

# The Blind Struggle As Gadgets Proliferate

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As technology has evolved, it's become lighter, smaller and more portable. For most people, that makes it more convenient. For millions of blind and vision-impaired people, it's anything but.

Jay Leventhal, who is blind, still fumbles with the tiny controls on his iPod but has given up on the kiosk in his New York office building that lists all the tenants.

For Leventhal, even laundry has become a task requiring the help of a sighted person. The washers he uses now take smart cards instead of quarters, issuing instructions on a digital screen that he can't read.

"The biggest barrier for blind people is access to information, and more and more information is being made available through different machines that aren't designed for people who can't see," says Leventhal, editor in chief of AccessWorld: Technology and People with Visual Impairments.

Blind people need a way to communicate with the machines that surround them, he says, from automated tellers to ticketing machines at train stations and airports.

Leventhal and other experts on assistive technology say there's no reason that can't happen. The technology exists in voice chips, image processors, cell phones, cameras and personal digital assistants.

Someone just needs to put it all together.

That's the principle behind the Levar Burton Vision Enhancement Technology Center, a fledgling venture in Morgantown, W.Va., that will pair the resources of West Virginia University and Georgia Tech with private-sector partners like Motorola Corp.

Levar Burton, who played blind Lt. Geordi La Forge in "Star Trek: The Next Generation," is lending his name and star power to fund-raising efforts for the center.

Though he's not blind, he wore a visor on the set that impaired his vision by 75 percent for nearly 12 hours a day.

The center and its partners will use off-the-shelf technologies like lasers, magnifiers and global positioning systems to develop, test and market products to help people see better. The American Foundation for the Blind, which runs a technology evaluation center in Huntington, W.Va., will advise the scientists.

Of the 18 million Americans with diabetes, for example, about 5 million are visually impaired.

But when Mark Uslan, director of the Huntington facility and his lab volunteers tested 30 brands of blood glucose monitors, they found only one that was usable - but it was 10 times larger and 10 times more expensive than the other models tested.

Mainstream companies need to consider the vision-impaired when designing products, Leventhal says.

"There's no reason for someone to have to make an MP3 player that's accessible to blind people when several companies are already making MP3 players," he says.

Though many assistive devices are commercially available for the blind and vision-impaired, each has limitations and nearly all are expensive, produced in small batches by specialized companies. Even a software program that makes a computer talk is nearly \$1,000 - as much as the computer itself.

And with few health insurers willing to pay, sales are too small to justify significant corporate investment.

"That's why we've had to take this avenue," says Dr. Richard "Scott" Hearing, director of the Low Vision Clinic at Jupiter Eye Center in Florida and an adjunct faculty member at WVU. "If there were a lot of money to be made in this, someone would have already done it. ... It's not the cost of the technology that's expensive; it's the cost of adapting it for vision impairment."

A few companies are working on assistive technology, but one of the largest and oldest, Telesensory Corp. of Sunnyvale, Calif., went bankrupt and closed last month.

Jody Ianuzzi, program coordinator at a blindness training center in Florida, says cost is critical. Some people will find state programs to pay for devices, and others have employers who will buy them as a reasonable workplace accommodation. But for retirees and the under- or unemployed, she says, "one device could break the bank."

Hal Reisiger, president of Enhanced Vision Systems of Huntington Beach, Calif., says that's why his firm will partner with the Levar Burton Center; new products must be practical for the manufacturer, too.

"We could make flying saucers," he says, "but if people can't afford it, it's not an effective mode of transportation."

Hearing and others aim to keep costs low by designing not only assistive devices but also mainstream products with military and recreational applications.

Burton's Star Trek character is the inspiration for one of the most advanced devices on the market today, a set of goggles called JORDY, or Joint Optical Reflective Display.

It functions like two high-definition television sets, with controls over color, contrast and magnification.

But the JORDY is heavy, offers a limited field of view and lacks image stabilization, so it can cause motion sickness. And it costs about \$3,000.

Paul Mogan, a legally blind electronic engineer at NASA's Kennedy Space Center in Florida, says JORDY is best suited to stationary tasks like reading. He wants to help create the next incarnation, special sunglasses linked to a wireless computer that can fit on a belt or in a pocket.

With a voice chip, GPS and image processors, the visor could serve as a sort of on-board navigation system for the blind, calling out hazards, announcing nearby shops, even reading signs that say what's on sale.

NASA has a compatible goal: The space agency wants a wearable wireless computer that would help technicians work independently outside a spacecraft.

"NASA has this initiative to go to the moon and Mars, and you're not going to be able to take a ton of crew, so you're

going to have to be very efficient in what you're going to do," Mogan says. "All people have to be able to have access to a lot of information."

By VICKI SMITH  
Associated Press Writer

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