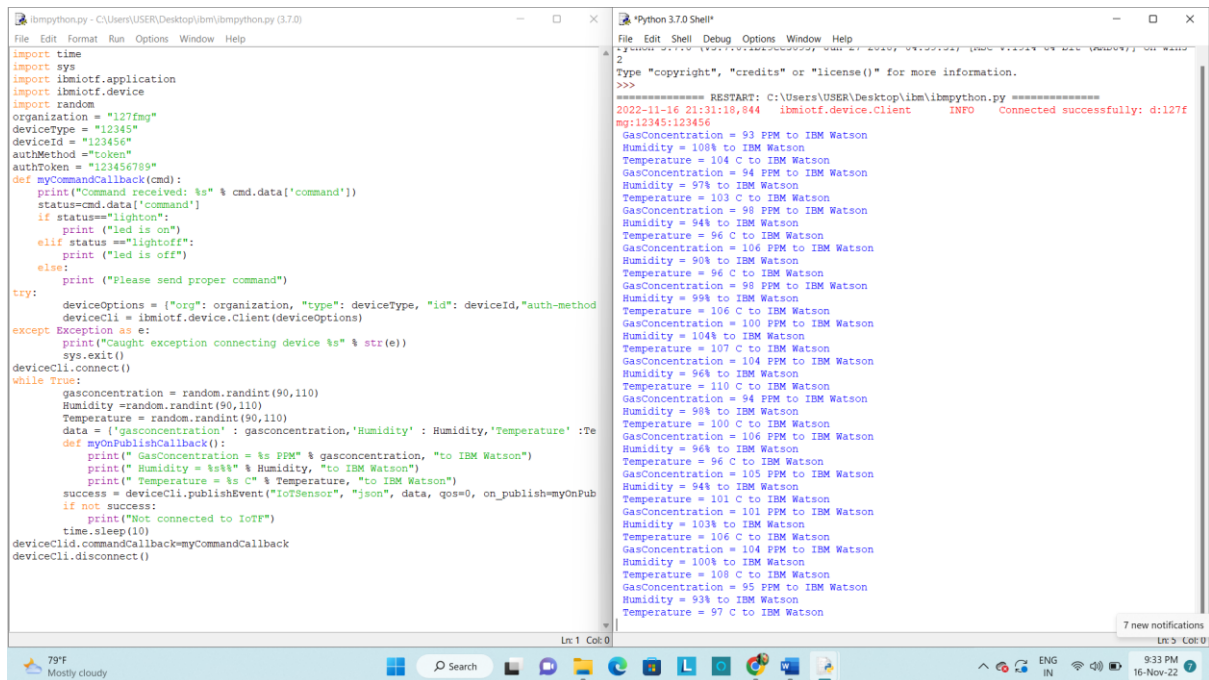
print("Not connected to IoT")

time.sleep(10)

deviceCli.commandCallback=myCommandCallback

deviceCli.disconnect()

```

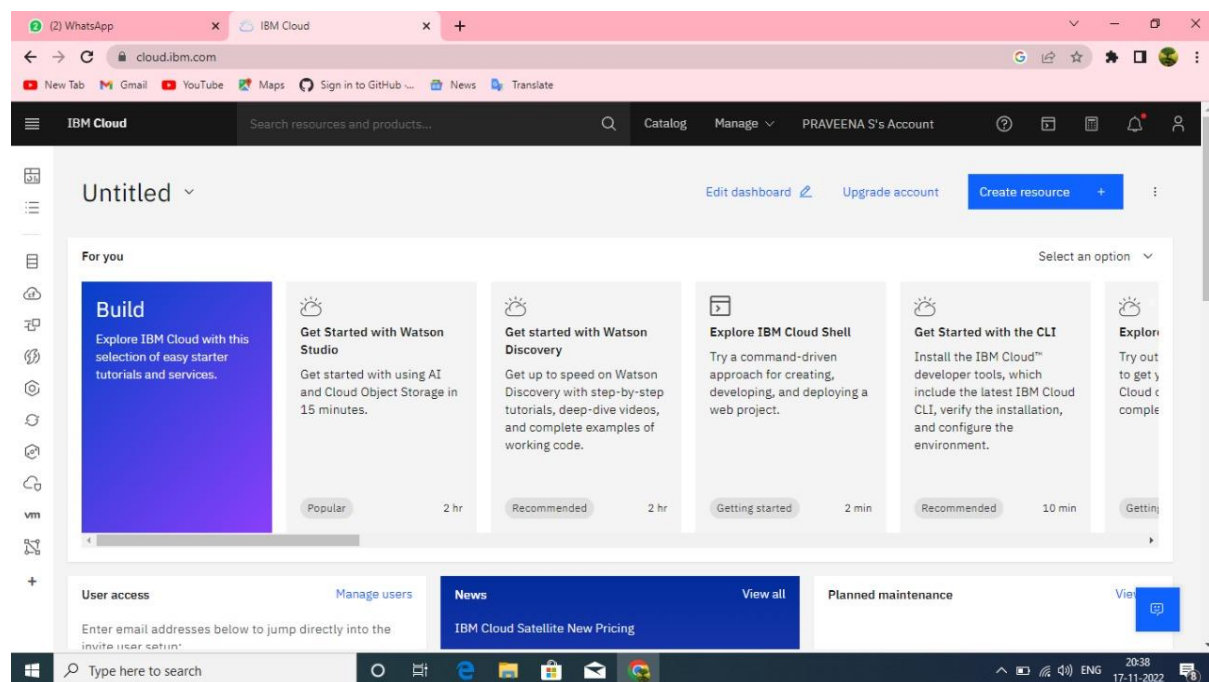


```
ibmpython.py - C:\Users\USER\Desktop\ibm\ibmpython.py (3.7.0)
File Edit Format Run Options Window Help
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
organization = "127fmg"
deviceId = "12345"
authMethod = "token"
authToken = "123456789"
def myCommandCallback(cmd):
    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": deviceId, "id": deviceId, "auth-method": authMethod}
    deviceCli = ibmiotf.device.Client(deviceOptions)
except Exception as e:
    print("Caught exception connecting device %s" % str(e))
    sys.exit()
deviceCli.connect()
while True:
    gasConcentration = random.randint(90,110)
    Humidity = random.randint(90,110)
    Temperature = random.randint(90,110)
    data = {'gasConcentration': gasConcentration, 'Humidity': Humidity, 'Temperature': Temperature}
    def myOnPublishCallback():
