Project Development phase

Date	**09 November 2022**
Team ID	**PNT2022TMID41301**
Project Name	**Project – RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM**
Maximum Marks	**4 Marks**

Delivering of Sprint-1

IBM Cloud Services:

I. Devices:
- To create IBM Watson IOT platform for creating a Device
- After add the device.
- Send temperature,turbidity , ph values to the IBM Watson.

II. Broads:
- After creating devices, we create broad chart (line chart, donut chart) for analysis the level of the temperature, turbidity and ph of the river water.

Python script:

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

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

Python test code:(sending temperature,turbidity, ph to IBM watson)

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
#Provide your IBM Watson Device Credentials
organization = "55i2ca"
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 .....sucessfully")

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")
            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 particles 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 IoTF")
        time.sleep(5)
        deviceCli.commandCallback = myCommandCallback


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

river water.py - C:\Users\Lenovo\Desktop\river water.py (3.7.8rc1)

File Edit Format Run Options Window Help

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import ibmiotf.application
import ibmiotf.device
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Ln: 1 Col: 0

river water.py - C:\Users\Lenovo\Desktop\river water.py (3.7.8rc1)

File Edit Format Run Options Window Help

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            print ("Published Temperature = %s C" % temperature,"turbidity = %s %%" % turbidity,"waterph = %s %%" % waterph )
        success = deviceCli.publishEvent("espwatermodule", "json", data, qos=0, on_publish=myOnPublishCallback)
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        deviceCli.commandCallback = myCommandCallback


