

SPRINT-4

CODE IMPLEMENTATION

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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('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)

```