



## Views You Can Use

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I want to offer you a last opportunity to attend the Whole School Reform Symposium for K-12 — Best Practices to Engage 21st Century Learners, if you haven't signed up already. The Symposium, which will be held on February 8-10 in San Diego, will share innovative approaches implemented by successful school. Bring a team to develop an action plan and leave with a clear direction for improving instruction. The Symposium is almost filled, but there is still time to register. I hope to see you there.

Sincerely,

Bill Daggett

## Biotechnology Trends

### Bionic Contact Lenses

The same eye power that allowed the Bionic Woman to have useful facts pop into her field of view could become a reality for anyone in the real world. Engineers at the University of Washington have combined a typical contact lens with an imprinted nanoscopic electronic circuit and LEDs that could allow people to use virtual displays on the go. For example, drivers or pilots could see a vehicle's speed or other information projected onto a windshield. Individuals playing video games could wear the contact lenses to better immerse themselves in a virtual world without restricting their range of motion. People could surf the Internet on a midair virtual display screen that only they would be able to see.

Researchers built the circuits from layers of metal only a few nanometers thick, about one thousandth the width of a human hair, and constructed LEDs one-third of a millimeter across. They then sprinkled the grayish powder of electrical components onto a sheet of flexible plastic. Future improvements will add wireless communication to and from the lens. The researchers hope to power the whole system using a combination of radio-frequency power and solar cells placed on the lens.

Source: <http://uwnews.org/uweek/uweekarticle.asp?visitsource=uwkmail&articleID=39100>

### Eyeglasses Provide Closed-Captioning

Closed-captioning for any movie or television show may become as convenient as wearing a pair of eyeglasses, allowing hearing-impaired individuals or people who can't understand the language being spoken to see personalized subtitles. Researchers at the Carlos III University in Madrid have created a device called Subtitle, a mini-display that hangs over the right lens of a pair of glasses and picks up text that is transmitted to it wirelessly. The text is timed to follow along with the movie. A working prototype is being used in some cinemas.

Source: [www.cesya.es/en](http://www.cesya.es/en)

## **Detecting Alzheimer's Disease at the Earliest Stage**

A new device called DETECT, developed by the Georgia Institute of Technology and Emory University, could allow medical professionals to detect the earliest stages of Alzheimer's disease in a fraction of the time that it now takes. Current assessments capable of detecting the earliest stages of the disease are taken with a pen and paper and last about 90 minutes. Because of the length and expense, the tests are not used as regular screening tools and typically are given only after there is obvious cognitive impairment, such as forgetfulness or unsafe behavior.

Using DETECT, however, the testing process takes about 10 minutes and has been shown to be nearly as effective as the longer test. The device is designed to be administered while a patient is still healthy, tracking any abnormal decreases in the patient's cognitive performance over time. The DETECT system includes an LCD display in a visor and noise reduction headphones. The display projects the visual aspect of the test and the headphones provide the verbal instructions, while a computer records the patient's response.

Source: [www.gatech.edu/news-room/release.php?id=1674](http://www.gatech.edu/news-room/release.php?id=1674)

## **Information Technology Trends**

### **Smart Cars Take Control of the Road**

The auto industry has used the latest technology to create "smart cars" that can pay attention to the road while the driver's mind and eyes are elsewhere, such as drinking coffee, on the cell phone, or reading the newspaper. At the recent Consumer Electronics Show in Las Vegas, Germany-based Continental Automotive Systems showed off cars that use radar to sense if traffic ahead is stopped or sluggish, then automatically apply the brakes to avoid rear-end collisions. An Electronic Stability Control system can individually adjust the brakes on each wheel to slow cars and better position them in fast turns or on slick or icy roads.

Cars also featured sensors mounted on their sides that can signal whether rolling over is imminent and then adjust the speed to avoid flipping. Sleeping drivers can be awakened by "lane departure systems" that sound alerts or vibrate car seats. If crashing is inevitable, cars can automatically adjust seats to maximize effectiveness of air bags. In addition, systems referred to as "telematics" are being developed to enable cars to "tell" each other about road hazards.

Source: [www.int.iol.co.za/index.php?set\\_id=1&click\\_id=31&art\\_id=nw20080108115319553C962440](http://www.int.iol.co.za/index.php?set_id=1&click_id=31&art_id=nw20080108115319553C962440)

### **Humanoids on the Horizon**

Researchers at the Massachusetts Institute of Technology have created a robot that can memorize specific tasks, recognize people, and sense and respond to its surroundings. The robot, called Domo, can grasp a person's hand and place a cup on a counter. Although a far cry from Rosie, the robot in The Jetsons cartoon series that could cook, vacuum, and wash dishes, a robot like Domo could help elderly or wheelchair-bound people with simple household tasks, such as putting away dishes. There are plenty of robots doing manual work on factory assembly lines, but those machines follow specific procedures and cannot learn to adapt to new situations, as Domo can, said Rodney Brooks, director of MIT's Computer Science and Artificial Intelligence Laboratory.

Source: <http://web.mit.edu/newsoffice/2007/domo.html>

## **Economic Trends**

### **Unregulated E-Waste Trade on the Rise Despite Bans**

The continuous emergence of new electronics and the rising economies that allow developing countries to purchase more technology power have fueled the ever-growing, unregulated e-waste industry overseas. In China, shipping containers of computer parts, video games, computer screens, cell phones, and other electronics are dumped onto the streets and sorted for dismantling and melting, despite bans by many countries on the practice because of environmental and health concerns.

E-waste imports slip into China despite Beijing's ratification of the Basel Convention, an international agreement that outlaws the trade. Although U.S. states increasingly require that electronics be sent to collection and recycling centers, even from those centers, American firms can send the e-waste abroad legally because Congress hasn't ratified the Basel Convention. The European Union also bans such e-waste exports, but smuggling is rampant because of the lack of enforcement. China, meanwhile, allows the import of plastic waste and scrap metal, which many recyclers use as an excuse to send old electronics there. Only a fraction of the electronics sold get returned to companies such as Dell and Hewlett Packard for safe recycling.

Source: [www.washingtonpost.com/wp-dyn/content/article/2007/11/18/AR2007111800357.html](http://www.washingtonpost.com/wp-dyn/content/article/2007/11/18/AR2007111800357.html)

## **Economics by the Numbers**

- Chinese workers dismantle as much as 70% of the 20-50 million tons of electronic waste produced globally each year, with most of the rest going to India and African nations.
- Up to 90% of recyclable electronics in China ends up in dumps, where shredders, open fires, acid baths, and broilers are used to recover gold, silver, copper and other valuable metals. Such practices severely pollute the air and drinking water.
- It is ten times cheaper to export e-waste than to dispose of it in the United States, according to the U.S. Environmental Protection Agency.
- China itself produces more than one million tons of e-waste each year. That adds up to roughly five million television sets, four million refrigerators, five million washing machines, 10 million mobile phones, and five million personal computers.
- In the Chinese town of Guiyu alone, the e-waste industry employs an estimated 150,000 people. The town is considered by many to be the “e-waste capital of the globe.”

Source: [www.washingtonpost.com/wp-dyn/content/article/2007/11/18/AR2007111800357.html](http://www.washingtonpost.com/wp-dyn/content/article/2007/11/18/AR2007111800357.html)