New Products

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Virtual Senses

EDITOR'S INTRO

In this issue, I focus on products so new that they aren't actually products yet. Nonetheless, I was intrigued by them, and I think you will be too. I examine two products-to-be that support people with visual impairments—a device to help color-blind individuals and another to assist with navigation. I also look at a device that reduces eyestrain and an augmented-reality game that tricks the user into seeing something that isn't really there. Finally, I move on to another of the five senses—smell. I discuss a sensor that might help us better identify fruit at the peak of ripeness. Please continue to send pointers to upcoming products with exciting possibilities, your feedback on existing products, and your personal experiences with them (your name will be included with your review). Email us at pvcproducts@computer.org.

—Maria Ebling

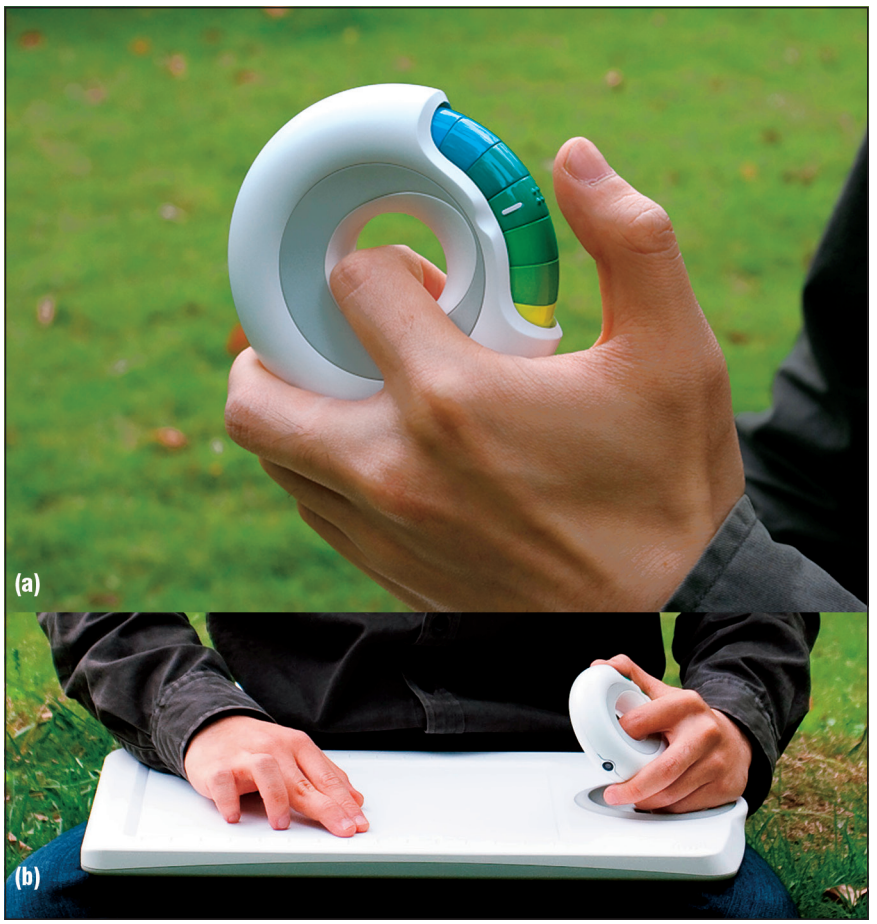

Figure 1. Touch Color's (a) color wheel and (b) tablet work in concert to let users feel the heat of colors in an image.

FEELING COLORS

Touch Color is a thermal digital tablet combined with a color wheel, designed by Yun Li, Guopeng Liang, and Ke Zhao (see Figure 1). The color wheel looks like a doughnut with a scroll wheel that spins around the inside. The scroll wheel contains 24 colored segments, and the doughnut has a window to let a seeing person view the selected color on the wheel. For the visually impaired, the device labels the selected color in an abbreviated version of Braille and heats the color to a unique temperature.

The color wheel works in concert with a thermal art board. The board has two modes. In study mode, the user can photograph a scene using a built-in camera. The device renders that scene thermally onto the board so that the user can "view" it by touch. In creation mode, the user can spin the wheel to find the desired color, then "finger-paint" that color onto the board. Again, users can visualize the scene by feeling the thermal differences across the board.

The concept is absolutely amazing, but I'm not convinced that it has the resolution required to convey the beauty of complex works of art. Consider viewing the *Mona Lisa*, *The Great Wave*, or *Water Lilies* via temporal touch. However, even though Touch Color might not be able to convey the same beauty, it might convey a different beauty, and that itself is progress.

Interested readers can find more information on the Web at www.yankodesign.com/2009/08/04/no-longer-color-blind.

