## SPRINT-4

## CODE IMPLEMENTATION

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| TEAM ID | PNT2022TMID24241 |
| 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('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()

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()

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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)