

Some Cutting-Edge Gadgets To Even the Playing Field

By STACY FORSTER
THE WALL STREET JOURNAL ONLINE

For many years, reading a new prescription label from her doctor caused Ellen Mangan distress.

The retired New York City school teacher lost most of her vision in 1976 because of uveitis, an inflammatory eye disease that can cause permanent vision damage if not caught in time. Losing her sight also meant losing much of her freedom and control over information, she says.

But since February, Ms. Mangan, 59 years old, has been learning to use the Internet with the help of ZoomText, a Windows-based software from Ai Squared in Manchester Center, Vt., which magnifies content on a computer screen and reads it out loud. Now, when she has a question about a medication, she goes to the Web to do research herself, checking on side effects and recommendations for dosages. She also finds herself sending e-mails to long-lost friends and reading her hometown newspaper.

"It's opened up a whole new world to me," she says.

There are all sorts of devices to help people take full advantage of technologies like the Web and mobile phones. Modifications or add-ons to cellphones, for example, give someone who is hard of hearing the ability to keep in touch with the office just like their counterparts with full hearing, says Andy Imperato, president of the American Association for People with Disabilities.

An even bigger market waits in the wings. As the 75 million members of the Baby Boom generation age, there's going to be an even greater need for these products and software, which make it easier to read fuzzy text on computer screens, move the mouse or make out crackling cellphone calls.

ROUGH SURF

—

• For the first time, visually impaired people are getting access to information at the same time as the rest of the world, thanks to the Internet and special tools. But some Web sites remain off limits. [Read the article.](#)

"Boomers are not going to just expect this technology, they're going to demand it," says Eric Smith, associate director of the Center for Assistive Technology in Berkeley, Calif.

New federal rules have helped push innovation, says David Dikter, executive director of the Assistive Technology Industry Association. Since 1998, all products and technology purchased by the federal

government are required to be accessible by all.

Sometimes, a simple solution is all it takes; text messaging on a cellphone allows a hard-of-hearing person to take advantage of mobile communications. Still, special gadgets are often needed. Here's a look at some of the latest gizmos:



Blind or Low Vision

One in four people over age 75 have some form of macular degeneration, a condition commonly associated with aging that is caused by a deterioration of the retina. Even more are affected by cataracts, diabetes, rare eye diseases such as retinitis pigmentosa, or simply old age. Making out directions or reading the newspaper becomes difficult, which adds up to less access to information, reduced mobility and social isolation, says Charlie Crawford, executive director of the American Council for the Blind in Washington. "While there's never going to be a replacement for eyesight, [some devices] approximate enough compensation so a person will feel reasonably good about their involvement with the world," he says.

Magnification and screen-reading software: With age or eye disease, people like Ms. Mangan struggle to make out type on computer screens. But it's not enough to simply enlarge images, says Glenda Such, director of computer training at Lighthouse International, a New York-based resource center for people with vision impairments; it must be redrawn with all the pixels filled in for a clear image. That's where magnification and screen-reading software can come into play. ZoomText, from Ai Squared in Manchester Center, Vt., does both for Windows users, magnifying text up to 16 times on such standard programs as Microsoft Outlook, Explorer and Word. Or when typing a new document, for example, users can hear each word or character spoken as it goes down on the page, says Scott Moore, Ai Squared's user education manager.

ZoomText

<http://www.aisquared.com/>

Magnification software: \$395

Magnification and screen reader: \$595

Hand-held magnifier: It's not enough to be able to view text on a computer screen; people with low vision still need to look up numbers in the phone book, sort out the change in their wallets or peruse pictures of grandchildren. Hand-held magnifiers such as Magnicam's Primer look like a computer mouse. A tiny camera sits inside the device; the user glides it over paper, books or prescription bottles and the image is transmitted -- seven to 15 times bigger -- on to a user's television set. The image can be shown in gray tones, negative or reverse type depending on how it's easiest for the user to read, says Tom Winter, vice president of marketing for Innoventions.

Innoventions' Magnicam Primer

<http://www.magnicam.com/>

Primer \$295

Cellphone with audio prompts: Unlike for the deaf, using the telephone should be easy for someone with low vision. However, the little buttons and on-screen prompts can make dialing and answering cellphones brutal. Panasonic's Allure cellphone operates using voice commands and its "audible caller identification" has more than 22 different ring tones to assign to contacts in the user's phone book. The phone's display also has bigger numbers than an average phone, says Eugene Seagriff, Panasonic's product accessibility manager.

