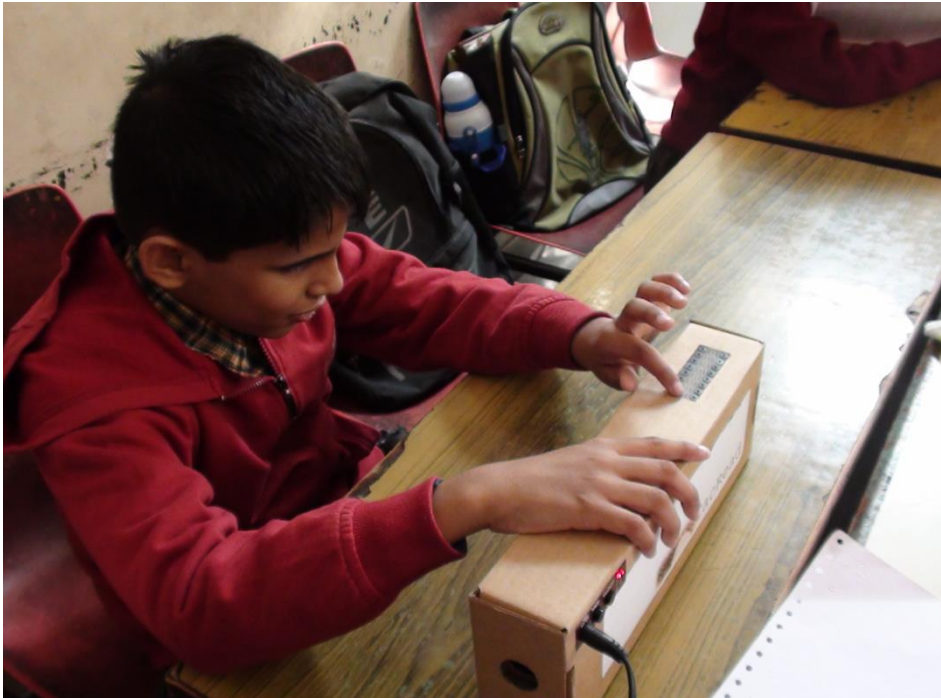


TacRead

Tactile Readout Device



TacRead, or Tactile Readout Device, is a novel and affordable refreshable braille display. People with blindness perceive braille alphabets formed by raised dots on TacRead as those embossed on paper. Affordable display of digital text in braille gives them access to diverse textual media and opens doors for development of various products that shall strongly empower them in fields of education, employment and quality-of-life. Braille tutor systems, deaf-blind communication devices and tactile math displays are some examples of products thus derived that entail mainstream integration in these fields. Free from the demerits of both auditory devices and paper-embossed braille and at a price point below one-tenth of that of commercially available displays, TacRead has been developed to be equally applicable and available to users in both developed and developing countries. The underlying technology has a pending patent and the device is in final stages of development and of user demonstration and feedback.

Need

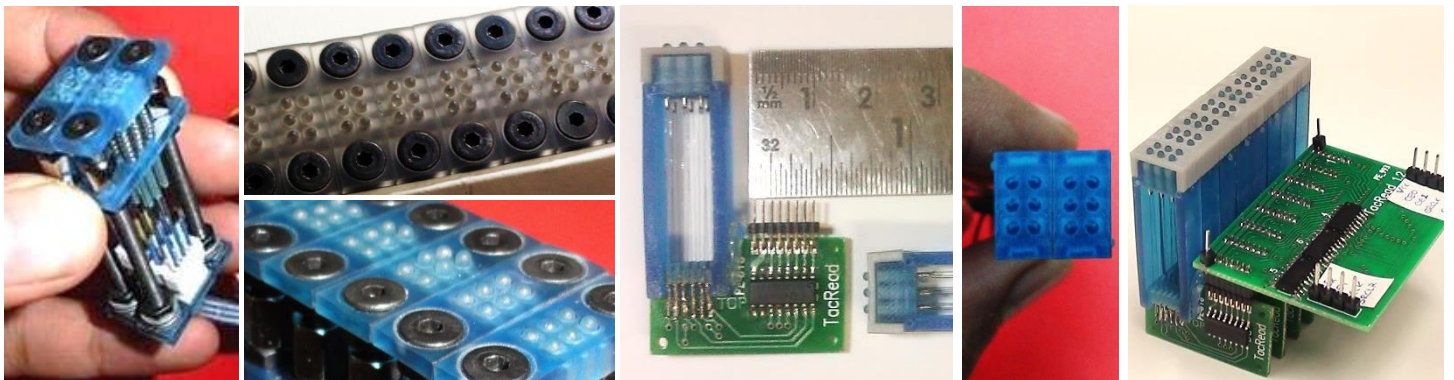
- Paper-embossed braille, being bulky, expensive and short-lived, has limitations which are usually countered by use of digital media like computers.
- People with blindness are unable to access digital media via touch due to lack of affordable braille displays.
- Educational and occupational practices are limited due to current dependency on audio and speech-based devices.

