RE: An educational modular biosignal front end

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To: Samuel Parker <Samuel.R.Parker@uon.edu.au>

Hi Sam
Thanks for getting in touch. Some answers below but do keep in mind this is not my research area (I'm on the software side of apps and virtual reality. Also I'm no longer the PC for the MedEng degree).

>The purpose of my email is to ask, in your perspective, would a modular biosignal acquisition system (for example, an EEG analog front end, with a standard >interface for connection to a microcontroller, with the software to configure and control the module) be a useful education tool for undergraduate students?
Absolutely. This sounds like a great foundation to allow students to explore biosignal work. Often a barrier to applied work is the need to build the underlying hardware (which may be outside the skillset of the students or timeframe of the project). Often we want to start with COTS hardware so we have a robust basis for student projects.

>What aspects (e.g. expandability, high-level or low-level interfaces, form factor, robustness to EMI) would make one system more useful or effective as an >education tool than another?
If it's an applied technology, then robustness is important. This is especially the case if it's blackbox. If it's open, then suitable documentation is needed. Modular is good, particularly if there are cost issues. Getting an initial ROI on tech and building on it is useful. For my project, I don't want to be the tech support. The accessibility of the tech is a prime consideration

>Studies have shown that exposing engineering students not ordinarily exposed to medical devices to biomedical problems can increase entrepreneurial >alignment, and foster cross-disciplinary thinking. In your opinion, would a broader exposure to biomedical problems and medical device design be beneficial >to engineering students? What benefits or disadvantages would this bring?
Sure. It's about evidence of applied engineering. The MedEng degree is based on applied medical pathways from electrical, computing and mechanical. Students from these areas are often employed in the medical domain. The MedEng degree is a more focused pathway. Showing students applied pathways from their disciplines is always useful.

Good luck with you PhD.
All best
Shamus

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