

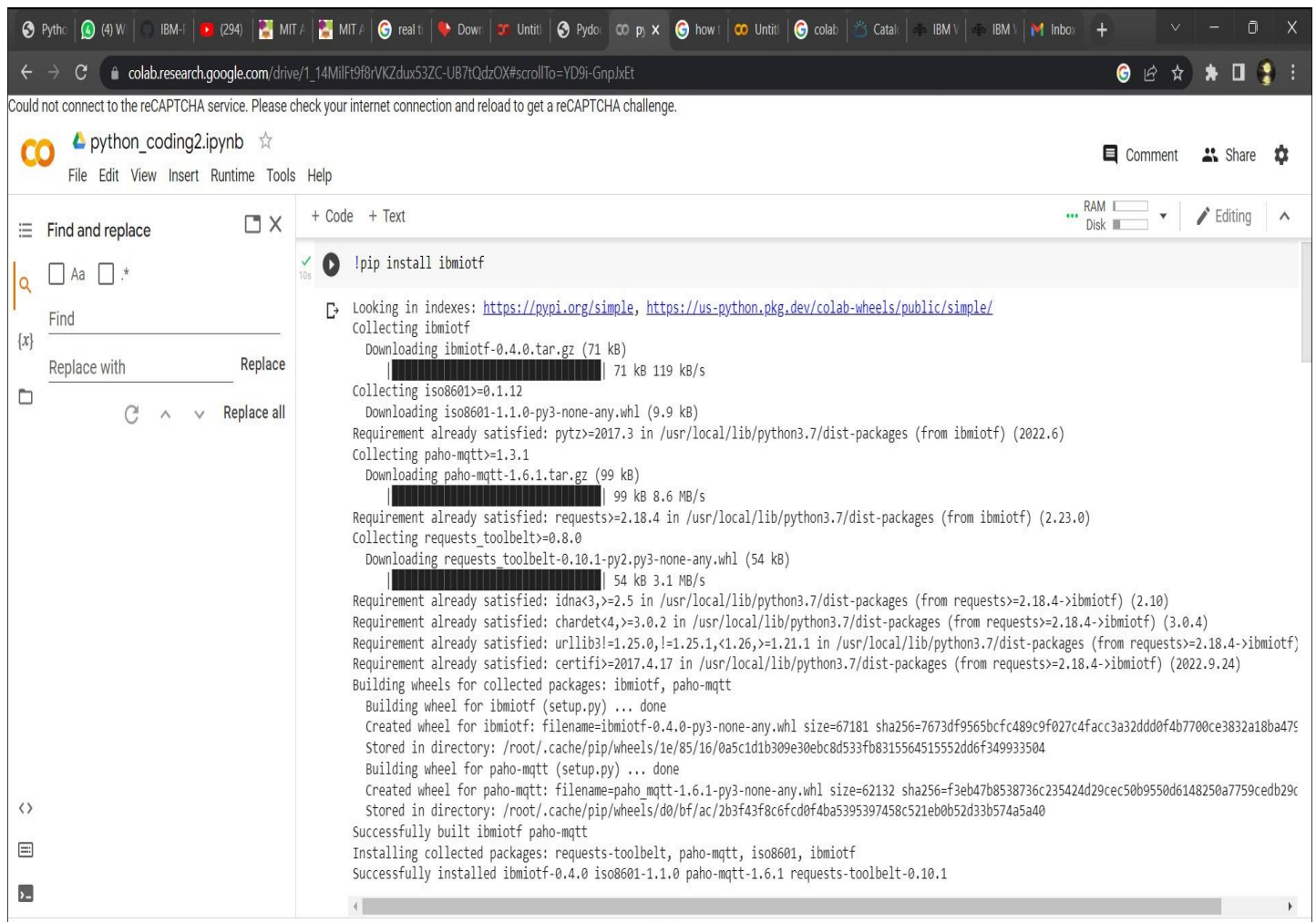
PYTHON OUTPUT

Project Title: Real Time River water quality monitoring and Control system

Team ID: PNT2022TMID06145

Team Members:

