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%quickdft.m
%A simple script which performs fourier transforms and plots the results
%Developed my www.activityhacker.com

%The following variables must be loaded into Matlab before beginning
%t = Time (Seconds)
%x = X axis values (Gs)
%y = Y axis values (Gs)
%z = Z axis values (Gs)

% calculate the necessary parameters for the FFT
N = length(x);
fs = 25;
ts = 1/fs;
tmax=(N-1)*ts;
t=0:ts:tmax;
f=-fs/2:fs/(N-1):fs/2;

%perform fft on the data from each axis an Shift's zero-frequency component to the center of the spectrum.
xt = fftshift(fft(x));
yt = fftshift(fft(y));
zt = fftshift(fft(z));

%generates max y axis ranges for the plots which are slightly higher (1.1x) than
%the maximum value outside of 0.5 Hz
xmax = max(abs(xt(round(length(xt)/2+fs/2):length(xt))))*1.1;
ymax = max(abs(yt(round(length(yt)/2+fs/2):length(yt))))*1.1;
zmax = max(abs(zt(round(length(zt)/2+fs/2):length(zt))))*1.1;

%Plots the data and omits the mirror image negative frequency portion of
%the spectrum.
subplot(3,1,1), plot(f,abs(xt)), title('X Axis'), xlabel ('Frequency (Hz)'), xlim([0
tmax]), axis([0.01 10 0 xmax]);
subplot(3,1,2), plot(f,abs(yt)), title('Y Axis'), xlabel ('Frequency (Hz)'), xlim([0
tmax]), axis([0.01 10 0 ymax]);
subplot(3,1,3), plot(f,abs(zt)), title('Z Axis'), xlabel ('Frequency (Hz)'), xlim([0
tmax]), axis([0.01 10 0 zmax]);
```