

## SPRINT 4

### CODE IMPLEMENTATION

TEAM ID	PNT2022TMID17622
PROJECT NAME	Real-Time River water Quality Monitoring and Control System

#### CODE:-

```
import serial
import time
import csv
import numpy as np
import matplotlib.pyplot as plt

ser = serial.Serial('/COM6',9600)

ser_bytes = ser.readline(10)

print (ser_bytes)

ser.flushInput()

while True:

    try:

        ser_bytes = ser.readline()

        decoded_bytes = float(ser_bytes[0:len(ser_bytes)-2].decode("utf-8"))

        print(decoded_bytes)
```

```

temp = float(decoded_bytes(1:3))

turb = float(decoded_bytes(4:6))

pH = float(decoded_bytes(6:8))

with open("test_data.csv","a") as f:

    writer = csv.writer(f,delimiter=",")

    writer.writerow([time.time(),decoded_bytes])

except:

    print("Keyboard Interrupt")

    ser.close()

    break()

t = np.arange(0.0, 2.0, 0.01)

s = 1 + np.sin(2*np.pi*t)

plt.plot(t, s)

plt.xlabel('time (s)')

plt.ylabel('Celsius (C)')

plt.title('Temperature')

plt.grid(True)

plt.savefig("Temperature.png")

plt.show()

Serial.begin(9600);

sensors.begin();

int sensorValue = analogRead(A1);

voltage = sensorValue * (5.0 / 1024.0);

}

void loop(void)

```

```

{
    sensors.requestTemperatures();

    Celcius=sensors.getTempCByIndex(0);

    Fahrenheit=sensors.toFahrenheit(Celcius);

    for(int i=0;i<10;i++)
    {
        buf[i]=analogRead(analogInPin);

        delay(10);
    }

    for(int i=0;i<9;i++)
    {
        for(int j=i+1;j<10;j++)
        {
            if(buf[i]>buf[j])
            {
                temp=buf[i];
                buf[i]=buf[j];
                buf[j]=temp;
            }
        }
    }

    n = 256

    X = np.linspace(-np.pi, np.pi, 256, endpoint=True)

    C,S = np.cos(X), np.sin(X)

    plt.plot(X, C)

    plt.plot(X,S)

    plt.show()

```

```

print ("Visualization of real time sensor Data.")

print("/n")

while True:

    try:

        ser_bytes = ser.readline()

        decoded_bytes = float(ser_bytes[0:len(ser_bytes)-
2].decode("utf-8"))print(decoded_bytes)

        temp =

        float(decoded_bytes(1:3))

        turb =

        float(decoded_bytes(4:6)) pH

        = float(decoded_bytes(6:8))

        with open("test_data.csv","a")

        as f:writer =

        csv.writer(f,delimiter=",")

        writer.writerow([time.time(),decoded_bytes])

    except:

        print("Keyboard

        Interrupt")ser.close()

        break()

t = np.arange(0.0, 2.0,

0.01)s = 1 +

np.sin(2*np.pi*t)

plt.plot(t, s)

```