1. Hari RaamaKrishnan S- Team Leader
2. Saran R -Team Member
3. Sasikumar M- Team Member
4. Parthasarathi S – Team Member
5. Mohammed Alla Pitchai M- Team Member



The screenshot shows a Google Colab notebook interface. The top toolbar includes icons for Python, Google Drive, and various file management tools. The browser address bar shows the Colab URL. A message at the top states: "Could not connect to the reCAPTCHA service. Please check your internet connection and reload to get a reCAPTCHA challenge." The notebook title is "python_coding2.ipynb". The left sidebar contains a "Find and replace" panel. The main code cell contains the command `!pip install ibmiotf`. The output shows the pip command's execution, including package collection, downloading, and installation details for `ibmiotf`, `iso8601`, `paho-mqtt`, and `requests-toolbelt`. The output concludes with "Successfully installed ibmiotf-0.4.0 iso8601-1.1.0 paho-mqtt-1.6.1 requests-toolbelt-0.10.1".

```
!pip install ibmiotf

Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting ibmiotf
  Downloading ibmiotf-0.4.0.tar.gz (71 kB)
    [REDACTED] 71 kB 119 kB/s
Collecting iso8601>=0.1.12
  Downloading iso8601-1.1.0-py3-none-any.whl (9.9 kB)
Requirement already satisfied: pytz>=2017.3 in /usr/local/lib/python3.7/dist-packages (from ibmiotf) (2022.6)
Collecting paho-mqtt>=1.3.1
  Downloading paho-mqtt-1.6.1.tar.gz (99 kB)
    [REDACTED] 99 kB 8.6 MB/s
Requirement already satisfied: requests>=2.18.4 in /usr/local/lib/python3.7/dist-packages (from ibmiotf) (2.23.0)
Collecting requests-toolbelt>=0.8.0
  Downloading requests-toolbelt-0.10.1-py2.py3-none-any.whl (54 kB)
    [REDACTED] 54 kB 3.1 MB/s
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests>=2.18.4->ibmiotf) (2.10)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests>=2.18.4->ibmiotf) (3.0.4)
Requirement already satisfied: urllib3!=1.25.0,!1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python3.7/dist-packages (from requests>=2.18.4->ibmiotf) (1.26.13)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests>=2.18.4->ibmiotf) (2022.9.24)
Building wheels for collected packages: ibmiotf, paho-mqtt
  Building wheel for ibmiotf (setup.py) ... done
  Created wheel for ibmiotf: filename=ibmiotf-0.4.0-py3-none-any.whl size=67181 sha256=7673df9565bfc489c9f027c4facc3a32dddf4b7700ce3832a18ba475
  Stored in directory: /root/.cache/pip/wheels/1e/85/16/0a5c1d1b309e30ebc8d533fb8315564515552dd6f349933504
  Building wheel for paho-mqtt (setup.py) ... done
  Created wheel for paho-mqtt: filename=paho-mqtt-1.6.1-py3-none-any.whl size=62132 sha256=f3eb47b8538736c235424d29cec50b9550d6148250a7759cedb29c
  Stored in directory: /root/.cache/pip/wheels/d0/bf/ac/2b3f43f8c6fcd0f4ba5395397458c521eb0b52d33b574a5a40
Successfully built ibmiotf paho-mqtt
Installing collected packages: requests-toolbelt, paho-mqtt, iso8601, ibmiotf
Successfully installed ibmiotf-0.4.0 iso8601-1.1.0 paho-mqtt-1.6.1 requests-toolbelt-0.10.1
```