        print(" GasConcentration = %s PPM" % gasConcentration, "to IBM Watson")
        print(" Humidity = %s%" % Humidity, "to IBM Watson")
        print(" 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.disconnect()

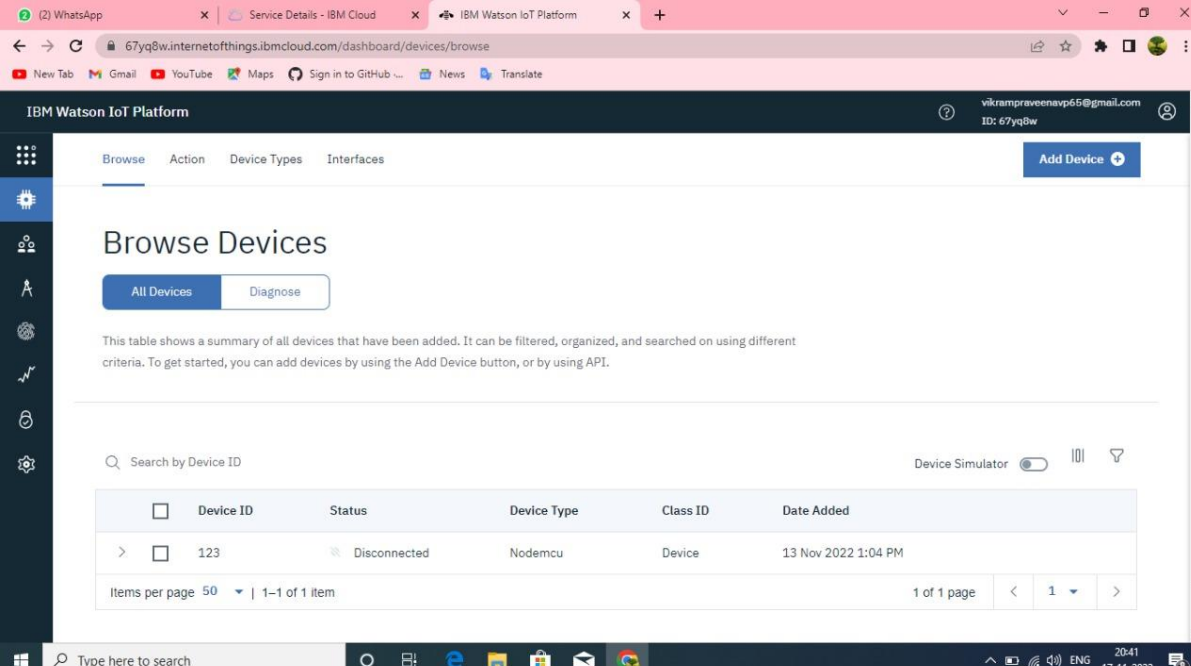
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\USER\Desktop\ibm\ibmpython.py =====
2022-11-16 21:31:18,844 ibmiotf.device.Client INFO Connected successfully: d:127fmg:12345:123456
GasConcentration = 93 PPM to IBM Watson
Humidity = 108% to IBM Watson
Temperature = 104 C to IBM Watson
GasConcentration = 94 PPM to IBM Watson
Humidity = 97% to IBM Watson
Temperature = 103 C to IBM Watson
GasConcentration = 99 PPM to IBM Watson
Humidity = 94% to IBM Watson
Temperature = 96 C to IBM Watson
GasConcentration = 106 PPM to IBM Watson
Humidity = 90% to IBM Watson
Temperature = 96 C to IBM Watson
GasConcentration = 98 PPM to IBM Watson
Humidity = 99% to IBM Watson
Temperature = 107 C to IBM Watson
GasConcentration = 106 C to IBM Watson
Humidity = 96% to IBM Watson
Temperature = 110 C to IBM Watson
GasConcentration = 94 PPM to IBM Watson
Humidity = 98% to IBM Watson
Temperature = 100 C to IBM Watson
GasConcentration = 106 PPM to IBM Watson
Humidity = 96% to IBM Watson
Temperature = 96 C to IBM Watson
GasConcentration = 105 PPM to IBM Watson
Humidity = 94% to IBM Watson
Temperature = 101 C to IBM Watson
GasConcentration = 101 PPM to IBM Watson
Humidity = 103% to IBM Watson
Temperature = 106 C to IBM Watson
GasConcentration = 104 PPM to IBM Watson
Humidity = 100% to IBM Watson
Temperature = 108 C to IBM Watson
GasConcentration = 95 PPM to IBM Watson
Humidity = 93% to IBM Watson
Temperature = 97 C to IBM Watson
```

Code runs successfully and random output values are generated

Creation of IBM cloud



Procedure for the creation of IBM IOT watson



IBM Watson IoT Platform

vikrampraveenavp65@gmail.com
ID: 67yq8w

Browse Action Device Types Interfaces

Add Device

Browse Devices

All Devices Diagnose

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.

