Pelvic floor Biofeedback Design

Client: Dr. Patrick McKenna, UW Urology Department

Advisor: Dr. Amit Nimunkar

Team: Sam Lines (Leader)

Michael Simonson (Communicator)

Shawn Patel (BWIG)

Andrew Vamos (BSAC&BPAG)

Date: 11/17/2014-11/21/2014

Problem Statement

Pelvic floor muscle biofeedback systems have been used to educate and train people how to correctly control the process of urination in children and elderly patients. As devices slowly fail or get outdated, a new device and interface system that can be used in conjecture with videogame like training programs is desired. With the completion of a basic EMG biofeedback system, our goal is to continue to improve the functionality of the software while simultaneously designing hardware with commercial standards in mind. This product will be designed and tested so that use in a hospital will be safe for both the hospital staff and the patients.

Last Week's Goals

- Order the PCB and second round of parts
- We will continue to work on the IRB proposal to be able to submit it as soon as possible.
- Test the first round of parts to ensure that everything works properly

Summary of Team Role Accomplishments

- Leader (Sam): Finalized the PCB with Shawn and tested first round of parts
- Communicator (Michael): Continued IRB work
- BWIG (Shawn): Finalized the PCB with Sam
- BPAG And BSAC(Andrew): continued research into Arduino coding

Summary of Design Accomplishments

- We have ordered all of the parts that we will need to complete version one of our design and start working on version two.
- We continue to make progress on the IRB submission and we look forward to submitting it as soon as possible. Everyone in the group has taken the necessary CITI and HIPAA training.
- We have started to push the project from a design oriented phase to a more balanced phase in which we will make improvements on the design as well as pursuing formal documentation and possible submission to WARF.

Project Difficulties

- Since we have ordered the parts and PCB, most of this week's work has involved working on the IRB submission and updating documents, and therefore we didn't run into any struggles worth reporting.

This Week's Goals

- While waiting for the second round of parts and the PCB, we will continue working on the IRB application
- We will start to make our documentation of the entire project more professional while waiting for the PCB
- Start working to implement the new microcontroller code, and test with our bread board EMGs
- Begin working on version two of the design which will be more suited to commercialization.

Activities

Person(s)	Task	Time (hrs)	Week Total	Semester Total
Sam	PCB work Team meeting	2.5 2.5	5	38
Michael	IRB Team meeting	2.5 2.5	5	38
Shawn	PCB Work Team meeting	2.5 2.5	5	38
Andrew	Aduino Code Team meeting	2.5 2.5	5	38

Timetable

- Due to the large size of our timeline, I will attach the full excel spreadsheet

Expenses

- After buying the parts, the current expense of the project is $41.22. A picture of the total expenses incurred is posted below.

Index	Quantity	Image	Part Number	Description	Customer Reference	Available Quantity	Backorder Quantity	Unit Price	Extended Price
☒ 1	2		DCP010505DBP-ND	IC REG ISOLATED +/-5V 0.1A 7DIP		2 Immediate	0	8.69000	$17.38
☒ 2	8		RMCF0805FT51K0CT-ND	RES 51K OHM 1/8W 1% 0805		8 Immediate	0	0.10000	$0.80
☒ 3	8		P9.09KCCT-ND	RES 9.09K OHM 1/8W 1% 0805 SMD		8 Immediate	0	0.10000	$0.80
☒ 4	16		RMCF0805FT20K0CT-ND	RES 20K OHM 1/8W 1% 0805		16 Immediate	0	0.02900	$0.46
☒ 5	16		P180KCCT-ND	RES 180K OHM 1/8W 1% 0805 SMD		16 Immediate	0	0.10000	$1.60
☒ 6	8		490-8288-1-ND	CAP CER 4700PF 50V 1% NP0 0805		8 Immediate	0	0.43000	$3.44
☒ 7	8		490-8309-1-ND	CAP CER 0.043UF 50V 5% U2J 0805		8 Immediate	0	0.45000	$3.60
☒ 8	16		399-7342-1-ND	CAP CER 1UF 16V 5% X7R 0805		16 Immediate	0	0.28300	$4.53
☒ 9	8		311-43.0KCRCT-ND	RES 43K OHM 1/8W 1% 0805 SMD		8 Immediate	0	0.10000	$0.80
☒ 10	4		S7050-ND	CONN HEADER FMALE 17POS .1" GOLD		4 Immediate	0	1.35000	$5.40
☒ 11	4		CR0805-FX-6201ELFCT-ND	RES 6.2K OHM 1/8W 1% 0805 SMD		4 Immediate	0	0.10000	$0.40
☒ 12	56		P10.0KCCT-ND	RES 10K OHM 1/8W 1% 0805 SMD		56 Immediate	0	0.02880	$1.61
☒ 13	4		P68.0KCCT-ND	RES 68K OHM 1/8W 1% 0805 SMD		4 Immediate	0	0.10000	$0.40
								Subtotal	$41.22
								Shipping	Estimate
								Sales Tax	unknown