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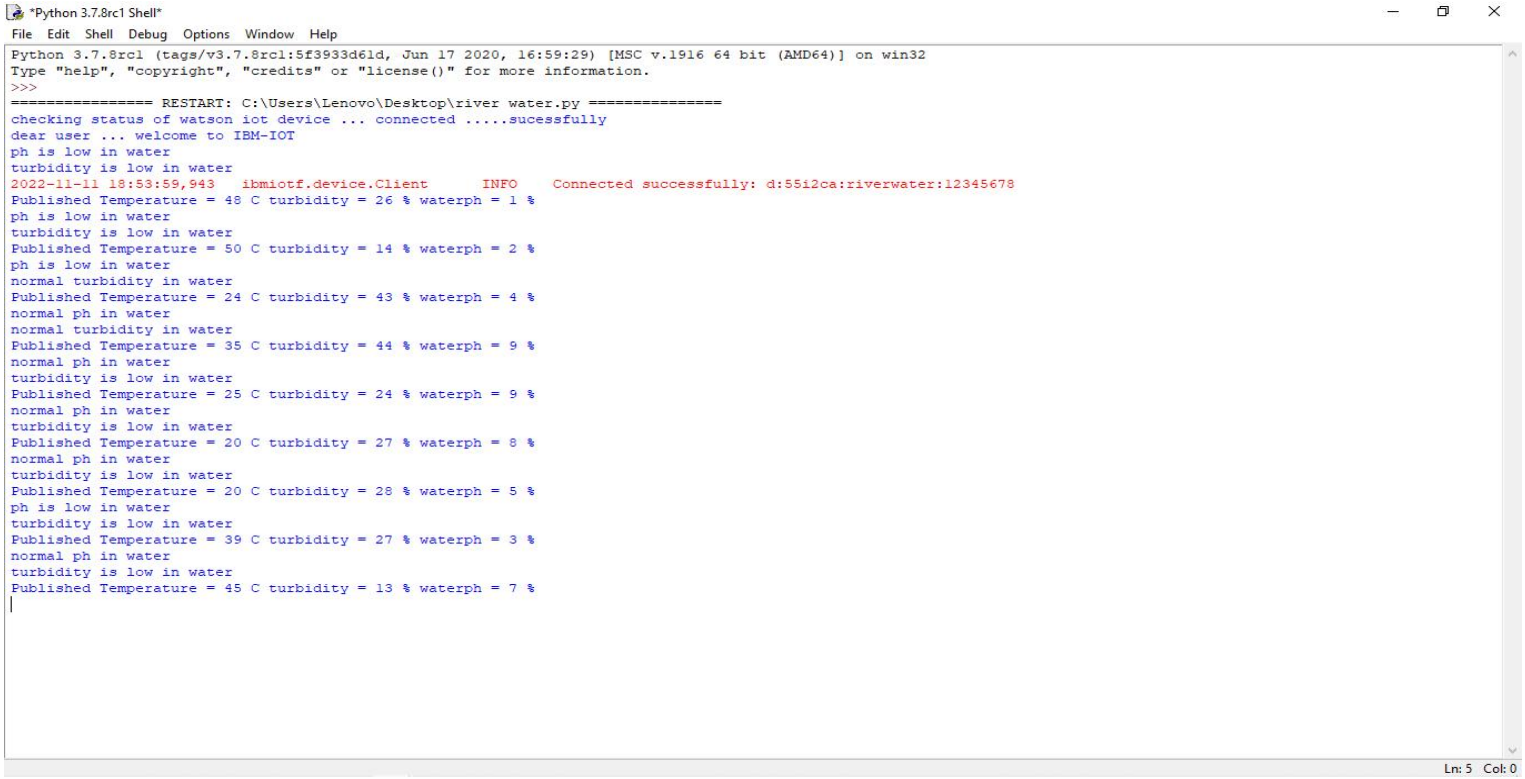
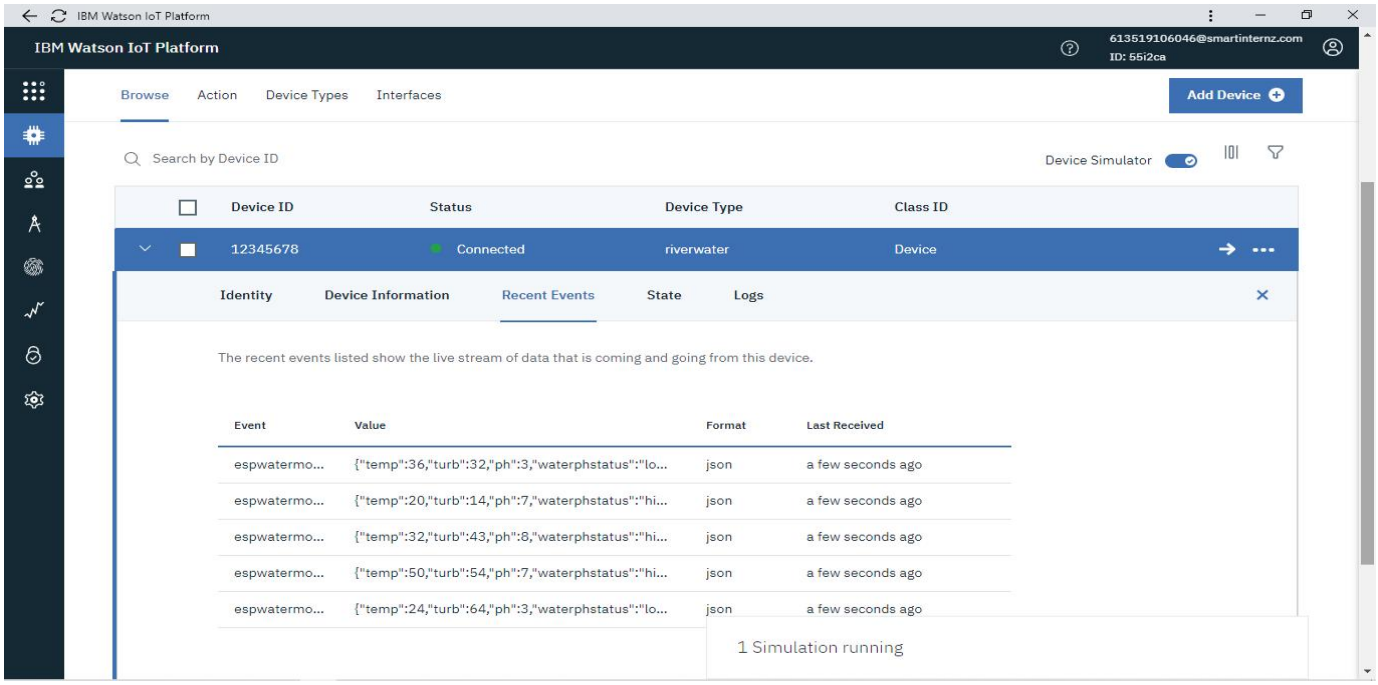
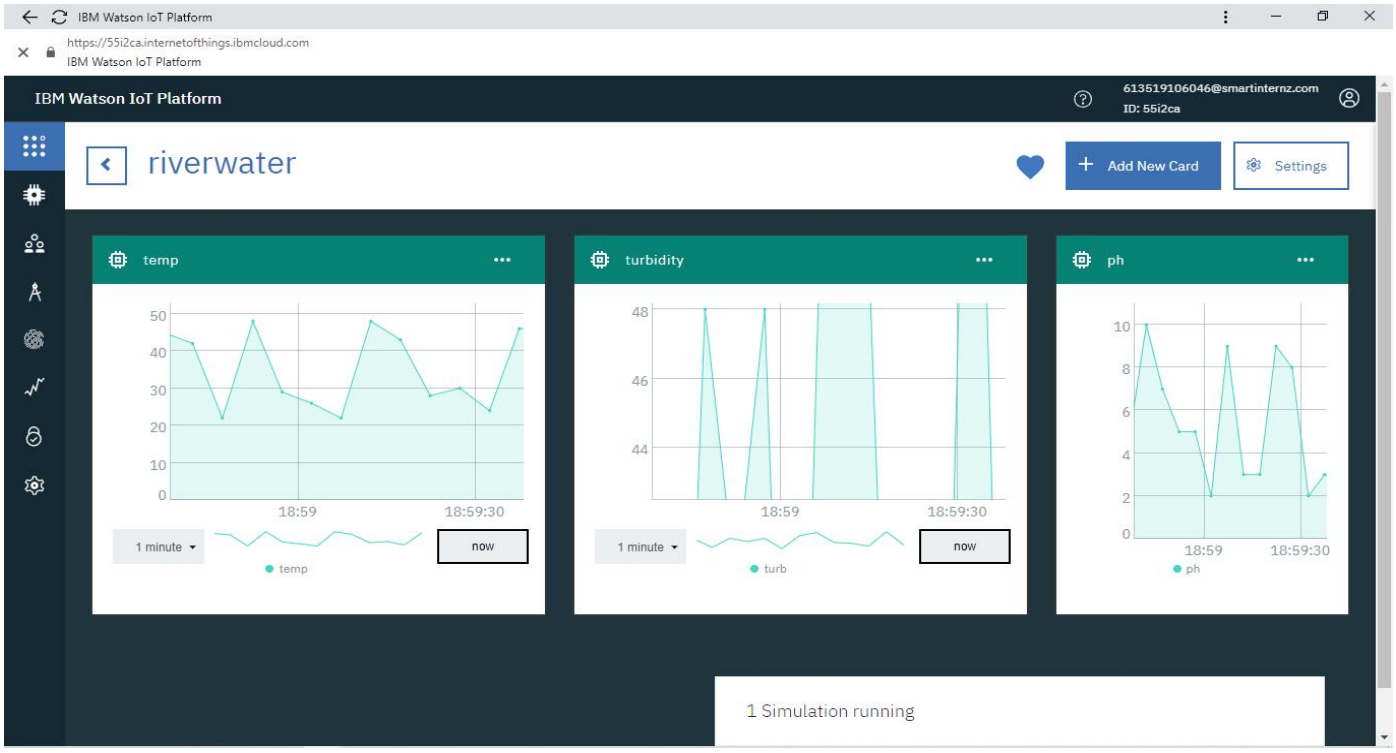
Ln: 1 Col: 0


