

Assistive Technology

by *Abhijit Ganguly*

Have you ever imagined how difficult it is for a visually impaired person to use a telephone? There are several million disabled persons around the world who cannot use a computer without assistance.

Over the years, the advances in technology have produced many solutions that enable persons with disabilities to independently undertake a variety of personally relevant activities of daily living. Assistive technology improves a person's living situation and enhances the abilities of persons with disabilities.

There has been a tremendous pressure on the IT industry to do more to cater to those who have difficulty in using conventional systems. In the UK, the Disability Discrimination Act requires employers to make 'reasonable adaptations' to the workplace.

Some of the recent inventions in the field of assistive technology have been astonishing. The Dasher text entry system developed at Cambridge University in the UK allows people to write on screen without using their hands. The system uses infrared tracking to detect which letter a user is looking at from an alphabet down the right hand side of the screen. The longer a user looks at a letter, the bigger it gets and the quicker it moves to the left hand side of the screen. By staring at letters and whole words suggested by the system, a skilled user can write almost as quickly as a typist. IBM, Microsoft, Oracle and Hewlett-Packard have all made efforts to do more for disabled people.

Unfortunately the awareness of IT needs of disabled people is very low. It is also sad that many employers are reluctant to incorporate assistive technology as they feel it might be very expensive.

ASSISTIVE TECHNOLOGY

- 1 Speech recognition software recognises short commands and makes the use of calculators easier.
- 1 People with learning disabilities like dyslexia or dysgraphia are using text-to-speech (TTS) software for reading and spelling programmes for assistance in writing texts.
- 1 Computers with their peripheral devices, editing, spellchecking and speech synthesis software are becoming the cornerstones of the assistive technologies providing relief to people with learning disabilities or with visual impairments.



Jim Lubin: *building virtual communities one breath at a time with Morse code*

Jim Lubin suffers from Transverse Myelitis. It is a rare neurological syndrome caused by inflammation. He is paralysed from neck downwards since May, 1989. Due to weak neck muscles he can turn his head only a little. He is unable to breathe on his own and is dependent on the ventilator.

He was interested in computers since childhood. Within less than a month of his becoming paralysed he mastered the Morse code and the sip-and-puff technique. Lubin gently inhales and exhales (sip and puff) into an air switch connected to a computer. An adaptive device translates each sip into a dot in Morse code and each puff into a dash. The dots and dashes are translated into commands and letters on the computer screen.

Lubin now uses the sip-and-puff technique at home on his computer to access the Internet. Using an adaptive device called Adap2U, made by AdapTek Interface, Lubin sips and puffs into an air switch to type into the computer. Using the technique, he can now type 17 words a minute. He is developing a reputation as someone who can offer comfort and compassion to people with overwhelming physical challenges.

Lubin has created and maintains several websites and discussion groups of interest to people with disabilities. These include: disAbility Information and Resources, which features hundreds of disability links; the Vent Users' Support Page, which includes helpful links and a vent users' email list; the Transverse Myelitis Association and the Transverse Myelitis Internet Club; and, the Quad email discussion group.