

## **Rewritable Paper, Learn to Fly in Minutes and A Robot Which Eats**

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The following was translated and abstracted from an article we have written for the Hong Kong Economic Journal in April 2001.

Being non-high-tech people, we are sometimes fascinated by prospective technologies which are being developed, especially those which may have a significant impact on the way we live, work, do business or play. We would like to share a few of these with readers. We would also seek for your pardon in case we have not comprehensively or correctly described a certain item. The source of inspiration comes from journals and magazines on technologies such as MIT's Technology Review.

- a) **Rewritable Electronic Paper (or e-paper)** = not only is the paper rewritable, it is as thin as normal paper and can be bent! Also, while 1 normal paper book contains well the content of 1 book, a booklet of e-paper can hold hundreds of books or even more. Technically, it involves a layer of 'electronic ink', a layer of 'circuits' which controls the ink, and a plastic-like layer which provides the platform. Researches are being done to add colors and more memories.
- b) **Learn to Fly in Minutes** = this is restricted currently to small private propeller aircrafts and involves the use of a special-designed software. The idea is fairly simple; instead of having to contemplate numerous flight controls, panel gauges, 2D maps and so on, the pilot for most part will only need to look at a computer-coordinated-generated screen in order to fly. The screen displays 3D images such as topography, distances, directions etc in a way similar to 3D games and guides the pilot to the destination. Naturally, the pilot still needs to learn the basic aerodynamics, taking off and landing yet the process has become almost as simple as learning how to drive. The related article was describing a 12-year old piloting for the first time.
- c) **1,000 x Current Fiber Optics Capacity** = Microphotonics! This is a non-metallic light crystal substance and if successful will replace the current substance used in the 'control points'. Currently, when information and data are being sent electronically via fiber optics, they would need to pass through 'control points' which slow down them down as the photons are converted to electrons, thus forming bottlenecks. With microphotonics, the speed and capacity are much enhanced and thus the bottlenecks are eliminated or reduced.
- d) **Pocket-size PC as powerful as any desktop** = this could be made possible by Magnetic Random Access Memory (MRAM). Currently, most RAMs are in electronic form which is faster than magnetic form, yet the latter offers much more memories. Researches are being done to increase the speed of the magnetic form using layers of atoms and their spins. If successful, RAMs can hold much more memories while maintaining similar processing speeds, thus rendering perhaps the hard disk unnecessary, which in turn implies the possibility of having a smaller PC.
- e) **A Robot That Eats** = the current experimental robot can eat 'sugar' which is 'digested' by batteries containing e-coli thus generating glucose for energy.

Conceptually, the robot can be fed meat, vegetables and other foods yet these will cause 'blockage' as 'residual matters' are induced.

The above constitutes only a fraction of the new inventions, researches and discoveries being made and even if only a few eventually succeed, it may have significant implications to established practices. For instance, item d above may mean a smaller office space demand as desks large enough to place a desktop PC may not be commonly required anymore. On the other hand, there may be a need for a simple storage and maintenance space to accommodate the office robots.