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python_coding2.ipynb

File Edit View Insert Runtime Tools Help

Find and replace

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Find

Replace with

Replace

Replace all

+ Code + Text

```
[2] import random
import time
import sys
import ibmiotf.application
import ibmiotf.device
# Provide your IBM Watson Device Credentials

[3] organization = "oucgak" # repalce it with organization ID
deviceType = "HSSPM" # replace it with device type
deviceId = "12345" # repalce with device id
authMethod = "token"
authToken = "1234567890" # repalce with token

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status == 'lighton':
        print("LIGHT ON")

    elif status == 'lightoff':
        print("LIGHT OFF")
    else:
        print ("please send proper command")

[5]
```

+ Code + Text

RAM

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Editing

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python_coding2.ipynb

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Find and replace

Find

Replace with Replace

Replace all

+ Code + Text

RAM Disk

Editing

```
[5]
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()
```

2022-11-18 14:14:56,911 ibmiotf.device.Client INFO Connected successfully: d:oucgak:HSSPM:12345
INFO:ibmiotf.device.Client:Connected successfully: d:oucgak:HSSPM:12345

```
while True:
    pH = random.randint(0,100)
    conductivity = random.randint(0,100)
    T = random.randint(0,100)
    oxygen = random.randint(0,100)
    turbidity = random.randint(0,100)
    # Send Temperature & Humidity to IBM Watson
    data = {'T': T, 'pH': pH, 'conductivity': conductivity, 'oxygen': oxygen, 'turbidity': turbidity}

    # print data
```

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Find and replace

Find

Replace with Replace

Replace all

+ Code + Text

RAM Disk

Editing

```
while True:
    pH = random.randint(0,100)
    conductivity = random.randint(0,100)
    T = random.randint(0,100)
    oxygen = random.randint(0,100)
    turbidity = random.randint(0,100)
    # Send Temperature & Humidity to IBM Watson
    data = {'T': T, 'pH': pH, 'conductivity': conductivity, 'oxygen': oxygen, 'turbidity': turbidity}

    # print data
    def myOnPublishCallback():
        print("Published data", data, "to IBM Watson")

    success = deviceCli.publishEvent("event", "json", data, 0, myOnPublishCallback)
    if not success:
        print("Not connected to IoT")
    time.sleep(5)

    deviceCli.commandCallback = myCommandCallback
```

Published data {'T': 37, 'pH': 50, 'conductivity': 73, 'oxygen': 67, 'turbidity': 45} to IBM Watson
Published data {'T': 54, 'pH': 43, 'conductivity': 54, 'oxygen': 63, 'turbidity': 24} to IBM Watson
Published data {'T': 53, 'pH': 29, 'conductivity': 73, 'oxygen': 55, 'turbidity': 19} to IBM Watson
Published data {'T': 40, 'pH': 38, 'conductivity': 24, 'oxygen': 17, 'turbidity': 69} to IBM Watson

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IBM Watson IoT Platform

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Device Drilldown - 12345

Device Credentials

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

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
event	{"T":73,"pH":78,"conductivity":86,"oxygen":34,"t...	json	a few seconds ago
event	{"T":34,"pH":5,"conductivity":12,"oxygen":89,"tu...	json	a few seconds ago
event	{"T":56,"pH":86,"conductivity":81,"oxygen":29,"t...	json	a few seconds ago
event	{"T":21,"pH":21,"conductivity":4,"oxygen":76,"tu...	json	a few seconds ago
event	{"T":89,"pH":92,"conductivity":97,"oxygen":9,"tu...	json	a few seconds ago

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oucgakinternetofthings.ibmcloud.com/dashboard/devices/drilldown/HSSPM:12345?returnTo=/devices/browse

msasi13301595@gmail.comID: oucgak

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Device Drilldown - 12345

Device Credentials

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Device Actions

State

This table shows a list of data points that are reported by this device.

Showing Raw Data | No Interfaces Available

Property	Value	Type	Event	Last Received
T	73	Number	event	a few seconds ago
pH	78	Number	event	a few seconds ago
conductivity	86	Number	event	a few seconds ago
oxygen	34	Number	event	a few seconds ago
turbidity	12	Number	event	a few seconds ago