With holographic keypad, former attorney practices engineering and entrepreneurship

By David Jastrow
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Have you ever wished you could change television channels or dial a car phone with just a wave of your hand? Or that you could be 100 percent sure your doctor has clean hands?

Well, local Renaissance man R. Douglas McPheters has solved your problem.

McPheters, president of Darien-based HoloTouch Inc., has created a "touchless" holographic interface for inputting data in mid-air. Users can simply tap a finger on images projected in front of them to perform a variety of tasks, from changing channels to controlling medical equipment.

The company has partnered with Hillsdale, N.J.-based Atlantex Corp. to build the BeamOne Holographic User Interface, which serves as a prototype for clients who want to integrate holographic images with their products.

BeamOne is a three-dimensional, user-friendly tool. Four buttons are projected into space in front of the device and appear to float in the air.

The user can activate commands by touching the spot where the buttons appear. An infrared wave sensor scans the plane of those images to detect the intrusion of a finger into the desired portion of those images.

It then identifies which number or symbol has been selected and transmits that selection to the equipment's internal software, much the same way pressing a button on any ordinary keypad would.

The BeamOne HoloTouch demo unit sells for $1,995, and comes with software that provides customized keystroke configurations. The system, which acts as a virtual touchpad, connects to most PCs through universal-serial-bus ports. It was designed so companies that are considering using the HoloTouch interface in their own products can test out the system.

Since moving parts are not involved, the interface is impervious to dirt, heat, moisture, shock and other factors that interfere with precise and reliable operation of human interfaces in industrial, medical and outdoor settings.

The medical equipment and kiosk markets have been the easiest ones for HoloTouch to reach, McPheters said. The firm has garnered attention from Fortune 500 companies, including telecommunications providers, software vendors, food makers and microchip manufacturers.

"The task is to convince companies this would have sufficient benefits for them," McPheters said. "It's a challenging step, because no one has experience with both holograms and wave sensors. No one else has the same technology."

HoloTouch's business model centers on licensing agreements involving an upfront fee and

royalties based on net sales of any products or services built using the technology.

McPheters knows what it takes to be persuasive. The energetic 62-year-old has practiced corporate law in New York since 1972, specializing in securities and merger and acquisition deals.

"I know how to deal with people in big companies," he said.

Along with being an attorney and entrepreneur, McPheters is a writer and musician. He formed the idea for HoloTouch while authoring a novel about a lawyer who starts a loan-sharking business in the former Soviet Union. While writing a chapter, he imagined a PC in floating images.

McPheters said he became heavily interested in technology in 1969, when he was the chief engineer of a diesel submarine following his Naval Reserve Officer Training Center experience as a student at Yale University.

So when the idea of holographic interface images surfaced, he immersed himself in research about sensors and holographic technology.

McPheters said he was bitten by the entrepreneurial bug early in his career. As an attorney, McPheters said he never enjoyed cookie-cutter deals, but rather creating workable structures tailored to the needs of each client.

McPheters also serves as president of the Norwalk Symphony Orchestra and plays the tuba with several local music troupes.

Now his task is composing a sales and marketing strategy to convince potential customers that holographic technology can provide sufficient benefits. McPheters plans to keep the company lean until it generates more revenue.

HoloTouch's effort to get a patent for the technology was a long odyssey. He got a U.K. patent in 1997, but didn't win approval from the U.S. Patent Office until 2002. In between, McPheters was the chief operating officer of two failed high-tech start-ups, but it taught him lessons about keeping operations tight.

McPheters is HoloTouch's only full-time employee and works from his home office in Darien, with help from five outside consultants who assist with engineering, accounting, legal issues and public relations.

Holography is not a new concept. The technology traces back to 1947, when British/Hungarian scientist Dennis Gabor developed the theory of three- dimensional image projections while working to improve the resolution of an electron microscope. "You can't predict the future, but you can invent it," Gabor famously said at the time.

Holography is a three-dimensional imaging technique. It uses laser light to record the pattern of light waves reflected from an object onto the emulsion of light sensitive film or glass plates.

When the film is developed and re-exposed to laser light -- or, like most holograms today, normal incandescent light -- it re-creates in space all the points of light that originally came from the object.

The resulting image has all the dimensions of the original object and looks so real that you are tempted to reach out and touch it, only to find nothing there but focused light.

Recently, holographic lenses have been used for a number of applications, including supermarket

bar code readers and security emblems on credit cards and currency.

Holographic technology has generated a hotbed of activity by companies. InPhase Technologies of Longmont, Colo., recently launched a beta version of a storage drive that records data on holograms.

A Dubai-based firm called The 3D Company worked behind the scenes to enable an advertising agency to release the first 3D "holographic-like" advertisement in a local daily newspaper.

Six Japanese companies have collaborated to accelerate the development of holographic-versatile disc technology that offers 200 times the capacity of a single-layer DVD.

During the Consumer Electronics conference in Las Vegas in January, HoloTouch demonstrated the advantages of its solution. Among the benefits McPheters' company has to sell: HoloTouch's colorful user interface images appear where convenient, and the technology bypasses all hygienic issues because there is nothing to touch while operating electronics.

Medical experts said bringing the technology into operating rooms and other sterile health-care environments would be helpful to reduce contamination.

John Fisher, director of arrhythmia services and professor of medicine at Albert Einstein College of Medicine in New York, praised the new technology as a significant improvement over existing methods.

"During angioplasties, pacemaker implantations and other cardiac procedures, we must be able to quickly see the visual record of the patient's condition at various times since the beginning of the procedure," Fisher said. "With HoloTouch, the surgeon is in direct control of this visual record, eliminating the delay and risk of misinterpretation that exists under present systems."

HoloTouch and Atlantex recently won an editors' choice award from trade magazine Control Engineering in its human-machine interface category as one of the most significant innovations featured in the periodical during the past year.

Although McPheters is self-taught, it was his product rather than the usual entries by lifelong engineers product that won recognition from the magazine.

"I have no formal technology training," McPheters said. "I just had an idea and went with it."