

Communication Device

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Product Design Specifications

Function: This device will be used to help children with communicative disorders communicate verbally in an effective and easy and personalized way.

Client Requirements: The device should allow for communication that is:

Fast
Accurate
Easy
Adaptable

Design Requirements

1. Physical and Operational Characteristics

- a. *Performance Requirements:* The device will be used daily and must be able to withstand the force equivalent of a laptop computer including loading patterns and a drop height of 1m.
- b. *Safety:* The device must not provide any risk hazards. It should not have any sharp, poisonous, or shocking parts.
- c. *Accuracy and Reliability:* The device must enunciate, be audible and be able to produce functional statements
- d. *Life in Service:* The device must be useable for three years
- e. *Shelf Life:* the device must work after a 6 months of inactivity
- f. *Operating Environment:* The device will be used in standard temperatures and pressures. It must withstand a small amount of water (equivalent to rain) and temperatures ranging from 0 – 37 C. It must resist the build up of body oils from daily use.
- g. *Ergonomics:* the device must be adaptable to patients with a range of motor control and literacy
- h. *Size:* the device should be easily transported
- i. *Weight:* the device should weigh less than 5 pounds
- j. *Materials:* any types of material are acceptable
- k. *Aesthetics, Appearance, and Finish:* the device must be aesthetically pleasing and have a professional finish and appearance.

2. Production Characteristics

- a. *Quantity:* for class purposes only one prototype
- b. *Target Production Cost:* under \$1000 (budget undecided as of 2/11/2009)

3. Miscellaneous

- a. *Standards and Specifications:* There are not regulatory standards that this device must conform to.

b. *Customer*: The customer may have a wide range of physical disabilities which must be taken into account when designing adaptive interfaces and inputs for the device.

c. *Patient-related Concerns*: There are no patient related concerns

d. *Competition*: There are several devices on the market currently. They are all expensive, cumbersome, and ineffective.