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BACK ISSUES

The art of miniaturization and the advent of increasingly lightweight materials notwithstanding, soldiers in the field are still required to lug heavy

loads on their back. The Defense Advanced Research Projects Agency (DARPA) has long been interested in exoskeletons that could help soldiers carry more weight without extra effort. Now researchers at the University of California-Berkeley's Robotics and **Human Engineering** Laboratory have devised prototypes of a selfpowered exoskeleton that show great promise. The BLEEX (Berkeley Lower Extremity Exoskeleton) allows a wearer to carry a 70-pound backpack with ease. BLEEX consists of two leg braces that strap onto combat boots; the backpack connects to the braces at hip level. A small engine (one version uses gasoline as fuel) provides power to the computer and hydraulic system. A local



area network processes data from 40 sensors and operates hydraulic actuators to keep the device in step with the wearer. Latest versions allow a BLEEX pilot to walk, squat, bend, and climb stairs. Eventually, says Homayoon Kazerooni, the mechanical engineering professor who oversees the lab, running and jumping will be possible. Though Kazerooni says a gasoline-run exoskeleton is no more dangerous than a jeep, he's not satisfied that gasoline should be the fuel of choice. "We're experimenting with all kinds of power supplies." Except, of course, the human kind. —Thomas K. Grose

TOP ^

QUOTED

"As I am fond of saying, job creation in the 21st-century can only happen with a 21st century system of education."

-SCIENCE COMMITTEE CHAIRMAN SHERWOOD BOEHLERT (R-NY)