Project Title: Sensory Substitution Device for Hearing Impairment

Team Members:
Ryan Thome, Co-Team Leader thome@wisc.edu
Sarah Offutt, Co-Team Leader offutt@wisc.edu
Amy Weaver, BSAC aweaver@wisc.edu
Laura Bagley, Communicator lbagley@wisc.edu
Jack Page, BWIG jdpage@wisc.edu

Client:
Veronica H. Heide, Au.D.
Audible Difference
vheide@audible-difference.com
608.273.3036

Advisor:
Mitchell E. Tyler, P.E., M.S.
Dept. of Biomedical Engineering &
Dept. of Ortho-Rehab Medicine
University of Wisconsin - Madison
metyler1@facstaff.wisc.edu
608.265.3756

Date: 09/22/06-9/29/06

Problem Statement:
The goal is to design and develop an auditory substitution device that through the use of a
digital hearing aid and vibro- or electro-tactile stimulation can substitute for regional
frequency hearing loss.

Statement of Team Goals:
1. Meet with client
2. Create Problem statement
3. Begin work on PDS
4. Begin research and design
   a) Research all possible background information.
   b) Research existing solutions
   c) Develop possible design solutions
5. Continue research, design, and testing
6. Write Midterm paper
7. Create PowerPoint presentation
8. Discuss possible final design alternative
9. Finalize design
10. Build and test prototype
11. Present final design

**Project Schedule:**
- 9/8/06 – Choose team and project, meet with client
- 9/15/06 – Background research, preliminary design ideas
- 9/22/06 – Continue background research, develop PDS
- 9/29/06 – Brainstorm
- 10/6/06 – Decide on design alternatives
- 10/13/06 – Work on mid-semester presentation and report
- 10/20/06 – Give mid-semester presentation, finalize mid-semester report
- 10/27/06 – Decide on final design
- 11/3/06 – 11/24/06 – Work on final design
- 12/1/06 – Finalize design and final presentation, begin work on final paper
- 12/8/06 – Give final poster presentation, finalize paper
- 12/15/06 – Final meeting with advisor

**Summary of Team Accomplishments:**
1. Continued with research, focusing on specific topics.
2. Revised PDS

**Summary of Individual Accomplishments:**
1. Ryan wrote the progress report
2. Jack updated the website with the team photo and all of the progress reports to date

**Upcoming Week’s Team Goals:**
1. Begin thinking of mid-semester device design ideas
2. Complete the working version of the PDS
3. Continue researching possible ways of communicating tactile data to the user

**Difficulties:**
We have yet to encounter any major difficulties.

**Activities:**
- **Ryan** – class meeting 1 hr
  - background research (studies using existing devices) 1 hr
  - PDS team meeting 2 hr
  - meeting with Prof. Tyler 1 hr
  - progress report .5 hr

- **Sarah** – class meeting 1 hr
  - background research (studies using existing devices) 1 hr
  - PDS team meeting 2 hr
Amy - class meeting 1 hr
   background research (DHA) 1 hr
   PDS team meeting 2 hr
   meeting with Prof. Tyler 1 hr

Laura - class meeting 1 hr
   background research (anatomy of ear) 1 hr
   meeting with Prof. Tyler 1 hr

Jack - class meeting 1 hr
   background research (existing devices) 1 hr
   website design 1 hr
   PDS team meeting 2 hr
   meeting with Prof. Tyler 1 hr

Team Total Hours for this week: 23.5
Cumulative Team Hours to date: 51.5