Search by Device ID

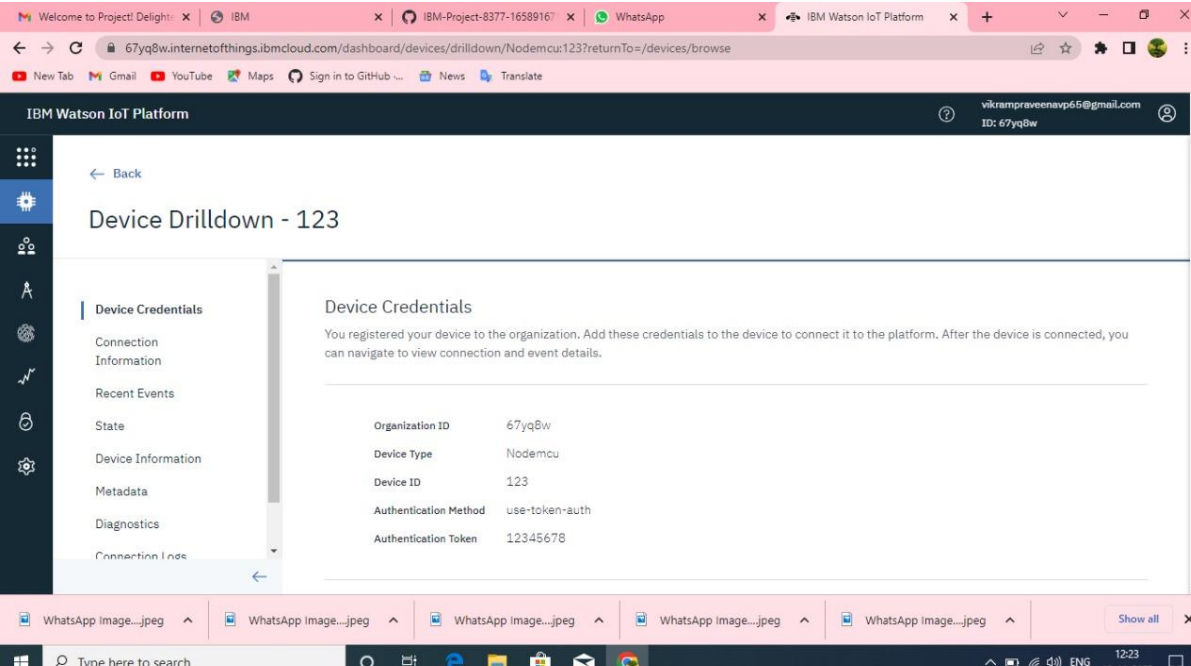
Device Simulator

Device ID	Status	Device Type	Class ID	Date Added
123	Disconnected	Nodemcu	Device	13 Nov 2022 1:04 PM

Items per page 50 | 1-1 of 1 item

1 of 1 page

Device creation



Welcome to Project! Delight: X IBM IBM-Project-8377-16589167 WhatsApp IBM Watson IoT Platform

67yq8w.internetofthings.ibmcloud.com/dashboard/devices/drilldown/Nodemcu:123?returnTo=/devices/browse

IBM Watson IoT Platform

vikrampraveenavp65@gmail.com
ID: 67yq8w

Back

Device Drilldown - 123

Device Credentials

You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details.

Organization ID	67yq8w
Device Type	Nodemcu
Device ID	123
Authentication Method	use-token-auth
Authentication Token	12345678

Show all

Generation of random values in IBM Watson

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes tabs for 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area shows a list of devices, with one device selected and its details expanded. The 'Recent Events' tab is active, showing a stream of data events.

Device Details:

- Device ID: 123
- Status: Disconnected
- Device type: Nodemcu
- Class ID: Device
- Date Added: 13 Nov 2022 12:23 PM

Recent Events:

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
eventflow	{"temperature":98}	json	a few seconds ago
eventflow	{"temperature":90}	json	a few seconds ago
eventflow	{"temperature":92}	json	a few seconds ago
eventflow	{"temperature":96}		
eventflow	{"temperature":94}		

1 Simulation running