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Lumalive textiles: Next big thing in wearable electronics?

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When German fashion designer Anke Loh was looking for something completely different for her "dressing light" project this fall, she came across something that changed her whole perspective.

"I was working with optical fibres to put into the clothing line, but then discovered on the web the concept of photo textiles," says the assistant professor of fashion design at the School of the Art Institute of Chicago.

Her exploration led her to the doors of the Philips research labs in the Netherlands. And the result of that meeting was the world's first fashion show incorporating Lumalive, a breakthrough textile technology from Philips that could just be the next "thing" in wearable electronics. Each garment in Loh's high-tech collection featured panels of light emitting diodes (LEDs) that wowed the crowd with moving displays of text and graphics.

With Lumalive, we could very well be heading into a brave new world of sofas that send personal greetings, flirtatious T-shirts that light up when a friend comes near, and jackets that receive text messages. It's certainly taking wearable electronics to an entirely new, and highly entertaining, level.

Wearable electronics is a product category that tech fans have come to know and love. It's the world that brought us iPods, wireless headsets, heart monitors, flashing runners for tots and teens, and anything else that has an electronics component to it and is worn on the body and embedded in fabrics.

But this product category is not all about fun and fashion. Wearable electronics are also invaluable in safety applications. LED alarms or GPS locators, for example, can now be integrated into clothing, belts, helmets, or even dog collars to enable search and rescue operations.

Researchers around the world have been investing considerable time and resources in the art and science of integrating electronics into clothing. A book entitled *Wearable Electronics and Photonics* offers a collection of articles by international specialists on clothing concepts being developed in this area. These range from integrated key pads for mobile phones and connections for personal music systems built into coats, to specialty clothing for monitoring vital life signs in newborns, among others.

So where does a product like Lumalive enter the picture and why is it different?

Wearable electronics have reached a major turning point with the recent breakthroughs in LED technology, according to Bas Zeper, managing director of photonic textiles at Philips Research in Eindhoven, the Netherlands, where Lumalive was developed.

"The idea of integrating electronics into textiles is certainly not new," he explains. "What is new is the movement that has been made in the LED domain. In reaching a square millimetre or less in size, they can now actually be the fabric."

Lumalive has the look and feel of a flexible, lightweight fabric panel. It can be worn or attached under the surface of a garment and turned on to create a moving panel of glowing shapes and colours on shirts, jackets, backpacks, upholstery or curtains.

The niftiest part of all is that the technology is completely programmable. The electronics and battery



A sofa using Philips' Lumalive textile technology displays the time, while a mannequin in the background sports a jacket with a Lumalive design stitched into it.

component can be connected to a PC to download images and applications, creating unique materials that carry dynamic messages, graphics, full-colour animation or even text messages. Drapes, cushions, sofa coverings, jackets or shirts can be programmed to "come alive" to showcase a product, to deliver corporate messaging or simply to say hello.

As Loh says: "It's really up to the designers what they want to integrate. You can change the context of the images using a USB stick."

External Link

[Lumalive video on YouTube:](#)

She adds that unlike other light-up textiles where the panels are thick and stiff, "This is so thin I could even use it under silk and you can't even feel it."

The idea of programmable textiles like Lumalive opens up the doors to all sorts of possibilities says Zeper.

"Clothing or furniture can interact and communicate ideas in a number of ways. The fabric can be programmed to light up if someone comes close or adjust to different lighting levels. You can receive text messages on your clothing. Or you can add your own name or messages as a means of self expression."

Philip's prototype Lumalive sofa for example, was programmed to greet people at an electronics trade show who walked within one metre.

Loh herself tried out the sofa personally. "It was quite convincing. It's a really open idea for different design areas."

"Businesses in promotion or safety will likely be the first adopters," says Zeper, who estimates that the world will start seeing Lumalive applications in the third quarter of 2007.

"Of course, we are working on moving it forward to more markets."

"At the end of day, we believe that making more people smile is a good thing for this world," Zeper says.

