SPRINT-4

CODE IMPLEMENTATION

TEAM ID	PNT2022TMID38782
PROJECT TITLE	Real-Time River Water Quality Monitoring and Control System
TEAM LEADER	Arulkumaran R
TEAM MEMBER 1	Ezhilarasan S
TEAM MEMBER 2	Harish K
TEAM MEMBER 3	Guhan I

```
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)
```

```python
        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('Celsisus (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()
```

```python
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])

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

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

plt.plot(t, s)
```