

**Title:** Mouth stick to facilitate quadriplegics' use of computer keyboard

**Team Members:**

Liz Thottakara (Team Leader)  
Dan Hartman (BWIG)  
Yim (Cindy) Chan (Communications)  
Emily Putzer (BSAC)

**Client:**

Prof. John Doyle	Steve Christensen
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**Reporting Period:**

May 1 - May 7

**Problem Statement:**

To design a device that will allow quadriplegics to more easily depress keys on a computer keyboard without causing the wearing or chipping of the teeth caused by the current mouth stick design.

**Restatement of Team Goals:**

- Pick up mouthstick from dental lab and give to Mr. Christensen to test out.
- If there are any problems with the prototype, bring it back to the dental lab to make adjustments (e.g. changing size/depth of mouthpiece)
- Have outline for paper/poster presentation ready and each team member work on writing specific sections.

**Summary of Accomplishments:**

- Picked up initial prototype from dental lab and brought it to Mr. Christensen's house for him to test it.  
Problems:
  - angle of stick was too shallow (not 18°)
  - stick moved up instead of straight forward when pushed out because of bump in sliding track
  - band that wrapped around the sliding track (holding two pieces together) cracked because it was too thin
- Brought the prototype back to Randy in the dental lab and explained the problems and what adjustments need to be made to correct each problem
- Worked on sections of paper individually and met to revise them as a group
- Returned to dental lab to pick up adjusted prototype and give to Mr. Christensen to test
  - angle was corrected
  - the sliding track was smoothed out somewhat, however the stick still moved up when pushed out (less pronounced this time). Mr. Christensen indicated that he could adjust the way he uses the mouthstick to compensate for this (i.e. he would use it the way it is right now), but there are also further adjustments we could make to the prototype to smooth out the sliding motion if he would like.
  - band wrapping around the sliding track was reinforced (made thicker) so that the top

piece could not be separated from the bottom

- Cut the stick to the proper length for Mr. Christensen's use

**Statement of Team Goals:**

- Finish revising individual parts of paper/poster and bring them together to edit
- Weigh prototype and make any adjustments to PDS
- Make any additional adjustments to mouthstick that Mr. Christensen would like (not before this Friday)
- Schedule final meeting with advisor

**Project Schedule:**

Week	Date	Activities
1	25 January	form teams, select project, contact client
2	1 February	literature search
3	8 February	Meet with client; develop understanding of project; develop PDS
4	15 February	Brainstorm, revise PDS
5	22 February	brainstorm; evaluate designs; meet with Steve Christianson at his home
6	1 March	Revise PDS, evaluate designs, decide on final design
7	8 March	work on design, work on presentation
8	15 March	Mid-semester presentation hand in written report; advisor review of design notebooks
9	22 March	Meet with Dr. Doyle
10	29 March	SPRING BREAK
11	5 April	Visit dental lab; work on design
12	12 April	work on design
13	19 April	Get dental impressions and measure
14	26 April	Visit dental lab again, get mouthpiece made, assemble prototype
15	3 May	prepare poster, final paper; test prototype
16	10 May	Final Poster Presentation Hand in final report and notebook to advisor
17	13-17 May	final meetings with advisor

**Difficulties:**

None to report

**Activities:**

Visit to dental lab/Mr. Christensen's home (5/1/02): 1.5 hours

Meeting in Class (5/3/02): 1.5 hours

Meeting to work on final paper (5/5/02): 2 hours

Visit to dental lab/Mr. Christensen's home (retest prototype) (5/6/02): 1 hour

Liz                    *Total hours since beginning of semester: 66.25 hrs*

- Emails & progress report (1 hr)
- Writing evaluation section of report (1.5 hrs)

Dan                    *Total hours since beginning of semester: 53.75 hrs*

- Worked on final paper parts (1 hr)

Emily                *Total hours since beginning of semester: 59.5 hrs*

- Attended BSAC meeting about writing BME core design course section for BSAC paper (1 hr)
- Wrote subsection for BSAC paper (Instructor Benefit) (.5 hr)
- Wrote Final Design section of our Final Paper (1.5 hrs)
- Revised PDS section of Final Paper (.25 hr)

Cindy                *Total hours since beginning of semester: 53.75 hrs*

- Do my parts of final report (2 hrs)
- Search for the background information (.5 hours)
- Call Randy to follow up the progress of building prototype (20 mins)
- Call Steve to schedule a time to test the prototype (20 mins)
- Call Dr. Doyle to make sure he's coming to the Final Presentation (10 mins)