

O'Shaughnessy
4.8.2008



Portable devices are becoming easier for consumers to use. The pocket-sized RADIUS, made by Polymer Vision, unfolds to show text.

A Screen That Unfurls Into a Digital Magazine

By ANNE EISENBERG

Consumers like large displays on the mobile devices they use for reading an e-mail message or an e-book, but they also like to tuck those devices into their pockets. But the bigger the screen on a cellphone or an e-reader, the sooner it outgrows pocket size.

Now a hallmark feature of these screens — their rigidity — is changing. New technologies are developing that make displays flexible, foldable or even as rollable as papyrus, so that large screens can be unfurled from small containers.

One new mobile device, the RADIUS, designed for reading books, magazines, newspapers and mail, is the size of a standard cellphone. Flip it open, though, and a screen tucked within the housing opens to a 13-centimeter diagonal display. The screen looks just like a liquid crystal display, but can bend so flexibly that it can wrap around a finger.

Because the RADIUS is pocket-sized, but has a generous, supple screen, people with five minutes to spare in a taxi, bus or subway can use the dead time to open it, read a page or two of a book and then return the device to a shirt pocket, said Karl McGoldrick, the chief executive of Polymer Vision, the company in Eindhoven, the Netherlands, that created the device.

The RADIUS may even help stop people from obsessing over their e-mail: with the device, spare moments for reading may be put to a possibly better use — say, a novel by Stendhal. But if their good intentions fail, the device has a wireless connection to download e-mail as well

as books.

The black-and-white display holds about 22 lines of a book page, depending on the font, all shown in the crisp black type provided by technology from E Ink, also used in Amazon's Kindle and other e-readers. The screen changes from one page to the next in about half a second, at the touch of a thumb.

The RADIUS will be introduced in England, Italy and Germany this fall, and in the United States early in 2009, Mr. McGoldrick said. Its battery lasts for about 30 hours of reading. Pages can be read under a variety of lighting conditions, even including full sunlight, he said. The price is not yet set, but Thomas van der Zijden, vice president for marketing and sales, said the RADIUS would be more expensive than the Kindle, which now is selling for \$359.

The RADIUS is not the only entry in the area of flexible displays. "It's an exciting example, but there are going to be a slew

of other devices coming soon, too," said Shawn O'Rourke, director of engineering at the Flexible Display Center at Arizona State University at Tempe, which focuses on the technology's future commercialization.

Mr. O'Rourke defined flexible displays as "different than a BlackBerry or notebook," with their traditional glass backings. "These displays are thin, lightweight and rugged — and they bend," he said. The underlying substrates that support the display are typically either plastic or metal foil.

The market for flexible displays is likely to grow rapidly, said Jennifer Colegrove, an analyst at the iSuppli Corporation, a market research firm in El Segundo, California. "Flexible displays are the crucial enabling technology for a new generation of portable devices that are mobile, but also have compelling user interfaces," she said. Her firm forecasts that the total market for flexible displays will grow to \$2.8 billion by 2013.

Paul Semenza, vice president for display research at iSuppli, says that flexible displays are not entirely new, but that previous ones have been low-resolution applications — like those in smart cards and point-of-purchase signs — "not high-resolution ones that have the kind of image quality that users expect."

Mr. O'Rourke of the Flexible Display Center likes the look of the new generation of supple screens, but he also likes their toughness. "Some of them we've beaten with hammers, and they still run," he said. "No one could do that with a BlackBerry."

