



**Bilingual
Multicultural
Services, Inc
Therapeutic Center**

Augmentative Devices – Global Design Student Challenges (GSDC) DRAFT – January 10, 2011

The goal of these challenges is to come up with an idea and take it all the way to commercialization. We encourage entrepreneurship!

Deadlines

Deadline for registration of projects is April 1, 2012. The deadline for submission of project reports, presentations (POWERPOINT AND YOUTUBE) is August 1, 2012. Winners will be announced September 1, 2012.

Prizes and Awards

All awards and prizes to the best projects will be presented during the World Engineering Education Forum, October 15-18, 2012, in Buenos Aires, Argentina. Project sponsors will cover travel and accommodation expenses for one representative of the winning team.

Challenge 1: Assist people with impairments

Develop applications for Apple's IOS and Google's ANDROID operating systems that will assist people with severe a) speech; b) hearing; and c) vision impairments to have a better life. Student contestants must choose one of the above categories to participate.

Learn more about people with disabilities by accessing

http://www.who.int/disabilities/world_report/2011/report/en/index.html

The URL links to the first World Report On Disability by the World Health Organization.

Presentations to be looked in Spanish and English

- **English Contest Presentation:** <http://www.megaupload.com/?d=8YX6VN7C>
- **Spanish Contest Presentation – Presentación en Español:** <http://www.megaupload.com/?d=C87OMS3C>

Characteristics of the Users

- **Cognition level**
 - Moderate to normal intelligence
- **Motor Control**

- Voluntary control for at least one part of the body (preferable head, finger, hand)
- **Verbal**
 - Highly unintelligible to Non-verbal, but can read and spell at least to 2nd grade level
- **User Interfaces – multilingual and multicultural**
 - Sentence builder and scanner (mouse, head movement sensor, retinal movement) – once sentence is built application reads (talks) out sentence talks scanner
 - Use pictures to build sequence
 - Word sequence; like cell phone applications that help you automatically complete a sentence
 - Choices of words (start spelling and the program gives choices)
 - Edit mode – customizable to each user
 - Have different voices (male, female, child) to read (talk) sentences
 - Good quality of sound
 - Switch cover or context – access difficult to easy
 - Grid (number) of words and symbols (9 to 64 symbols)
 - Sequence of words:
 - Verbs
 - Nouns
 - Pronouns
 - Adjectives (color, size, shape, texture, etc)
 - Adverbs
 - Articles
 - Questions
 - Prepositions
 - Punctuation
 - Scroll (up and down, right and left)
- **Contexts**
 - Social language and different subject areas (math, literature, etc)
 - Academic language for advanced studies
 - Learning games
- **Bank of Icons**
 - Able to display images and take pictures
 - Have a large database of free clip arts (symbols, words)
 - Icons black and white for people with visual impairment
- **Basic Categories for Communications**
 - Personal information
 - Name, address, phone #, birth date, etc
 - Family information
 - Parents, siblings, relatives, significant others
 - Social information
 - Friends, hobbies, interest, church, work, school
 - Greetings
 - Good morning, bye, etc

- Body parts
- Personal care
- Social language (please, yes/ no, repeat please, your turn, its mine)
- Time/calendar
- Needs:
 - Food n drinks
 - Medical
 - Asking for help
 - Ask questions (what, when, why, where, how, who, etc)
- Wants
 - Home, school, leisure, outings, movies, restaurant, sports, outdoor (mountain, camping) shopping

Existing Products for Comparison

- <http://www.proloquo2go.com/>
- <http://smartysymbols.com>

IP Ownership

- By submitting to the competition the ownership of the design concept is retained by the winning team. The use of the final product (including price) by the Bilingual Multicultural Services, Inc. Therapeutic Center will be negotiated with the sponsors.