The New York Times

Science

PERSONAL COMPUTERS

PERSONAL COMPUTERS; SUPERMARKET BAR CODES ARE APPLIED TO SOFTWARE

By ERIK SANDBERG-DIMENT
Published: October 15, 1985

EVER since microcomputers slid off the hobbyist workbench into the life of the public at large, the question of how programs and data for them should be dispersed has been open to much debate among manufacturers. Originally, the disk drives were too expensive for floppy disks to be considered practical vehicles for software, with a single unit costing more than a basic personal computer itself.

At the time, audio cassettes, carrying digital rather than the customary analog data of music, were being trumpeted as the most cost-effective answer. They were not a very elegant solution, and they were exceedingly slow, but they were still a decided improvement on the punched paper tape that had been the means of loading software into a personal computer.

The idea of programs on paper did not die, however, and along about 1978 a number of computer gurus predicted that bar codes would become the preferred method of distributing software. They expected to see entire magazines containing nothing but page after page of those black lines of uneven width now familiar as the Universal Product Code label and seen on everything from boxes of breakfast cereal to packages of pantyhose. The computerist, it was foretold, would take one of these magazines home, run a reading wand down the columns one after the other and thereby feed the computer the latest exciting program from the Top 40 chart.

There were only three things wrong with this outline. First, people did not buy programs the way they did magazines and boxes of cereal. Second, inducing a reading wand to scan the bar codes was a tedious and imprecise process. The final blow to the bar code movement was dealt by the floppy disks. The price of both the drives and the disks began to plummet.

Because a floppy disk system permitted the user to load data from a disk into the computer, and provided storage for computer-generated data on disks as well, this superior arrangement won out over both cassettes and bar codes. The idea of paper-conveyed software was buried once and for all. Or so it seemed.

Now, however, the concept has surfaced again in Softstrip, from Cauzin Systems Inc. of Waterbury, Conn. Softstrip is the old bar code in new attire, its most significant innovation being that it can hold 30 or 40 times as much information per square inch of surface area as traditional bars do.

A Softstrip is 5/8 of an inch wide by 9 1/2 inches long - a size chosen to conform to the requirements of most magazines, two strips side by side filling a standard third-of-a-page column - and can store the equivalent of 5,000-plus characters. A letter-size piece of paper covered with such strips could hold close to 50,000 characters, the equivalent of 30 double-spaced typed pages. Furthermore, unlike traditional bar codes, which require a good paper stock, the Softstrip technology patented by Cauzin Systems can be used with almost any type of paper, including newsprint.

Periodicals are where the pundits expect Softstrip to make its mark. Computer magazines

doling out software and newspapers delivering data by means of Softstrips seem a natural. The daily Wall Street stock tables listed in this format could be loaded into a computer's memory in a matter of minutes, which is more economical than downloading such information from some distant data base via telephone and modem.

Some magazines, notably Byte, on page 392 of its October issue, are already running print tests of high-density bar codes. Of course we human readers of these magazines do not as yet have the electronic readers needed to convert the printed mosaic into digital fodder digestible by a computer, and so for now we can only stare at the enigmatic patterns. But the writing is on the page, we are told, and a new form of paper-based software distribution is on the way, one that will even permit the duplication of software by plain-paper copiers.

However, I suspect that, for all the publicity this new bar code technique is generating in the trade press, the system is no more than yet another intriguing technological development destined to end up in the shredder. True, feeding strips of paper into a reader is not a particularly onerous task. Certainly it is simpler than typing in hundreds of entries, and considerably less prone to error.

The fact that a Softstrip using ASCII data files could be read into an Apple, say, as easily as into an I.B.M. is in theory a further convenience, in that it would make possible the printing of only one version of a given set of data for all its potential "readers." To use the example of the stock tables again, a single set of them printed in bar code in a newspaper could be read by any and all interested computers. That is certainly a selling point for bar-coded periodicals.

Already publishers such as Pergamon are planning to print a Softstrip index in some of their scientific periodicals alongside the one humans can read. This will make feasible the almost instant addition of article listings to a computer data base.

Other entries in the Softstrip sweepstakes, according to the developers of the strip, would include banks, which would imprint Softstrip-encoded summaries of bank statements for the convenience of computer-driven small businesses.

A motorized reader for Softstrips is expected to sell in the $200 range. As peripherals go that is inexpensive and good news for the consumer.

SO what's the catch in this idea that seems such a natural? Simple. Who is going to use the thing, and why? Even the most ardent stock analysts, to return to our example, do not follow every company on the Big Board, so why would they want to have all that extraneous data stored in their computers? Since Softstrips are indecipherable by humans, it would be impossible to enter selectively the figures for only half a dozen stocks.

As to all those programs soon to be printed in magazines, who needs them? The vast majority of personal computer owners have two or three programs that they use regularly, and that is all they really need.

Then there is the matter of optical character recognition. With the rapid strides being made in the technology that allows computers to read the same print we humans do, the next hot peripheral is likely to be a personal scanner, which would eliminate the data entry advantage of Softstrip. All in all, the super dense bar code is an interesting technology that would seem to have no viable market.