

# PREREQUISITES

## SOFTWARE

TEAM ID	PNT2022TMID41301
PROJECT NAME	Real-Time River Water Quality Monitoring and Control System

## SOFTWARE

### Python script:

I. We create a python code to detect temperature, turbidity and ph values of the river water.

II. Send the status of temperature,turbidity , ph values to the IBM Watson using python script

```
riverwater.py - C:\Users\Lenovo\Desktop\riverwater.py (3.7.8rc1)
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 = "5512ca"
deviceType = "riverwater"
deviceId = "12345678"
authMethod = "token"
authToken = "23452345"

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="motoron":
        print ("Motor is on")
        state="motor on"
    else :
        print ("Motor is off")
        state="motor off"

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()

print("checking status of watson iot device ... connected .....successfully")
deviceCli.connect()
print("dear user ... welcome to IBM-IOT ")

while True:
    waterph=random.randint(1,10)
    temperature=random.randint(20,50)#random temperature in water
    turbidity=random.randint(10,70)#random trubidity in water
    if (waterph<5):
        print("ph is low in water")
```

```
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print("checking status of watson iot device ... connected .....sucessfully")
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while True:
    waterph=random.randint(1,10)
    temperature=random.randint(20,50)#random temperature in water
    turbidity=random.randint(10,70)#random trubidity in water
    if (waterph<5):
        print("ph is low in water")
        waterphstatus="low ph ,bad water"
    elif(waterph>5)and(waterph<7):
        print("normal ph in water")
        waterphstatus="good ph,good water"
    else:
        print("normal ph in water")
        waterphstatus="high ph,bad water"
    if (turbidity<30):
        print("turbidity is low in water")
        turbiditystatus="low turbidity , dust particles is low"
    elif( turbidity>30)and(waterph<7):
        print("normal turbidity in water")
        turbiditystatus="good turbidity, dust particles is medium "
    else:
        print("normal turbidity in water")
        turbiditystatus="high turbidity,dust parricles is more "
    data = { 'temp' : temperature,'turb':turbidity,'ph':waterph,'waterphstatus':waterphstatus,'turbiditystatus':turbiditystatus}
    #print data
    def myOnPublishCallback():
        print ("Published Temperature = %s C" % temperature,"turbidity = %s %" % turbidity,"waterph = %s %" % waterph )
    success = deviceCli.publishEvent("espwatermodule", "json", data, qos=0, on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to IOT")
    time.sleep(5)
    deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

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```
"Python 3.7.8rc1 Shell"
File Edit Shell Debug Options Window Help

Python 3.7.8rc1 (tags/v3.7.8rc1:5f3933deid, Jun 17 2020, 16:59:29) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Lenovo\Desktop\river water.py =====
checking status of watson iot device ... connected .....sucessfully
dear user ... welcome to IBM-IOT
ph is low in water
turbidity is low in water
2022-11-11 13:55:59.943 IBMiotf.device.Client INFO Connected successfully: d:5512ca:riverwater:12345678
Published Temperature = 48 C turbidity = 26 % waterph = 1 %
ph is low in water
turbidity is low in water
Published Temperature = 50 C turbidity = 14 % waterph = 2 %
ph is low in water
normal turbidity in water
Published Temperature = 24 C turbidity = 43 % waterph = 4 %
normal ph in water
normal turbidity in water
Published Temperature = 35 C turbidity = 44 % waterph = 9 %
normal ph in water
turbidity is low in water
Published Temperature = 25 C turbidity = 24 % waterph = 9 %
normal ph in water
turbidity is low in water
Published Temperature = 20 C turbidity = 27 % waterph = 8 %
normal ph in water
turbidity is low in water
Published Temperature = 20 C turbidity = 28 % waterph = 5 %
ph is low in water
turbidity is low in water
Published Temperature = 39 C turbidity = 27 % waterph = 3 %
normal ph in water
turbidity is low in water
Published Temperature = 45 C turbidity = 13 % waterph = 7 %
|
```

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