Solution

- TacRead is an affordable braille display device which can be used as displays in computers, and also in new electronic assistive devices.
- A novel actuation technology helps reduce TacRead's price to below 1/10th of that of existing devices.
- TacRead is competent on user-defined specifications, and is thus equally applicable for users in developed and developing countries.

Recent Developments

- Based on prior user testing and feedback, improved TacRead braille display modules have been developed, prototyped and tested.
- Efforts for fabrication of displays for large-scale user trials are in progress.
- DAISY Consortium's Transforming Braille Project has evaluated TacRead. It has been identified as a potential solution to the low-cost Braille display challenge. It is to be considered in the upcoming phase of the project.



भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

Contact Us:

Dr. P. V. Madhusudhan Rao
pvmrao@mech.iitd.ac.in
011 2659 1427

www.tacread.webs.com

Department of Mechanical Engineering
Indian Institute of Technology Delhi
Hauz Khas, New Delhi 110016

User Interaction

User Interaction, with consistent help from **Mr. Dipendra Manocha** from **Saksham Trust, New Delhi** and staff and students at **National Association for the Blind (NAB), Delhi** has been an integral part of the development process. Direct user interaction at every stage including problem identification, design feedback and prototype validation, has not only motivated and driven the process, but kept it pointed towards the right direction as well.



About Us

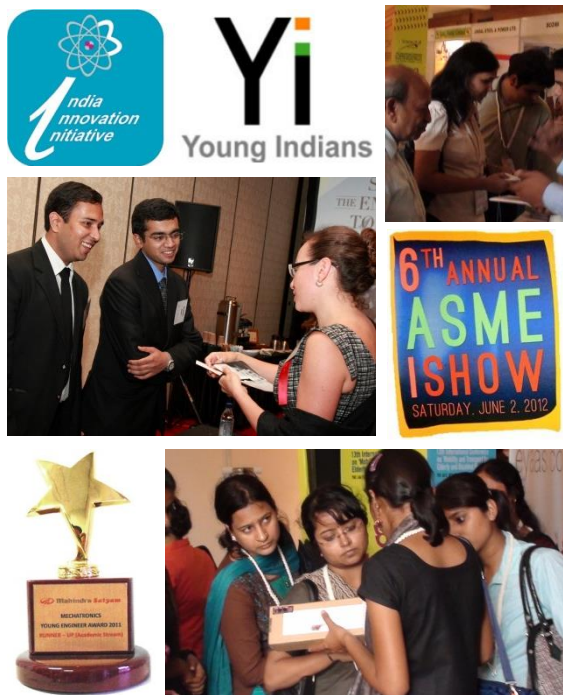
Anshul Singhal and **Pranay Jain** are the core inventors of TacRead's actuation technology. They have developed TacRead and have been leading the prototyping and user-testing activities of the project. **Prof. P. V. Madhusudhan Rao** and **Prof. M. Balakrishnan** are senior faculty members at Indian Institute of Technology (IIT) Delhi and are leading the Assistive Technologies Group at the institute. They are guiding and supervising the development process.

Assistive Technologies Group consists of students, faculty members, users and user organizations at IIT Delhi working towards development of multiple assistive devices for the visually impaired in India. It collaborates with organizations working for visually impaired. One of its products titled Smart Cane, an electronic travel aid, is in translation stage with funding from Wellcome Trust, UK. Other projects under Assitech include Indoor Navigation System, Braille Tutor System and Bus Identification System for the visually impaired.



Recognition

- Selected as participant at national fair of **India Innovation Initiative (i3)**, Delhi, 2012
Awarded **Young Indians (Yi) Next Practices Award 2012**
- Selected as semi-finalist in **American Society of Mechanical Engineering (ASME) Innovation Showcase (IShow)**, Montreal, 2012.
- Adjudged as finalist in **Design Competition in Rehabilitation and Assistive Devices** organised by ASME and National Science Foundation (NSF), ASME Bioengineering Conference, Puerto Rico, 2012
- Adjudged as winner of **Class of '89 Innovation Award 2012**, Indian Institute of Technology Delhi
- Adjudged as runners-up in **Mahindra Satyam Award for Innovation in Mechatronics 2011**, Bangalore, India.
- Awarded **Technology Development Project Initiation Award for Students 2012**, R&D Division, Indian Institute of Technology Delhi



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