

Communication Device for the Disabled

Sponsor: AbleNet Inc.

Sponsor's General Mission or Business Statement: AbleNet Inc. strives to improve lives of people with disabilities in every targeted setting, every day in dozens of ways. Thereby helping them reach their maximum potential, whatever it may be.

Sponsor's Advisor, Title, and Phone Number: Dave Binczik, Director of Operations, (651) 294-2218

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University of St. Thomas School of Engineering Academic Advisor: Dr. Christopher S. Greene

Team Member Names: Graham E. Johnson (ME), James D. Wells (EE), Hung Nguyen (EE), Grace B. Ooi (ME), N. Aaron Spalding (ME), James J. Evanoff (ME), Thomas M. Johnson (ME)

Senior Design Clinic I-II (ENGR 480-1) 2004-5 Project Mission Statement: Redesign and improve the visual aesthetics and the overall performance of the communicator using current technologies.

Major Design Requirements:

Lifetime: Must have a useful life of five years.

Cost: One unit is projected to cost \$75 to \$125.

Durability: Must pass AbleNet drop test.

Aesthetics: Must be aesthetically pleasing to children in grade school (primary), must be pleasing to all ages and groups (secondary).

Service/Maintenance: Must be easy to service and maintain.

Mounting: Ability to be worn in multiple locations

Senior Design Project Summary:

The AbleNet Senior Design Team was given the task of rectifying the problems associated with the original TalkTrac, the group analyzed how best to keep water from getting into the case. The main source of moisture entering the unit was through the membrane, which wicked water directly to the PC board inside, causing corrosion and loss of function. The unit was originally worn on the wrist, where washing of hands caused contact with water. Now, the unit can be removed from the wrist when washing hands, although the main location is now on a lanyard around the neck. By providing other options for wearing the unit (also belt clip and carabineer), the unit is more able to handle situations where water might pose a problem. Also, through design tweaks, we have made the unit have clearer and louder sound, as well as allowed for the user to change the look of the unit to his/her liking. Overall, the current version of the unit improves upon many of the negative issues found with the TalkTrac, while making positive facets of the design that much better.



Figure 1. Solidworks rendering of final product. Figure 2. AbleNet Senior Design Team