A few screen shots of the “Force Plot” screen in Ergware v0.6. It can be accessed from the menu via “Prog>>Fx”. It shows a time profile of the force applied at every stroke (a new profile each stroke) as well as the max force (in kg-f) at the top. It also shows other things like stroke count (so you know it is working), strokes-per-minute, Power output and 500m split time.

Lots of things are adjustable in software, obviously, like the height of the profile, its reach across the screen, etc … Something to dial in over time as I use it, but the settings in there right now are working well, at least on my erg & for the force I apply/power I put out when I row (which isn’t much).

A few things to note:
1. The serial port logging is still enabled in the code, which means there is very little room to do other things. The microcontroller is basically “full” at this point. There are a ton of things I can do to create more room (e.g. get rid of all floating point math), but I haven’t done that yet. Maybe some day.

2. This version is meant to work with 16MHz clocking of the AtMega328. It will not work as well with an 8MHz internal clock because the sampling is just too slow. In fact, I also took the opportunity to make the stroke detection algorithm a bit more robust.

3. Instead of detecting the chopper wheel once per rev (once every 8 spokes in the 8-spoke pattern on the CD chopper), it detects it once every four spokes – so 2X/rev. So it is important that the spoke pattern is as symmetric as you can make it when you build your chopper wheel.

4. I have lots of ideas, like putting an “ideal” stroke profile in RAM & comparing to the ideal, or even have the code automatically figure out what is wrong with the stroke and tell the user what to think about to fix it. That would take more compute horsepower, obviously, so I’d really need to spend time on it.

-Dave