

SPRINT 4

TEAM ID	PNT2022TMID00516
PROJECT TITLE	RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM

ARDUINO CODE:

```
#include <OneWire.h>
#include <DallasTemperature.h>
#define ONE_WIRE_BUS 5
OneWire oneWire(ONE_WIRE_BUS);
DallasTemperature sensors(&oneWire);
float Celcius=0;
float Fahrenheit=0;
float voltage=0;
const int analogInPin = A0;
int sensorValue = 0;
unsigned long int avgValue;
float b;
int buf[10],temp;
void setup(void)
{
    Serial.begin(9600);
    sensors.begin();
    int sensorValue = analogRead(A1);
    voltage = sensorValue * (5.0 / 1024.0);
}
void loop(void)
{
    sensors.requestTemperatures();
    Celsius=sensors.getTempCByIndex(0);
    Fahrenheit=sensors.toFahrenheit(Celsius);
    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;
            }
        }
    }
}
```

```
for(int i=2;i<8;i++)
avgValue+=buf[i];
float pHVol=(float)avgValue*5.0/1024/6;
float phValue = -5.70 * pHVol + 21.34;
Serial.println(phValue);
Serial.print("pH");
Serial.print(" C ");
Serial.print(Celcius);
Serial.print(voltage);
Serial.print("V");
delay(10000);
}
```

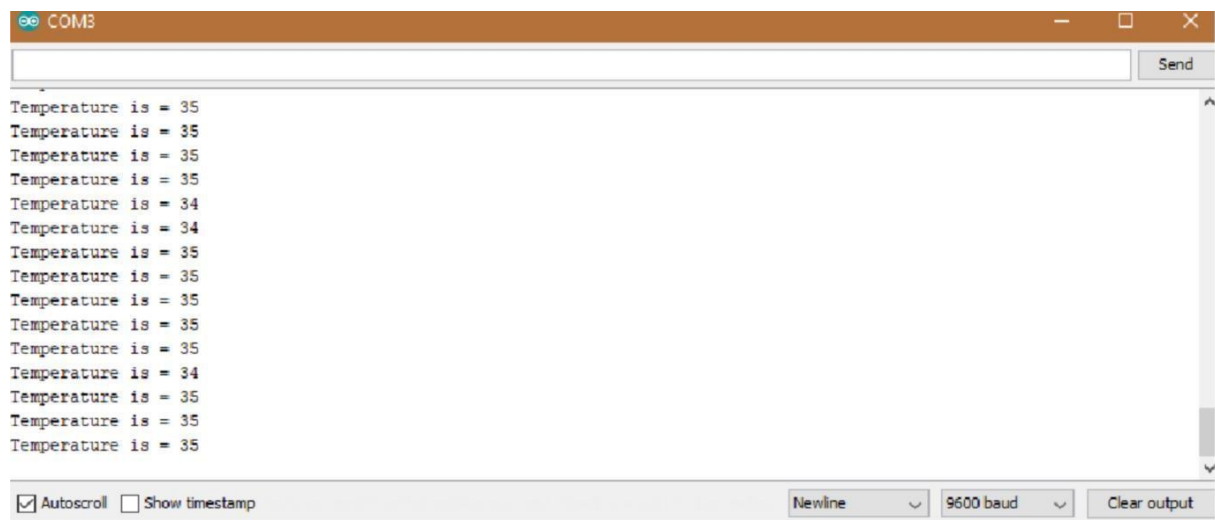
CODE FOR IMPLEMENTATION:

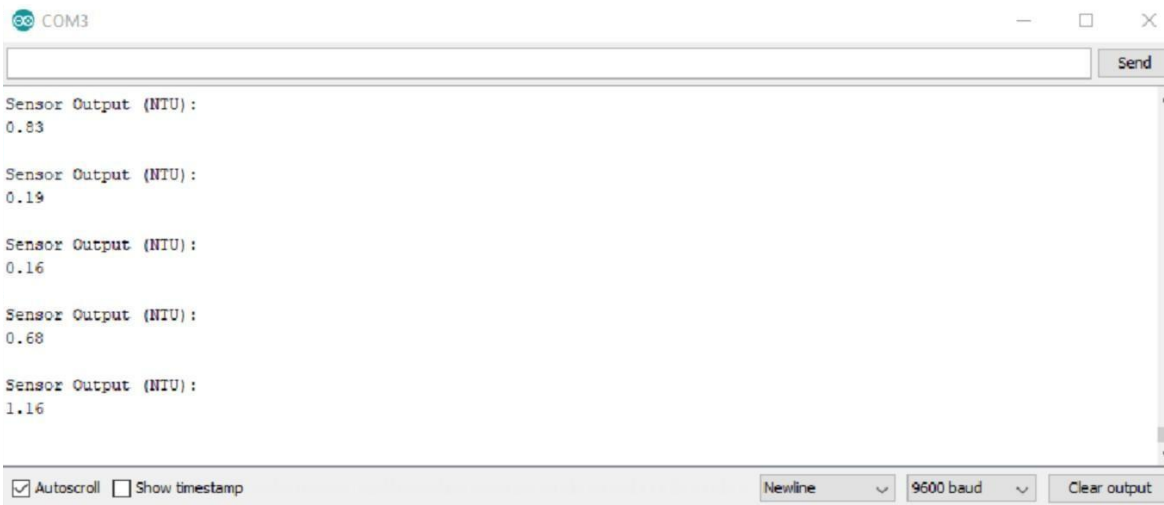
```
import serial
import time
import csv
import numpy as np
import matplotlib.pyplot as plt
ser = serial.Serial('/COM6',9600)
ser_bytes = ser.readline(10)
print (ser_bytes)
ser.flushInput()
while True:
    try:
        ser_bytes = ser.readline()
        decoded_bytes = float(ser_bytes[0:len(ser_bytes)-2].decode("utf-8"))
        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)

```





COM3

Send

Sensor Output (NTU) :
0.83

Sensor Output (NTU) :
0.19

Sensor Output (NTU) :
0.16

Sensor Output (NTU) :
0.68

Sensor Output (NTU) :
1.16

☒ Autoscroll ☐ Show timestamp

Newline ▾

9600 baud ▾

Clear output

