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## [Electronic Paper Is Here](#)

### *The replacement of LCD screens*

One of the drawbacks of PDA devices is that their screen resolution isn't sufficiently large so reading large documents, such as e-books, is tiresome. However, the relatively new technology of electronic paper which will soon hit the market can provide a much better alternative. EInk Corporation in Cambridge developed a screen having the same resolution as that of printed pages which is also very light. The new screen contains a large amount of small bubbles filled with liquid and a number of electrically charged white and black beads. Each such bubble is a pixel. The white beads are positively charged, the black ones are negatively charged. The bubbles are placed between two sheets of transparent conductive material. When a positive charge runs through the circuitry of the upper sheet, the black beads will move to the top and become visible. Conversely, when a negative charge runs through the circuitry, the white beads will rise to the top and become visible. Thus this e-paper not only has a large resolution but is also based on the same principle as paper: while a screen is visible because it emits light, this e-paper is visible because it reflects light and is visible only if it is illuminated by an external source of light - exactly like an ordinary piece of paper. However, the difference between e-paper and normal paper is of course that the text and drawings displayed on e-paper can change exactly like the images on a computer screen or on a PDA screen. The end result is a portable device that can potentially hold thousands of documents and display them at the same clarity, resolution and level of comfort provided by a traditional book. Moreover, it consumes very little power, having a "seemingly limitless battery life equivalent to roughly 7,500 page turns", says Sony. This can finally provide the basis for a proper e-book reader and various manufacturers, from [Sony](#) to [Tianjin Jinke Electronics](#), have recently developed such products. "For the first time, consumers are actually doing a lot of reading online and onscreen through PDAs," said Keith Titan, vice president of New Media for publishing giant Random House. "It could be news articles, blogs, e-mail newsletters - a tremendous amount of reading is being done and there's more sense in a dedicated device." Ross Rubin, an analyst for NPD Group, which focuses on consumer and retail trends, discussing the future eBook market: "Paper is a very tough competitor. It's very inexpensive, it's relatively portable, it's got a lot of history behind it that's universally compatible. I think that's the challenge in trying to create an e-book market. Things like magazines, textbooks, these are things people want to take with them and not necessarily lug along the weight as well." *Image credit: E Ink Corporation*