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Project title: Real-Time River Water Quality Monitoring and Control System

Python code:

```
import ibmiotf.application
import ibmiotf.device
import time
import random
import sys
#from twilio.rest import Client
#import key
#Client = Client(keys.account_sid, keys.auth_token)

organization = "maci0x"
deviceType = "raspberrypi"
deviceId = "123"
authMethod = "token"
authToken = "12345678"

pH = random.randint(1, 14)
turbidity = random.randint(1, 100)
temperature = random.randint(0, 100)


def myCommandCallback(cmd):
    print("Command Received: %s" % cmd.data['command'])
    #print(cmd)
    status=cmd.data['command']
    if status=="motoron":
        print("motor is on")
    elif status == "motoroff":
        print ("motor 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:

    pH = random.randint(1, 14)
    turbidity = random.randint(1, 100)
    temperature = random.randint(0, 100)

    data = {'pH': pH, 'turbid': turbidity, 'temp': temperature}


    def myOnPublishCallback():
        print("Published pH= %s" % pH, "Turbidity:%s" % turbidity, "Temperature:%s" %
temperature)


    success = deviceCli.publishEvent("demo", "json", data, qos=0,
on_publish=myOnPublishCallback)
    if not success:
        print("Not Connected to ibmiot")
    time.sleep(5)
    deviceCli.commandCallback = myCommandCallback

deviceCli.disconnect()
```

Output: