

HP iPAQ Pocket PC inspires Freedom Scientific's wireless device for persons who are blind or have low vision



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Sharon Spencer, executive vice president of Sales and Marketing, Freedom Scientific

Florida-based Freedom Scientific is an HP accessibility partner that develops and manufactures technology products that enable people who are blind or have low vision to work on the same competitive level with those who are sighted.

According to the National Federation of the Blind, unemployment is high among persons with vision impairment, and many who have jobs are underemployed. For example, a person with an IT degree who is blind or has low vision may be relegated to answering simple questions on the phone instead of developing software or troubleshooting system problems. Similar disparities can exist in schools, with blind and vision-impaired children lagging behind sighted children.

"The difference is access to information, not intelligence, education or wisdom," says Sharon Spencer, executive vice president of Sales and Marketing for Freedom Scientific. "Technology can be the true equalizer. Our job is to give people with vision impairments the tools they need to function well in the community, learn effectively in school and succeed in the workplace."

In less than three years, Freedom Scientific has become the world's leading manufacturer of technology products



for people who are blind or have low vision. This 175-employee company also creates products for special education classes and for people with learning disabilities. The HP accessibility office works closely with Freedom Scientific to ensure its success in bringing the latest technology to its special market.

The company's most popular products are JAWS® for Windows, the world's best-selling screen-reading software, and Braille 'n Speak, a note-taking device with Braille key input and speech or data output.

Worldwide, more than 78,000 people who are blind or have low vision use JAWS to achieve the same or higher productivity in computer-based jobs as people with average eyesight. College students and professionals use Braille 'n Speak devices to take notes in classes and meetings, keep address books and update personal calendars. Other Freedom Scientific products include MAGic screen magnification, Connect Outloud web access software and OpenBook, scanning software that "reads" documents aloud.

Challenge

Things happen quickly in the world of technology. Unfortunately, tools that help vision-impaired people use new technology have not always appeared in a timely manner. For example, JAWS for Windows, which enabled the blind to use Windows on desktop computers, did not become a reality until 1995, years after sighted workers began using Microsoft Windows applications.

"We have been trying to close the gap," says Spencer. "For example, we announced our version of JAWS for Windows XP just one week after Windows XP was announced."



Challenge

- To develop a device that would offer people who are blind or have low vision the same level of wireless mobility available to sighted persons using HP's iPAQ Pocket PC

Solution

- PAC Mate, a Pocket PC designed specifically for individuals with vision impairment, patterned after the HP iPAQ Pocket PC. Dimensions: 9.75 inches across at the bottom of the unit, 5.25 inches in height, weighs 1 pound, 13 ounces with the user-replaceable battery installed.

Results

- Development of the first Pocket PC for individuals with visual impairments
- Improved productivity for people who are visually impaired
- Expanded flexibility for users, because of PAC Mate's compatibility with a broad range of off-the-shelf software and hardware products
- Maintained Freedom Scientific's leadership position in the assistive technology industry

In the past decade, wireless mobility has become increasingly important for many workers in almost every industry. Freedom Scientific wanted its customers to access wireless technology as soon as possible. So, its engineers set out to develop a device that would offer visually impaired people the same level of wireless mobility available to sighted persons using HP's iPAQ Pocket PC. The endeavor would empower persons who are blind or have low vision and protect Freedom Scientific's leadership position in assistive technology.

Solution

Using the HP iPAQ Pocket PC as a model of functionality, Freedom Scientific created the PAC Mate, the world's first wireless Pocket PC handheld computer for the blind.

The PAC Mate provides access to everyday Windows-based desktop data and software applications, including Microsoft Word, Outlook and Internet Explorer. It is available in two models. With the PAC Mate BNS, users enter data with an eight-dot Braille keyboard. The PAC Mate TNS comes with a QWERTY-style keyboard. Both units run Freedom Scientific's new software, JAWS for Pocket PC.

In addition, the PAC Mate offers a calculator, a linear formatting editor, a clock and a stopwatch. The unit also has an Eloquence speech synthesizer, with a dual-channel sound card so the speech function can be used while listening to Internet broadcasts. A USB port enables connection with desktops, laptops, printers and other devices in either host or client mode, and Compact Flash and PC Card slots provide connection to a choice of peripherals.

Results

With the PAC Mate, people who are blind or have low vision enjoy the same level of wireless mobility as those with sight. They can interact seamlessly with other Pocket PC users and transfer files to other PC products, either wirelessly or via an IrDA port.

For trade shows and sales presentations, Freedom Scientific shows a PAC Mate operating next to an HP iPAQ Pocket PC. The display for the iPAQ Pocket PC appears on a large screen as the PAC Mate presents the same information orally. That way sighted members of the audience can see that the two handheld computers offer similar functions and benefits.

Users of the PAC Mate can surf the Internet, send and receive e-mail, and manage data with ease, just as sighted people can with an iPAQ handheld. CompactFlash™ cards provide unlimited storage, and a user-replaceable battery provides backup power on the go.

Just as sighted people use the HP iPAQ Pocket PC to accomplish more in their jobs and personal lives, entrepreneurs who are blind or have low vision understand the PAC Mate is a tool that can help them be more productive.

"The PAC Mate is going to change the entire complexion of assistive technology," says Karl Smith, owner of Axis Technology in Salt Lake City, Utah. "This is the first time a person who is blind or vision impaired will be able to work on the same competitive level with those who are sighted. For my own business, it allows me to transfer and manage my Excel data flawlessly. Whether it is in the professional, educational or home environment, PAC Mate, to me, is the next generation of technology for people who are blind or have low vision."

"I am absolutely amazed by PAC Mate's flexibility," says Oleg Shevkun, a pastor and teacher in Moscow, who likes being able to accomplish a wide variety of tasks on his PAC Mate. "I can work with e-mail, create a complex document or a spreadsheet, plan appointments and calculate math problems. But then, I can take a break and listen to music or to a radio broadcast on the Internet, all with that same little device! And, speaking about the Internet, I can connect by synchronizing with my PC, or by directly plugging a network card into the PAC Mate, or even by using PAC Mate with my mobile phone. The possibilities are enormous."

What's Next?

As the technology for Pocket PCs evolve, Freedom Scientific intends to improve the PAC Mate, continuing to use the HP iPAQ Pocket PC as a model. Already, the company is working with VisuAide Inc. of Canada to develop an optional Global Positioning System (GPS) component that will provide orientation by describing surroundings. It will also direct users to a predefined location.

Why HP?

JAWS for Windows, the first product to revolutionize computer accessibility for people who are blind or have low

vision, launched the partnership between HP and Freedom Scientific. Since then, the two companies have worked closely so that Freedom Scientific software can run on HP computers and work with HP printers and scanners.

Specifically, HP uses JAWS to help demonstrate that its electronic products are accessible to people with disabilities in accordance with Federal purchasing laws. This proof of accessibility allows Federal agencies to purchase HP products.



"We are very impressed with HP's commitment to accessibility," says Spencer. "They know the best answers come from partnerships with people who truly understand the needs of each group."

A number of Freedom Scientific employees use the HP iPAQ Pocket PC, which Spencer calls "a great product." She says the iPAQ handhelds have led to productivity gains among sighted staff members. Information that used to be printed out and carried around in folders now resides on the iPAQ Pocket PCs. Contacts and appointments are updated during sales calls and meetings. Staffers jot down notes on their HP iPAQ Pocket PCs, read e-mail on the go and research the Internet when and where the need arises.

Features

- Eloquence speech synthesizer, with a dual channel sound card so speech function will work even while listening to Internet broadcasts
- USB port for connection with desktops, laptops, printers and other devices in either host or client mode
- Other applications: a calculator, a linear formatting editor, a clock and a stopwatch
- Compact Flash and PC Card connections for choice of peripherals including modem, micro-drive, Ethernet Card, Wireless LAN, Bluetooth, cellular modem and others
- IrDA port allowing user to transfer files between PAC Mate and other PC products
- Cursor Cross for two-dimensional navigation and a redesigned 8-dot keyboard
- Compact Flash port for unlimited document storage
- User-replaceable battery with "instant-on" convenience

Spencer uses an HP iPAQ Pocket PC herself and has had personal experience with the quality of iPAQ technology and engineering. She recalls the meeting at which a pitcher of water fell over, flooding her briefcase. Her HP iPAQ Pocket PC, which was still in the briefcase, was covered in water.

"I assumed I'd have to get a replacement, but when it dried out, I did a hard reset and it started up just fine," she says. "I'm still using it, and it operates as perfectly as it did the day I bought it."

"At HP, we work hard to develop products that are reliable and accessible," says Michael Takemura, director of the HP Accessibility Program Office, "but fulfilling our promise of connecting everyone to the power of technology includes partnerships with innovative companies like Freedom Scientific whose products and services successfully meet the needs of disabled people. We appreciate Freedom Scientific's efforts to expand accessibility, especially for people who are blind or have low vision."

At a glance

- **Company:** Freedom Scientific
- **U.S. headquarters:** St. Petersburg, Florida
- **Founded:** 2000
- **Employees:** 175
- **Telephone:** 800-444-4443 or 727-803-8000
- **URL:** <http://www.freedomscientific.com>
- **Primary business:** Development and manufacture of technology products for those who are blind or have low vision and for those who have learning disabilities

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<http://www.hp.com>