

Fast Facts

Project: Bidirectional Access Promotion Society - Bapsi
Lead Organization: Bidirectional Access Promotion Society
Country: India
Budget: AUD 27,000.00



Situation

Electronic communications has not yet reached significant pockets of humanity. One such neglected community is the deaf-blind, of which there are an estimated half million in India alone. Bapsi, as part of its mandate to develop technology for persons with multiple disabilities, came up with a USD 50 communicator for the deaf-blind. It used free Bapsi apps running on an Android phone with a Blackberry-style keyboard. This was a significant improvement over the technology used by the deaf-blind in richer countries, typically an iPhone with a Braille display, costing around USD 2500. The Bapsi communicator used Morse code via vibration, whereas the earlier solution used Braille. To use it, the deaf-blind and their trainers would need to learn Morse code, a novelty for them.

Solution

This project sought to familiarize the deaf-blind and their caregivers with the new technology, to provide training in its use, to better understand the needs of the deaf-blind, to develop and test appropriate software for them, and to encourage other relevant organizations to pay attention to this neglected area. In this, the project team worked closely with the Helen Keller Institute for the Deaf and Deaf-blind (HKI), and the Homi Bhabha Centre for Science Education (HBCSE), both in Mumbai.



Work with first deaf-mute person

Since the project communicator only worked for the deaf-blind who could already read and write, a tiny minority, the team decided to develop two haptic apps for the pre-literate, a slate and a game. For a trainer who is deaf, does not speak and has low vision, we developed a series of 3 apps of increasing complexity, based on his feedback. To test the apps, Bapsi had to first explain them to the caregivers. They then tried to identify a deaf-blind person for whom the app was suited, and try to explain it to him or her. Despite the limited time the caregivers could make available for this, the project team was able to receive sufficient feedback to make improvements in the apps.

Bapsi team trained students in app development, and helped two to take up a project related to the deaf-blind. There was considerable interest in their use of Massachusetts Institute of Technology (MIT) App Inventor, a free facility that makes app development for Android phones significantly easier than with Java. The deaf-blind and their caregivers are world leaders in the use of the sense of touch for communicating information, which is of great interest in the emerging fields of haptics and wearable computers. We were able to make presentations at major international fora including a global Bell Labs videoconference, and at the (Google Accessibility Summit), attempting to steer future technology development towards the use of haptics.

The project team had also an offer from HKI of every kind of support, including office space, except money, for their ongoing efforts in this area. HBCSE will continue to offer expertise, and encourage students to undertake projects to develop technology for the deaf-blind.

The original objectives of the project were:

- To demonstrate this solution to at least 20 organizations who are working for persons with severe disabilities.
- To identify, train and give suitable smart-phones to 4 persons who are deaf-blind.
- To improve software based on their feedback, and to write new apps that offer access to email, Twitter and Wikipedia.
- To raise awareness among the caregiver community and government about the possibilities of new technologies of relevance to the deaf-blind.
- To keep costs as low as possible, so that the technology and support can continue to be made available free of cost.

Outcomes

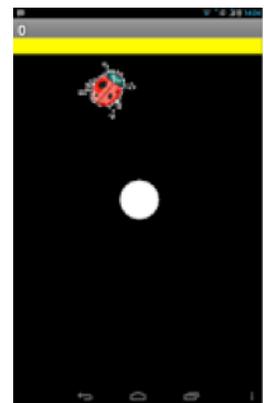
A suite of apps for the deaf-blind has been designed and made available for free download from the Google Play store. These apps address specific categories of the deaf-blind as detailed above. In the process, the project team have gained some appreciation of what works and what doesn't, in relation to the smartphone and the deaf-blind, which will inform future development.

Three of Apps this project developed were not able to be used during the course of the project, they will be used by the Helen Keller Institute for the Deaf and Deaf-Blind (HKI) in the coming months, as and when a suitable person found whose needs can be addressed b those apps. The sophistication of the deaf-blind and their caregivers in haptics has been brought home to IT companies and academics. This will hopefully lead to long-term partnerships in the area, helping to mainstream the deaf-blind.

Substantial awareness has been generated among a variety of groups such as students, caregivers, software developers, academia, IT companies through talks at different fora as detailed in the section above on Dissemination.

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A game accessible for deaf-blind players