Python 3.7.8rc1 Shell
File Edit Shell Debug Options Window Help
Python 3.7.8rc1 (tags/v3.7.8rc1:5f3933d61d, 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 18:53:59,943 ibmiotf.device.Client INFO Connected successfully: d:55i2ca: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 %
Ln: 5 Col: 0


IBM Watson IoT Platform
IBM Watson IoT Platform
613519106046@smartinternz.com
ID: 55i2ca
Browse
Action
Device Types
Interfaces
Add Device
Search by Device ID
Device Simulator
Device ID
Status
Device Type
Class ID
12345678
Connected
riverwater
Device
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
espwatermo...
{"temp":36,"turb":32,"ph":3,"waterphstatus":"lo...
json
a few seconds ago
espwatermo...
{"temp":20,"turb":14,"ph":7,"waterphstatus":"hi...
json
a few seconds ago
espwatermo...
{"temp":32,"turb":43,"ph":8,"waterphstatus":"hi...
json
a few seconds ago
espwatermo...
{"temp":50,"turb":54,"ph":7,"waterphstatus":"hi...
json
a few seconds ago
espwatermo...
{"temp":24,"turb":64,"ph":3,"waterphstatus":"lo...
json
a few seconds ago
1 Simulation running


IBM Watson IoT Platform
https://55i2ca.internetofthings.ibmcloud.com
IBM Watson IoT Platform
IBM Watson IoT Platform
613519106046@smartinternz.com
ID: 55i2ca
riverwater
Add New Card
Settings
temp
turbidity
ph
50
40
30
20
10
0
18:59
18:59:30
1 minute
now
temp
48
46
44
turb
10
8
6
4
2
ph
1 Simulation running