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Robotic book scanner built on Xerox technology

By WILL ASTOR

The Kirtas Technologies Inc. story is a page turner—literally.

The Victor firm makes a machine featuring a robotic page turner, high-quality digital imaging equipment and a custom V-shaped cradle to scan bound volumes automatically.

With terabytes of information in books waiting to be digitized, there is demand for an automated scanner, even at the \$150,000 list price for Kirtas Technologies' APT BookScan 1200.

"It has actually gotten scary," said Kirtas CEO Lotfi Belkhir, marveling at a firestorm of demand that has arisen for the specialized scanning device since it started to get a few mentions in technology journals and trade publications last year.

Belkhir projects \$1.1 million to \$1.5 million in revenues this year and expects to shoot to \$10 million in 2004. Though it has not delivered its first machine, some of its financing comes from 30 percent deposits the company has taken on equipment slated for delivery.

Belkhir estimates the market for book scanning devices to be some \$23 billion.

"So many people have expressed interest in this. I'm trying to keep a lid on it now," said Lynn Brooks, chief digital scanner for the Library of Congress' information technology services.

Brooks has invited Belkhir to Washington, D.C., to demonstrate the BookScan in three weeks. The demonstration does not mean the Library of Congress or anyone else will

buy a BookScan, Brooks said. But interest in the device is intense.

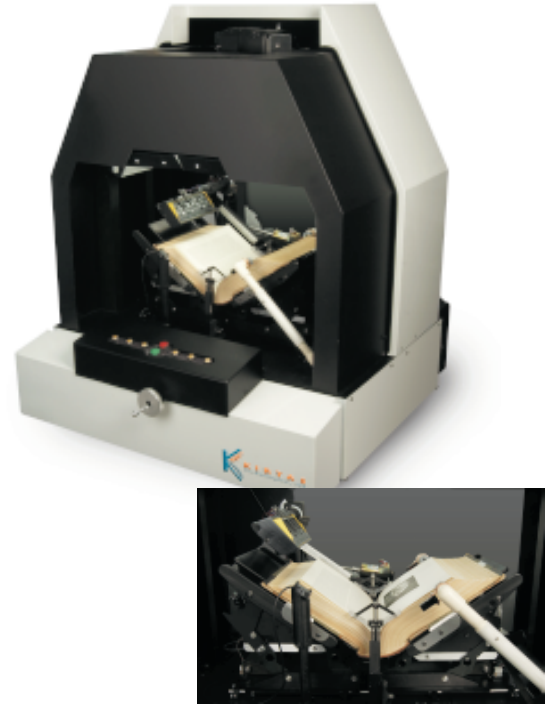
Brooks' counterparts from the Smithsonian Institution, a few other federal agencies and representatives of several large libraries are slated to attend the demonstration. As word of the product has spread, so many have tried to wangle an invitation that Brooks has added two days to the event, originally slated as a one-day affair. But more keep calling.

"People have to understand; we have security concerns; we have space constraints," Brooks said this week as he contemplated scheduling a second round of demonstrations.

Brooks is looking at some 14 million bound volumes waiting in the Library of Congress collection. How many get scanned into digital form and how soon that gets done depends on scanning technology.

Kirtas Technologies Inc.'s BookScan 1200 is a robotic device capable of fully automatic bound-book scanning. With terabytes of information in books waiting to be digitized, there is demand for an automated scanner.

The digitization of the library's collection has been ongoing for some eight years, Brooks said.



Technology has advanced to allow high-quality imaging, which allowed the scanning of archival materials such as original William Blake illustrations and original Bach and Beethoven scores. But only recently, with the development of Kirtas' BookScan machine and a few similar products, has it been possible to think seriously about the high-volume scanning needed to digitize the mass of information contained in 14 million bound books.

The BookScan 1200 is one of two marketed robotic devices capable of fully automatic bound-book scanning, Brooks said. The other is made by a Swiss firm. The Swiss machine is some 300 pages an hour slower than the BookScan's advertised scan rate and sells for roughly twice the price, he said. A third book-scanning machine is "not really robotic," but is an improvement over existing scanning technology.

Much of the demand for scanners comes from expected sources such as libraries, Belkhir said. But early interest has come from some unexpected quarters.

Several clients have placed orders for BookScans, Belkhir said. He could not disclose the customers' identities. One customer—not in one of the industries expected to use such technology—has indicated that if all goes well with its first purchase it would buy as many as 40 more.

If that order comes through, it would skyrocket revenues far beyond current first-year projections and make Kirtas profitable in its first year of sales, Belkhir said.

Belkhir is a former Xerox Corp. business development manager who left the document company in 2001 to start Kirtas. The BookScan 1200 incorporates technology under two licenses from Xerox's famed Palo Alto Research Center.

Belkhir joined Xerox in 1995 as an engineer at the company's research facilities in Webster. When he moved to PARC a few years later, he was entranced with a book-scanning machine he saw there.

PARC researchers had developed and patented the V-shaped book cradle Kirtas licenses and uses in the BookScan, Belkhir said. But they had been frustrated in attempts to develop a robotic page turner.

"I became very excited when I saw that machine," Belkhir said. "I

knew Xerox had the expertise to come up with a robotic page handler in Rochester. I asked for permission to take it on as a project."

When Xerox decided to shelve the project a few years later, Belkhir worked out a deal to license both the book-holding and the robotic page-turning technologies. Kirtas has non-exclusive rights to the book holder but holds exclusive rights to the page-turning device, which was developed by a Xerox team Belkhir assembled.

The book scanner was one of three pet projects he was working on that got killed, Belkhir said. He could have looked for other work at Xerox, but the document company's assurances it would let him license the book-scanning patents convinced him to take a flyer on Kirtas.

Kirtas employs five full-time and two part-time workers. It works with three partners: Applied Mechanical Technologies Inc. in Victor for mechanical design; Appcon Technologies in Henrietta for electrical, controls and software; and FTT Manufacturing Inc. in Geneseo for manufacturing and prototyping.

Applied Mechanical Technologies CEO Anthony Ilacqua is a co-founder of Kirtas and has helped finance the company's startup. A number of Applied Mechanical Technologies workers are former Xerox employees, Belkhir said. Another Xerox alumnus is Kirtas chief engineer Thomas Taylor, a former document company paper-handling specialist.

Belkhir plans to make selling individual book-scanning machines a priority at first, but ultimately to take a page from Xerox's book and establish an annuity revenue stream. In that business model, Kirtas would lease machines to users and could provide technicians to do scanning for clients at remote sites or at a Kirtas facility. Clients would pay for scanning on a per-page basis. If the technician model proves workable, Kirtas could become a substantial employer, Belkhir said.

Belkhir is thinking about a next phase in which the company would produce a cheaper book copier that might be used in libraries. He also has plans to develop software. But then he pauses, not wanting to get ahead of himself.

"We see this is a latent market," Belkhir said. "It's like the Xerox 914, the first copy machine. Nobody knew for certain what it might lead to, which is a problem with latent markets. In the meantime, it's scary for me because the stakes keep getting higher and higher."

The name Kirtas is an anagram for "at risk." It is not meant to imply risk incurred by Belkhir and the wealthy angels that are mostly financing the company's startup. Rather, Belkhir said, the name is supposed to convey the risk potential clients take in not digitizing data stored in books. This apparently is a message that does not need to be much reinforced for potential customers.



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