SPRINT-4

CODE IMPLEMENTATION

TEAM ID	PNT2022TMID32043
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_b
ytes]) 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(Celci
us);  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)
```