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So plugged in

Plaids change color, Levi's play tunes:
Technology *is* fashion.

By BOOTH MOORE
Times Staff Writer

THERE I was, roaming the aisles at Vons, stroking my left sleeve and feeling groovy. I was road testing one of Kenpo's new iPod-enabled jackets, a geeky-looking black polyester anorak, and I was wired like an FBI informant ready to rat on Tony Soprano.

But let's forget about fashion for a moment and think about function. What I had embedded in the fabric on my sleeve was the means to create a soundtrack for my life. Reaching for a bottle of Chardonnay, I tapped "play," imagining I was hearing George Thorogood's "I Drink Alone" instead of Beyoncé. In the checkout line, I nearly bruised my arm fast-forwarding through the Billy Joel songbook to get to Pink Floyd's "Money."



All the while, my iPod was secreted away in an inside pocket. And unfortunately, nobody noticed a thing.

Welcome to the age of techno togs — Levi's wired to play music, electrified plaids that can change color, \$1,000 evening gowns that repel red wine stains, jog bras that monitor heart rate and pompom hats that light up on the slopes. It's not enough for a pair of pants to just be a pair of pants anymore — it has to *do* something.

It's only natural that the gadget is becoming the garment. We are living in a time when the "It" bag has only half as much cachet as the "It" phone. At runway shows, Hollywood parties and premieres, gadgets are the new small dogs. Kitted out with rhinestones, encased in Burberry plaid, full of goo- [See Fashion, Page E14]

Fashion design goes techno

PRESS HERE: Jacket-wearing iPod users can control the device by touching outside a sleeve.

[Fashion, from Page E1]

goo-gaga baby photos or trilling Snoop Dogg rings, gadgets are made to be flaunted. It's all about being the first to have the fastest, the smallest, the slickest. Why else would Motorola give pink Razr phones to Paris Hilton and Nicole Richie months before they were available in stores? Why else would BlackBerry host a star-studded dinner at the Sundance Film Festival?

With 42 million iPods sold since 2001 — 14 million of them during this holiday season alone — it's no wonder that the race is on to integrate the device into apparel. Everyone is betting on the power of the Apple music player to educate consumers about the possibilities of incorporating technology into fashion.

Earlier efforts at marrying the two have been little more than exercises in cord management, with ear buds, headphone wires and the devices themselves hidden away in strategically placed pockets. But today, textile companies are weaving conductive fibers and treating fabrics with nano-particles to render neckties stain-resistant and fleece jackets static-free, while MIT grads are working furiously to develop color-changing, solar-powered electronic textiles.

Burton Snowboards pioneered the field of techno togs in 2003, introducing the MP3-enabled Amp jacket using Soft-Switch technology, for a hefty \$499. The Burlington, Vt., outdoor apparel company is still at it, having recently announced a joint initiative with Motorola to produce Bluetooth-enabled ski jackets, helmets and beanies for winter 2006.

Which means that soon people will be in line at Coffee Bean & Tea Leaf having a conversation with their clothes.

In October, Adidas will introduce "Project Fusion," a \$600 system that will integrate heart rate, speed and distance monitoring equipment into sports bras, T-shirts and footwear. Invisible fibers bonded onto the

fabric eliminate the need for a separate chest strap. The system, created in partnership with Polar, a leading producer of heart rate monitors, works by snapping a connector onto the front of the shirt and into the sole of the sneaker. Then data are sent to a wrist-mounted running computer, which displays and records information.

Kenpo is the first company to bring the concept to armchair athletes, using technology called ElekTex to manufacture iPod-enabled anoraks and track jackets sold at department stores for \$249 to \$275. (ElekTex, a product of the British-based Eleksen Ltd., is also used in high-end ski suits by Spyder in the U.S. and by O'Neill for backpacks in Europe.) The fabric looks and feels similar to nylon and is durable enough to be dry cleaned, crumpled or punctured without affecting its performance.

The jackets work by plugging the iPod into a connector in an inside pocket, which allows users to play, pause, skip tracks and adjust the volume by touching the outside sleeve.

"There is even a three-second lock mechanism so you don't accidentally turn the volume up when you scrape your sleeve against something," said Kenpo spokesman Tom Krutilek. (That lock is a bit of a hassle, seeing as you can't control anything on your iPod after three seconds without disengaging the lock on your sleeve.)

For spring, Kenpo plans to introduce women's styles.

But all this is child's play to researchers putting function into fashion at the molecular level. There's big business in enhancing fabrics and fibers using nanotechnology.

Nano-Tex, an Emeryville, Calif., company, is adding its labels to clothing by popular brands such as the Gap, Lands' End, Eddie Bauer and the high-end lines Yeohlee, Hugo Boss and Paul Stuart. Its fabrics offer four different properties: spill resistance, static resistance, body-heat absorption and stain release. By embedding microscopic fibers into traditional



materials such as linen or cotton, Nano-Tex can provide added benefits.

"No matter how expensive your fabric is, you can still treat it," says Yeohlee Teng, a New York-based designer known for using innovative fabrics. "The client that buys that expensive gown has to appreciate the added benefit of stain resistance. Red wine is omnipresent at every black-tie party."

In her spring collection, Teng offers silk and stretch linen shirts and dresses treated with Nano-Tex to resist stains.

"More and more, this technology is making its way to the designer market," says Libby Neuner, an executive at Nano-Tex. "It's all about understanding that at that price point, you are making an investment in your wardrobe. And these treatments deliver longer life by protecting your investment."

By fall, Neuner expects a luxury men's suit maker to be using Nano-Tex. She is also working with a denim label to create a treatment to make jeans look old but act new.

But one has to wonder that if these Teflon-like textile treatments could work so well that they might eliminate the need for new clothes.

Not a chance, Neuner says. "The reality is that the cotton fiber in khakis and jeans has a shorter life than ours, so replacement is going to take place regardless."

The real "Jetsons" fashion moment won't be nano but electro, according to electronic textile researchers, who are developing clothes that can change color.

The Defense Advanced Research Projects Agency has been the driving force behind electronic textiles since 2001, when it introduced a project to develop,

among other things, military uniforms that could provide on-the-fly camouflage or map a soldier's location.

One of the beneficiaries of the project is International Fashion Machines in Seattle, founded by Maggie Orth.

She has developed an electric plaid with thermo chromic ink that changes color when heated. So far the fabric is sold to the decorating market and used as art or wall hangings. Since it needs a heat source, it does not make sense to use in clothes, she says.

Orth has also invented a fabric that is animated with an electric ink display that flashes off and on a flower print. "That would be great for a handbag," Orth says. On her website, www.ifmachines.com, Orth has begun selling a \$129 pompom light switch with tufts of conductive yarn that turn the lights on when it's squeezed (pressing on the yarn completes the circuit). A manufacturer has approached her about using the pompoms for ski hats.

But color-changing garments are still a few years away, she says.

"To be blunt, nobody is putting up the money, honey," Orth says. "The momentum is growing for this technology, but the fashion industry, which runs on low margins, will have to wait until others provide it to them."

Maybe so, but come fall, at least people will be able to wear their Levi's and listen to them too.

Nanotechnology sweeps the textile industry
