Using the CPX as a Data Acquisition System (DAQ)

Justin Dyer

Video

The hyperlink below takes you to a video of me using the cpx to log accelerometer data. I chose to use method one to log the data. Please follow the link below:

Accelerometer Video

MU CODE

Below is the code I implemented on my cpx using MU to log the accelerometer data from the cpx:

```
"""
@author: Justin
"""


import time
import board
import busio
import digitalio
import adafruit_lis3dh
```

```
##Accelerometer is hooked up to SDA/SCL which is I2C
i2c = busio.I2C(board.ACCELEROMETER_SCL,
board.ACCELEROMETER_SDA)
_int1 = digitalio.DigitalInOut(board.ACCELEROMETER_INTERRUPT)
lis3dh = adafruit_lis3dh.LIS3DH_I2C(i2c, address=0x19, int1=_int1)
lis3dh.range = adafruit_lis3dh.RANGE_8_G

while True:
    t = time.monotonic()
    x,y,z = lis3dh.acceleration
    print((t,x,y,z))
    time.sleep(0.1)
```

PYTHON CODE

Below is the code I implemented on my computer using python to plot the accelerometer data from the cpx. I created a .txt file for the python program to read, interpret, then plot:

```
"""
@author: Justin
"""

import numpy as np
```

```
import matplotlib.pyplot as plt
data = np.loadtxt('Accel_data.txt')
t = data[:,0]
x = data[:,1]
y = data[:,2]
z = data[:,3]
plt.plot(t,x)
plt.plot(t,y)
plt.plot(t,z)
plt.show()
```

PLOT

Below is my python program's output. It is a plot of the accelerometer data from the cpx versus time: