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# Script for re-running the LIDAR program.  
# This script lacks control of the Arduino. Instead it takes old data and replots them.  
# Written by Jack Fan and David Zhu.
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```
# Load packages.  
from time import sleep  
import serial  
import matplotlib  
import matplotlib.pyplot as plt  
import numpy as np  
from mpl_toolkits.mplot3d import Axes3D  
from matplotlib import cm  
from math import *
```

```
# Open backup files.  
fx = open('xlist.txt','r')  
fy = open('ylist.txt','r')  
fz = open('zlist.txt','r')
```

```
# Read those files.  
xdata = fx.read()  
ydata = fy.read()  
zdata = fz.read()
```

```
xs = xdata.split('\n')  
ys = ydata.split('\n')  
zs = zdata.split('\n')
```

```
for i in range(len(xs)-1):  
    xs[i] = float(xs[i])  
    ys[i] = float(ys[i])  
    zs[i] = float(zs[i])
```

```
# Pop off the weird space.  
xs.pop()  
ys.pop()  
zs.pop()
```

```
# Plot.  
fig = plt.figure()  
ax = fig.add_subplot(111, projection='3d')
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```
ax.scatter(xs,ys,zs,s=100,c='r',marker='o') # Creates a scatter plot.  
plt.xlim([-10,10]) # Set explicit boundaries on the plot.  
plt.ylim([5,25])  
ax.set_zbound(0,20)  
plt.show() # Plot.
```