Progress Report 7
10/20/06 – 10/26/06

Project Title: 43. Chewing Sounds

Team Members:
Jimmy Fong - Co-Leader
   312-799-0278
   fong@wisc.edu

Matthew Valaskey - Co-Leader
   920-470-6437
   mvalaskey@wisc.edu

Bryan Mounce - BWIG
   715-308-4509
   mounce@wisc.edu

Aditi Bharatkumar - Communicator
   262-366-6101
   bharatkumar@wisc.edu

Vidhya Raju - BSAC
   262-957-6386
   vraju@wisc.edu

Clients:
Prof. John Webster
   2148 Engineering Centers Building
   608-263-1574
   webster@engr.wisc.edu

Prof. Dale Schoeller
   Room 340C Nutritional Sciences
   1415 Linden Drive
   Madison, WI 53706
   608-262-1082
   dschoell@nutrisci.wisc.edu

Advisor:
Prof. John Webster
   2148 Engineering Centers Building
   608-263-1574
   webster@engr.wisc.edu
Problem Statement:
Obesity is beginning to be recognized as a chronic disease in the United States. Our goal is to design a system to record and display audio data from a person chewing food in order to analyze caloric input. Recent research has suggested that the amplitude and pitch of the audio signal are related to the identity of the food.

Statement of team goals:
1. Create problem statement
2. Create First draft of PDS
3. Begin to research and develop design ideas
4. Continue the design project
   a) Research all possible background information.
   b) Research existing and design alternatives
   c) Brainstorm for all possible solutions
   d) Meet with experts to gain ideas about possible solutions
   e) Develop possible design solutions
5. Choose final three design solutions
6. Develop final three solutions
7. Create Power point presentation
8. Finish mid semester report, PDS
9. Discuss possible final design alternative
10. Finalize Design
11. Build and test prototype
12. Present final design & poster

Last week’s goal
1. Determine exact frequency response of microphone if possible.
2. Finalize mid-semester report.
3. Work on methods to store/organize/analyze samples of chewing and other related sounds.
4. Sample food sounds if testing approval is received.
5. Deliver Midsemester presentation.

Summary of Team Accomplishments:
1. Delivered Midsemester presentation
2. Compiled Midsemester paper
3. Edited Midsemester paper

Summary of Individual Accomplishment:
1. Jimmy- Wrote main design and future work, edited
3. Bryan- Wrote background and research, main editor, references.
5. Vidhya- Problem statement, research on risks, edited.

Statement of Team Goals for Upcoming Week:
1. Experiment with the mastoid process as a location for the mic
2. Try to modify cheaper microphones to be compatible with the probes
3. Record chewing sounds from a larger variety of foods
4. Explore other methods to make the system more affordable – different amplifier possibly

**Project Schedule:**

9/8: Choose projects and form group roles. Contact client about meeting.

9/8-9/15: Formulate questions for the client. Read background literature about project.

9/15-9/21: Find more research papers on chewing sounds, Write preliminary PDS, Research microphones

9/22- 9/28: Finalized PDS, Finished background research, Preliminary tinkering with electronics in lab

9/29- 10/5: Build a circuit to display microphone output on oscilloscope, eliminate noise, experiment with new probe microphones, continue Powerpoint

10/6 – 10/12: Determined that the new probe microphones need a different interface to oscilloscope, Attempted to determine frequency response of microphones, continue Powerpoint, started midsemester paper.

10/13 – 10/19: Further work was done to investigate the lower limit of frequency response of the probe. Successfully captured sounds in computer through the oscilloscope. Some pretzel chewing sounds as well as normal speech were recorded. Completed Powerpoint and prepared for presentation, continued work on midsemester paper.

10/20 – 10/26: Delivered presentation, compiled, edited, printed midsemester paper. Explored possibility of using the mastoid process as a location.

**Difficulties:**

**Activities:**

Team In-class/lab meeting (2 hours)
Group Meetings (3 hours)

Jimmy- 2 hr – Worked on paper
Matt- 2.5 hr – Final edit, format paper, worked on paper
Bryan- 2.5 hr – Main editing, worked on paper
Aditi- 2 hr – Worked on paper
Vidhya- 2 hr – Worked on paper

**Team total hours for this week:** 16 hrs
**Cumulative team hours to date:** 68.5 hrs
## Design Schedule:

<table>
<thead>
<tr>
<th>TASK</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 15 22 29</td>
<td>6 13 20 25</td>
<td>3 10 17 24</td>
<td>1 8 13 15</td>
</tr>
<tr>
<td><strong>Project Research and Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Contact Client</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Research</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Brainstorming</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Website</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Deliverables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mid Semester Presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mid Semester Report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Final Presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Final Report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Progress Reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meetings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Semester Wrap Up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>