SPRINT-4

CODE IMPLEMENTATION

```python
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_byt
 es])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)
```