BioHarness Data Analysis MATLAB File

This document explains the usage of the BioHarnessDataAnalysis.m MATLAB script file. The purpose of this file is to provide the MATLAB user with easier access to certain key information from the BioHarness. After downloading the data from the device onto a workstation, the data from the BioHarness is stored in .csv format. This data can then be used as an input to this script to gain access to the data stored in those files.

On execution, the script prompts the user to enter the name of the ECG data file. When a file with a valid filename is entered (with *ECG* in the filename, for example), the script then extracts the unsigned ECG data and computes the signed value and plots it. The user can select cancel if ECG data is not of interest.

After a pause, the user is then prompted for the General Packet data file. As in the previous case, upon providing a valid file input (with *General* in the filename), the Heart Rate & Breathing Rate and Acceleration data are extracted and plotted on two separate graphs. The user is then prompted to enter the Breathing& R-R filename. Upon entering a valid filename (with *BR_RR* in the filename), the Breathing, Heart Rate and calculated HRV (if collected data is > 5min) are plotted on a graph.

Some key variables and their descriptions are as given in the table below.

Variable Name	Description
Actual_ECG_Data_Signed	Stores the signed ECG data from the ECG data file
HeartRate	Stores the HR data from the General Packet File
BreathingRate	Stores the BR data from the General Packet File
Acc_Data	Stores the Acceleration data from the General Packet File
X_axis_Min_Acc_Data	Stores the Minimum X-axis Acceleration data from the General Packet File
X_axis_Peak_Acc_Data	Stores the Peak X-axis Acceleration data from the General Packet File
Y_axis_Min_Acc_Data	Stores the Minimum Y-axis Acceleration data from the General Packet File
Y_axis_Peak_Acc_Data	Stores the Peak Y-axis Acceleration data from the General Packet File
Z_axis_Min_Acc_Data	Stores the Minimum Z-axis Acceleration data from the General Packet File
Z_axis_Peak_Acc_Data	Stores the Peak Z-axis Acceleration data from the General Packet File
Breathing_Rate_Data	Stores the BR data from the BR_RR data File
R_R_Data	Stores the R-R data from the BR_RR data File
HRV	Calculates and Stores the Heart Rate Variability from the R-R data