Product Design Specifications

Title

Telephone for Mobility, Vision, and Hearing Impaired Person, February 2, 2006

Team Members/Roles

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Abstract:

Current devices that are available to help individuals with disabilities to use the telephone only address one ailment. Individuals with multiple disabilities who need the aid of two of these devices often find them to be incompatible with one another. Another great disadvantage is that these devices have a limited capacity for storing telephone numbers. Our client is looking for a way to provide an individual, who has multiple physical and communicative disabilities, with sufficient means to both receive and place telephone calls to an extensive phone list. This project will focus on modifying a telephone for a specific individual; however, in the long term it could be adapted to help others suffering from similar ailments.

Problem Statement:

Create a system that allows a physically, visually, and aurally handicapped person to initiate and receive phone calls in a simple and efficient way.

Client Requirements:

a. *Performance Requirements:* Telephone should provide efficient means for user to place and receive calls. It should have to capacity to store at least 100 phone numbers and the phone number list should be easy to update.
b. *Safety:* Product must not interfere with the user's ability to move around in a power wheelchair.
c. *Accuracy and Reliability:* The product should alert the user every time when there is an incoming call and provide the user with simple and reliable means for answering the phone. Placing calls should be easy for the user and the product must accurately dial the number that the user desires.
d. *Life in Service:* An optimal design would have an input and output that could operate for at least 10 years. However, if battery operated once power was gone it would need to be replaced or charged.
e. *Materials:* Ideally the input will be made of lightweight materials that are easy to grip.
f. *Aesthetics, Appearance, and Finish:* Shapes, colors, textures, and form have not been specified for this product. In ideal input would have a shape and form that enhances the products accessibility and simplicity for the client. Writing should have a black background with white font, at a medium size.
g. *Shelf Life:* Product should last at least 10 years.

h. *Operating Environment:* The room in which the telephone will be operated has lots of background noise due to a noisy air vent. Components of the telephone should be wireless to allow mobility. Space is also limited for the display.
i. *Size and Weight:* Buttons must be of ample size, since the individual has lack of fine motor control. The device should be as lightweight as possible. Display should be small enough to fit in the limited chubby space available, but large enough for the user to read from 5ft away.
j. *Ergonomics:* The size and placement of the device should be situated to be easily assessable and be comfortable for the user.

2. Production Characteristics

k. *Quantity:* Design focuses on a specific individual, therefore only one model of the product is needed.
l. *Target Product Cost:* Total cost of fabrication should be under $300, since some materials will be provided by our client.

3. Miscellaneous

m. *Standards and Specifications:* Because the device is not for medical purposes, FDA approval is not required. The device must meet any sort of telephone safety requirements.
n. *Customer:* Currently, the device is being designed for one person. This person becomes tired easily, and is physically handicapped, including visually and aurally.
o. *Patient Related Concerns:* The device should not need to be sterilized between uses; however, regular cleaning, as with any telephone is recommended.
p. *Competition:* There are many items on the market that address each issue individually. A comprehensive solution has not yet been produced.