

Elevator Controller for Individual with MS

Client:

Dr. John Fleming

Team Members:

Ashley Matsick (Co-Leader)

Sara Karle (Co-Leader)

Michele Lorenz (Communicator)

Peter Strohm (BWIG)

Alison Boumeester (BSAC)

November 17-30, 2006

Problem Statement:

Our project involves the integration of controls into a device capable of covering the distance from a wheelchair to an elevator call button in the x, y and z directions, then exerting a horizontal force sufficient to successfully push the call buttons in both the standard elevator car and the corresponding hallway. The controls to be integrated must be operable by stimulus generated by movement no lower than the user's neck.

Last Week's Goals:

- Mounting arm group: Meet with Dave on Friday to test template of mounting arm and troubleshoot prior to building actual arm
- Switch group: Meet with Dave on Friday to determine the final positions where toggle switch and Ultimate switch will be mounted based on user preferences.
- Switch group: Based on mounting location of toggle switch, lengthen toggle lever to appropriate size.
- Switch group: Consider weatherproofing of all switches for mounting on chair.
- Contact Tracy at Meriter Home Health about integration of device with batteries.

Summary of Accomplishments:

- Used class time to define items needed at meeting, looked for bearings for use in mounting arm design
- Met with Dave and both sub-groups gained the additional information needed
- Mounting arm group met to finalize a design after some dimensions were changed; began construction of design
- Circuitry group contacted Tracy to find a way to get help integrating our controls into the wheelchair

This Week's Goals:

- Construct mounting arm
- Design weatherproof cover
- Finalize circuitry with the help of Tracy
- Meet one more time with Dave to ensure all components of mounting arm will fit

Project Difficulties:

The circuitry group is having troubles finding the necessary help to hook our circuitry to Dave's wheelchair. The attendant who services Dave's chair has referred them to another person, and having to find a time that works with everybody involved is difficult.

The mounting arm group had to re-dimension the initial design after redefining dimensions during the meeting with Dave. A final design was drafted, and construction has begun. Problems may arise with finding the necessary help to complete portions of the building that we ourselves

cannot do, but currently construction is running smoothly. The weatherproofing most likely will be constructed of galvanized sheet metal, and this needs to also be constructed.

Activities:

<u>Date</u>	<u>Person/Group</u>	<u>Activity</u>	<u>Time Spent</u>
11.17.2006	Group	Class time: drafted list of parameters to obtain at meeting with Dave	2.00 hr
11.17.2006	Ashley, Sara, Peter, Michele	Meeting with Dave	1.50 hr
11.17.2006	Alison	BSAC meeting	1.00 hr
11.24.2006	Alison	Battery connection research	1.50 hr
11.28.2006	Michele, Ashley, Peter	Met to finalize mounting arm design with dimensions; discussed weatherproofing options	2.00 hr
11.29.2006	Ashley, Michele	Shop work: cut metal pieces	2.00 hr
11.29.2006	Peter	Drawings	1.50 hr
11.30.2006	Ashley	Progress report	0.50 hr

Budget

<u>Date</u>	<u>Item</u>	<u>Cost</u>	<u>Comments</u>
09.02.2006	Ultimate Switch & Sip-Puff Switch	~\$140.00	Ordered from enablingdevices.com, paid for by Michele
11.01.2006	Double pole, double throw latch toggle switch	\$1.25	Purchased by Sara
11.10.2006	Double pole, double throw momentary toggle switch	\$9.00	Purchased by Alison
11.29.2006	1/8" thick steel in 3" and 1.5" widths	\$21.08	Purchased by Ashley