(Because it was designed with universal access in mind, the Allure -- like countless products on the market -- fills needs for many different groups. The Panasonic cellphone is also compatible with text telephones for the deaf, and can connect to hearing-aid compatible headsets.)

Panasonic

<http://www.panasonic.com/PCSC/PTSC/allure.htm>

Allure -- suggested retail price is \$129, but would depend on agreement with wireless dealer.

Hearing Problems

With rock 'n' roll is here to stay, more than 15% of the population is now hard of hearing or deaf. Cochlear implants, electronic devices that are surgically inserted behind a person's ear and compensate for its non-working parts, have improved things for many who have partial or severe hearing loss. Hearing aids have also gotten smaller and less noticeable, and are programmed more precisely to the configuration of the wearer's hearing loss, says Brenda Battat of Self Help for Hard of Hearing People. But smaller isn't always better, she cautions: "Because people are embarrassed about hearing loss, they still seek the smallest, least conspicuous hearing device, which may not offer the best benefit because it is small and limits what can be included."

Voice-to-text-to-sign language translation software: Sign language is often the fastest way for the deaf to read, experts say, but it's often challenging to tap into the short supply of sign-language interpreters for the classroom or courtroom. With software called iCommunicator from Interactive Solutions, a speaker talks into a wireless microphone at the front of the room, and the speech is transmitted to the user's laptop computer (a Pentium 4-level processor is required). The speech is converted into text, translated to sign language on the computer screen and transmitted to a connected hearing aid or assisted-listening device. Users can type back to the speaker or allow the computer to speak for them. The result is a two-way communication device that allows anyone to sit down with a deaf individual and have a two-way conversation in real time, says Michael F. Dorety, executive vice president of business development for Interactive Solutions. "This product creates a whole different level of independence," he says, because it requires less reliance on other people for communication.

Interactive Solutions

http://www.isi-icomm.com/product_info.html

iCommunicator software, wireless microphone and transmitter and peripheral equipment -- retail price of \$3,999

Cellphone headset: Despite the ease of text messaging, many hard-of-hearing people struggle with feedback and interference emitted from cellphones, which can interfere with the natural sound they can hear or what is audible through a hearing aid. Walker Ameriphone, a unit of headset-maker Plantronics Inc., has developed a cellphone amplifier currently available for a niche market. (It is expected in retail stores next spring.) A headset is attached to an amplifier, which plugs into a cellphone through the headset jack. Matt Hutichinson, director of marketing for Walker Ameriphone, says the ear pad at the end of the cord will work for users with or without a hearing aid.



Walker Ameriphone/
Plantronics

Walker Ameriphone

<http://mywalker.com/home.view>

Cellphone amplifier -- suggested retail price of \$49.95

Physical Mobility Problems

For people with a physical disability, being in a wheelchair is conspicuous enough, and it's harder for children who are trying to keep up with peers at school, experts say. New tools go a long way toward leveling the playing field.

Head-pointing device: People without the use of their arms and hands have long been able to use computers, but it was easier in the DOS era. That's because in order to replace the mouse, they needed to wear bulky headsets to direct the computer. Madentec's Tracker 2000 takes away the heftiness, requiring users to just wear a quarter-inch-wide reflective dot on their foreheads or glasses to make the connection to an infrared reader atop the computer monitor. It can provide pinpoint accuracy, says Randy Marsden, Madentec's president and chief executive, adding that an artist who has lost mobility from multiple sclerosis uses the product to produce paintings. The newer, more nimble technology also makes it easier for schoolchildren with disabilities to keep up with their peers. "Students can do assignments or read anything that normally requires paper," Mr. Marsden says. "There's no aspect of education that should be barred."

Madentec

<http://www.madentec.com/>

Tracker 2000 -- \$1,595

Alternative keyboards: Even with some mobility, punching keys on the computer is a challenge. IntelliTools' IntelliKeys is an alternative keyboard that can be plugged into any Windows or Macintosh computer. One of a series of laminated cards are placed over the keyboard, which is then programmed to respond to different commands. The keyboards are touch sensitive so that users don't need to have precise coordination of their motor functions. "They blur the lines between those who are users of assistive technology and those who use regular technology," says IntelliTools chief executive Argan Khalsa. Moreover, as much as 40% of school-age children have learning disabilities, such as dyslexia or attention-deficit disorder, and IntelliTools software used with the keypads can benefit these children as well, Mr. Khalsa says.

IntelliTools

<http://www.intellitools.com/>

IntelliKeys -- \$395

Updated November 7, 2002 7:29 p.m.