

SPRINT-4

CODE IMPLEMENTATION

TEAM ID	PNT2022TMID42508
PROJECT TITLE	REAL-TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM
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```
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)

```

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{
    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)
```