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Future Tech on Show at 36th SIGGRAPH

By THE ASSOCIATED PRESS
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NEW ORLEANS (AP) -- If you pull on my ear, will I follow you anywhere?

Yes, say researchers at University of Electro-Communications in Tokyo. And along complex paths. Even when directed from a distance. Their ear-tugging navigator looks like a bug-shaped hat and may be the oddest gizmo among nearly three dozen in the "Emerging Technologies" area of SIGGRAPH '09, the 36th international conference on computer graphics and interactive techniques that starts Monday.

The conference, which runs through Friday, also includes an animation festival, game design and animation workshops and contests, a studio, an art show, and other showcases and exhibits.

The 33 "Emerging Technologies" exhibits include a click-and-drag graphical editor to tell robots how to perform complex tasks such as folding clothes; an umbrella that moves as if you were fending off a downpour of rain, spaghetti or toy snakes; and a virtual reality floor that designers say can feel like walking on snow.

The ear navigator, called Pull-Navi, has six helmet-mounted motors to pull the wearer's ears forward, backward, left, right, up and down. The designers say people follow its lead almost instinctively -- pull left and they turn that way; pulling both ears forward or backward at the same time makes them speed up or slow down; and tugging up or down heads them up or down stairs.

It goes into the who'da-thunk-it category of exhibits.

"Every year there's just some submissions that are just so completely wacky it's not really on anyone's radar," said Mk (pronounced M-K) Haley, one of the jurors for Emerging Technologies since 1998. "They get everybody thinking and discussing."

This one, she said, got her thinking, "Wow. Human beings can really be physically manipulated so easily. And what other applications may there be for that?"

Past exhibits heralding applications now commonplace have included Electric Postcards in 1995 and, in 1991, Michigan State University's informational kiosk, called Click On MSU.

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MIT Media Lab researcher Judith S. Donath, who studies online social interaction, was startled by the popularity of the Internet postcard site that she created to learn a computer language and showed off at SIGGRAPH '95.

"People didn't realize the social possibilities of the Internet. You could put news there, buy things, maybe. But it wasn't particularly social," she said.

She thought a few of her friends might send each other cards from the site, which opened in December 1994. But it went viral -- a phrase not then coined. "We eventually had millions and millions of cards sent through it," she said.

American Greetings Corp. began offering e-cards in 1996 and Hallmark Cards Inc. in late 1998, spokesmen said. American Greetings now has 3.9 million e-card subscribers, according to Frank Cirillo. Hallmark estimates that, industrywide, about one e-card is sent for every 20 paper cards bought, spokeswoman Sarah Gronberg Kolell wrote in an e-mail.

The MSU kiosk was put into use in 1990. Although Macintosh had introduced its point-and-click interface six years earlier, most desktop computers still used text and menus. MSU's designers called their icons "click ons" to be sure people would know what to do.

"On the top of every page, it would say, 'Click on a click on,'" said Carrie Heeter, now creative director for MSU's Virtual University Design and Technology group and professor of serious game design in the Department of Telecommunication, Information Studies, and Media.

Now elementary school Web sites have linked pages, and toddlers know how to click computer mice.

Virtual reality, on the other hand, exists in a very different form from the head-mounted screens "all the rage" in 1993 and '94 SIGGRAPH exhibits, Haley said.

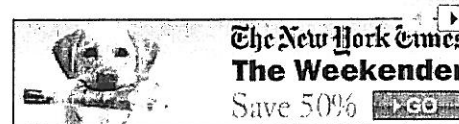
"A lot of people think it went away. But companies do use a lot of virtual reality in design and production. ... Ford has a huge VR lab." It's also used in designing both new drugs and new buildings, Haley said.

But immersive VR is still in the works. At McGill University in Montreal, researchers are making footsteps part of the illusion. They say that by vibrating tiles from side to side, they can mimic the crunch of snow underfoot, or the cracking of ice on a puddle.

The "multimodal floor" isn't just for entertainment, they say -- it could be used for rehabilitation, such as a step toward walking outdoors for people recovering from stroke.

Jeremy Cooperstock, an associate professor of electrical and computer engineering and supervisor of the project, said he didn't think the technique would work. "But all the tests we've done show people do get the feeling of sinking," he said. There's so much play in how we perceive texture that if we get the right vibration ... your mind sort of fills in the rest of the illusion."

Haley said the robot instruction language is impressive, but the little robot that carries out the instructions is still so slow that the jury insisted the designers bring a speeded-up video. However, she said, "This is going to be revolutionary. ... It is a little hairy around the edges now because it's brand-new. But we owe it to our people to show them what's coming."



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Another Japanese team, at Osaka University, designed the "Funbrella" -- a standard umbrella equipped with a speaker and microphone that make the handle move as if it were being held in the rain. The \$30 device can show how heavy a 1-inch-per-hour rain really is, and transmit the feel of rainfall in one town to a Funbrella in another, researcher Ai Yoshida said.

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