A GUIDE FOR THE VISUALLY IMPAIRED

No, I'm not talking about a German Shepherd version of Robodog. I'm talking

Published by the IEEE CS ■ 1536-1268/09/$26.00 © 2009 IEEE

about an RFID-enabled navigation cane, also known as the *Smart Cane*. (Does it seem to you that everything is "smart" these days?) The cane incorporates an ultrasonic sensor that works in conjunction with a navigation system carried in a backpack or shoulder bag (see Figure 2). The Smart Cane senses RFID tags mounted on flags placed in the ground, such as along a sidewalk. A speaker on the bag's strap alerts the user to a nearby obstacle and gives instructions on how to navigate around it. Alternatively, if the user is also hearing impaired, the cane can work in concert with a special glove that vibrates different fingertips depending on the navigation required.

Currently, the cane requires the environment to be outfitted with RFID tags along the paths the user will navigate, thus limiting the prototype's widespread deployment. However, the idea clearly has merit and could increase visually impaired users' ability to navigate in unfamiliar territory and gain more independence. Kudos to the students at Central Michigan University.

MADE YOU BLINK

Eyestrain is an ever-present risk for computer users, partly because we forget to blink. No longer. Masunaga Wink Glasses monitor the wearer's blinking pattern and fog a lens whenever the wearer hasn't blinked that eye in five seconds. Fogging over one lens forces the other eye to focus, jolts the wearer back to attention, and causes him or her to blink naturally. Interestingly, we forget to blink when we're bored or tired, so jolting wearers awake in this case should improve productivity. However, we also forget to blink when we're extremely focused on a task—for example, when playing a first-person shooter game and trying to detect even the smallest of movements to keep our player alive. At such times, a distraction might be unwelcome, but you can always take the glasses off.

An early version of the Wink Glasses (see Figure 3) that simply measures the time between blinks without fogging the lens should hit stores in late summer and should cost about ¥15,750 (or about $160) more than traditional glasses. If that's above your price range, I have also found that simply reading about blinking makes you blink more often too.

AUGMENTED-REALITY PETS

Sony has a trailer showing its new augmented-reality game, EyePet. The game, scheduled for release in time for this year's holiday season, uses a camera and computer graphics to let you interact with a virtual pet in the real world. The pet appears to be on the table between you and the screen. You can reach your hand out and seemingly pet the critter, play with it, feed it, and so on. Your image's reflection on the screen shows your interaction with the pet, which reacts to your gestures, hops around the screen, and generally appears adorable.

For all you holiday shoppers, my eight-year-old daughter was quite enchanted with the critter and wants a PS3 with EyePet for Christmas. Interested readers can go to www.youtube.com to view the "EyePet Trailer." A photo just doesn't do this one justice.

THIS TECHNOLOGY SMELLS

When purchasing produce, determining which fruit to buy is often difficult—but not for long. Researchers at the Fraunhofer Institute for Molecular Biology and Applied Ecology have developed a technology that uses metal oxide sensors similar to those used in cars to automatically close air vents when the car enters a tunnel. This new sensor detects volatile components emitted, for example, from ripened fruit.

Because the technology will likely be expensive, I wouldn't expect to find these sensors embedded into a cell phone anytime soon. Instead, the corporate world will likely employ them. For example, a distribution warehouse manager might use a device containing this sensor to help identify fruit at the proper stage of ripeness to prioritize shipments to grocery stores.

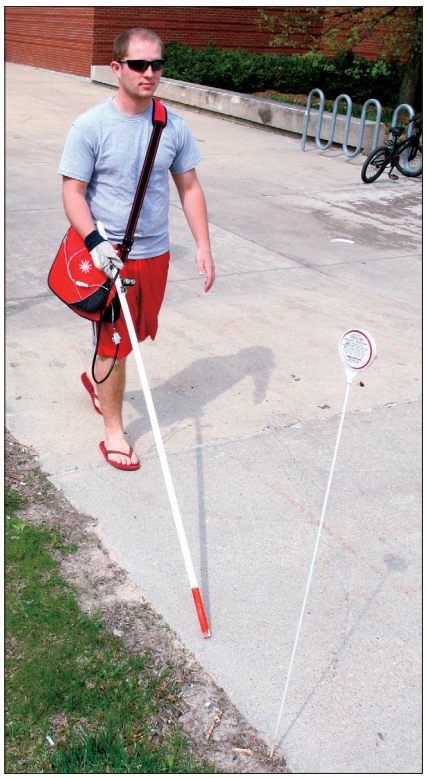

Figure 2. The Smart Cane and a miniature navigational system inside the bag work together to detect RFID tags on mini flags sticking out of the ground. (Source: Robert Barclay; used with permission.)

Figure 3. The Wink Glasses currently measure the time between a user's blinks, but someday might help users blink more frequently when using computers.