

The secret behind your grip





By Mark Baard | December 26, 2005

BIONICS

Getting older will be awesome . . . really. Just think of all the cybernetic accoutrements you will be able show your friends at the senior center dance. Rather than flashing an old tattoo at your dance partner, you may be able to roll up your sleeve to show off your bionic elbow -- the secret behind your firm grip through all of those breathtaking dips.

MIT spin-off Myomo late next year will begin marketing the "Active Joint Brace," a wearable electronic device that restores movement and strength to limbs partially paralyzed by stroke or other neurological problems.

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The brace, designed to assist stroke victims who have lost partial use of limbs, detects through a patient's skin the electric waves accompanying muscular contractions and can complete the intended motion -- like lifting a forearm or bending a knee. It is the kind of technology that may lead to complete exoskeletons to keep aging baby boomers in motion.

The brace works like a full-time physical therapist. Patients and doctors can adjust the force of the brace's movements as strength returns to a stroke-affected joint.

Preliminary research findings for the Active Joint Brace have been encouraging, said Spaulding Rehabilitation Hospital chief medical officer Dr. Joel Stein, who monitored patients in the MIT study.

"Patients like the device. They say it's easy to use and intuitive," Stein said.

The Active Joint Brace marks the beginning of a brave world of unobtrusive, wearable robotics, said Myomo interim CEO and MIT research specialist Kailas Narendran.

"The system will eventually integrate with your lifestyle, fitting under clothing and [being] wearable for the entire day," said Narendran. "Eventually no one will be able to tell if someone's wearing one."

PROTOTYPE

Wireless pistol packing

It's hard to feel like a real gunslinger with a hard-wired pistol holding you down, or a wireless gun that jams every time your mom rings your cordless phone.

Now an Israeli technology company, EPOS, has developed a system that follows every jump, drop, and roll you make as you cap your enemies -- all without interference from other wireless devices.

The EPOS system uses transmitters that beam unique acoustical signals to a receiver mounted near a video display. It digitizes the signals and pinpoints the gun's location (and its tilt angle) in 3D space by measuring the distances of the gun's two radio transmitters.

Players can be as close as 10 centimeters or as far away as several meters from the receiver, said EPOS cofounder and CEO Oded Eliashiv.

EPOS has also developed an office application for its digital acoustical platform: a wireless pen that records your handwriting without the need for special paper -- something required by other wireless pens.

As for the game application, you may soon not merely be shooting the bad guys, but chasing them down dark alleyways as well. The EPOS platform is low-cost and energy efficient, Eliashiv said, so it could be used to make special game-playing suits for fully immersive gaming.

PORTABLE COMPUTING

A better, more ergonomic mouse, built with Bluetooth, for taking to the road

We hate tangling with all the cables and clunky peripherals we take on the road -- those external drives, Skype phones, and mice that constantly threaten to topple our coffees and scones onto the floor wherever we pitch camp.

Newton Peripherals, based in West Newton, has come up with an elegant Bluetooth device that removes some of our worries. Called the MoGo Mouse, it's a wireless handheld controller that slips inside one of your laptop's PC card slots for storage and charging when not in use.

The MoGo Mouse has an attractive, ergonomic design, with smooth indentations for left and right clicking, and a sort of "kickstand" for holding the device comfortably in your hand. It's an excellent alternative for business people on the run who never got the hang of using their laptop's touchpads and keyboard pointers.

The MoGo Mouse's tiny battery lasts eight hours with each charge inside the PC card slot, so it's likely to outlast your laptop on a long flight. ■

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