

Pulse Oximeter Team

Progress Report #13

4/24/09 – 5/2/09

Team Members

Bogdan Dzyubak – Communicator
Joe Helfenberger—BWIG
Jonathan Meyer—Leader
Matthew Parlato—BSAC

Clients

Amit Nimunkar
Jonathan Baran

Advisor

Dr. John Webster PhD.

Problem Statement

The purpose of this project is to develop a low-cost pulse oximeter probe for use in developing countries. It will be integrated with the MedeCal, a handheld processing device which will record and display patient data. The oximeter must be rugged, durable, inexpensive, and must deliver data to the MedeCal as an analog signal.

Team Goals

Previous goals for this week

- Remove the noise from the prototype's signal
- Build a copy of the probe for mechanical testing
- Contact mechanics lab for testing
- Conduct mechanical testing
- Develop poster
- Give final presentation

Goals for next week

- Write and submit final design report
- Have end-of-semester meeting with Dr. Webster

This week's accomplishments

- Finished the prototype
- Demonstrated the probe's compatibility with the MedeCal circuit
- Acquired a clear photoplethysmograph from the ears and fingers of multiple subjects
- Tested the probe on the ear for an hour to make sure it didn't exert too much pressure
- Powered the probe with the MedeCal prototype
- Developed and delivered the final poster presentation

Project Schedule

The table below is a Gantt chart of the projected timeline. Dark colors are used for completed stages, and light colors for incomplete stages.

Tasks	January		February				March				April				May	
	23	30	6	13	20	27	6	13	20	27	3	13	17	24	1	8
Project Development																
Research	█		█		█											
Brainstorm				█		█										
Design					█				█		█					
Prototype										█		█				
Deliverables																
Progress reports	█															█
Midsemester presentation																
Midsemester report																
Final presentation																
Final report																
Communication																
Advisor Meetings																
Client Meetings																
Website																

Difficulties

No extraordinary difficulties were encountered this week.

Activities

Date	Time	Team member(s)	Activities
4.24.09	2 h	Team	Met with Dr. Webster
4.24.09	1 h	Jonathan	Worked on poster
4.25.09	3.25 h	Joe	Worked on poster and prototype
4.25.09	4 h	Matt, Jonathan	Got prototype working with braided wires
4.27.09	1.25	Joe	Gathered statistical data for poster
4.27.09	4 h	Bogdan, Jonathan	Replaced braided wire cord with serial connection
2.28.09	1 h	Bogdan	Worked on poster
2.28.09	~5 h	Jonathan	Built new filter/amplification circuit with which to test our probe, so Chris Esser could accelerate his debugging of the complete circuit
4.29.09	7 h	Team	Compiled and finished poster, demonstrated that the probe works with the new circuit
4.29.09	2 h	Joe	Gathered statistical data for poster
4.30.09	~5 h	Team (Bogdan and Matt focused on poster, Jonathan and Joe focused on probe)	Finished probe integration with the MedeCal circuit, printed poster, powered the probe with the MedeCal
5.1.09	~4 h	Team	Delivered poster presentation, attended Tong awards

Expenses

Items	Cost
4 photodiodes (2mm×2mm)	< \$20
Clothespins	~ \$10
2 Dual wavelength LEDs	\$30
Springs & clips	~ \$10