Force Plate Instructions

The old white iBook with red lid is set up to work with the force plate.

1. If needed, boot it up and log in (ME310 – see PostIt for password). Also make sure the black USB cable from the force plate is plugged in to the labeled USB slot 'This Port Only' so it will recognize the Arduino.

2. In the home folder of user ME310 is a folder called **ForcePlateScripts** The python program to read the force plate and save data is in this folder.

3. Launch the **Terminal** application from the dock.

In Terminal, type **cd ForcePlateScripts** (return) to get inside the right folder if not already there.

4. Type '**python forceplate.py**' but don't hit "return" until ready to take data.

Get your legged creature ready.

Hit "return" and it will take data for several seconds (afterward, it takes a while to send the data over the USB line).
> When the yellow LED blinks, it's ready to take data. The LED then blinks once per second to help you synchronize with slow motion video from a cell phone.
> If you get an error message, unplug the black cable, replug it and try again.

5. It will write the data into a file called "**Saved_data_mmdd_HHMMSS.csv**" in **Desktop/ForcePlateData** Folder. This is a column format that you can read into Excel or Matlab, etc. It will take a little while because there are 300 rows of data for each second.

You can open this file in OpenOffice on the laptop and have a look at it.

Time(ms)	Fz1-3	S1-2	Fz Cal(N)	SCal(N)	LED Status
TimeStamp of each sample	ADC count of three normal sensors	ADC count of two shear sensors	Calibrated normal force (N)	Calibrated shear force(N)	0 – LED off 1 – LED on

Click on the little Chart icon and ask for a Scatter X-Y plot.

6. Save your data onto a USB stick.

 You'll probably want to get rid of several seconds of data that you don't care about to focus on the "interesting" part.

Usage tips:

1. Please don't drop weights onto the force plate, the impact can easily exceed the maximum 1kg load.

2. Please also be careful of the tiny wires between the force plate and the Arduino. They can come loose. The symptom will be that one of the sensors stops sending data... Send email to me112-staff@lists if there is a problem.

3. If your foot is too big for the pate you could:
- Put cardboard "shims" (like tiny platform heels) under the foot so they press on the force plate.
- Temporarily substitute a smaller foot on one side. Hold the bird just before it is ready to step on the force plate; let it go, catch it as it comes off the plate before it falls over.
- Temporarily put a triangular piece of rubber on the plate. This will increase the coefficient of friction and raise the level of the plate.

In any of these cases, the readings will be slightly different than when walking with your unmodified feet on a smooth floor but you will still get some useful information.