

ADVERTISING



2004 4DR EXPLORER

\$19,371

PLUS TAX & LICENSE

\$26,930 / \$2,309 Sound Discount / \$3,000 Ford Cash / \$750 Military Rebate

AM/FM STEREO w/ CASSETTE & CD • AIR CONDITIONING • DUAL AIRBAGS • REAR DEFROSTER  
ALUMINUM WHEELS • POWER WINDOWS & LOCKS • O.W.L. ALL TERRAIN TIRES • CELL PHONE • MORE!



2004

866-204-4444 HOME OF SERVICE LOANERS FOR LIFE

A Service of The Seattle Times Company

NWsource | NWclassifieds | seattletimes.com



# NATION & WORLD

Home delivery  
Contact us  
Search archive

Your account : Today's news index : Weather : Traffic : Movies : Restaurants : Today's events

- NEWS / HOME
- LOCAL
- BUSINESS/TECH
- NATION/WORLD**
- POLITICS
- EDUCATION
- OBITUARIES
- SPECIAL PROJECTS
- OPINION
- SPORTS
- ENTERTAINMENT
- HEALTH
- TRAVEL / OUTDOORS
- LIVING
- PACIFIC NW MAGAZINE
- COMICS / GAMES
- PHOTOGRAPHY
- NWCLASSIFIEDS
- NWSOURCE
- SERVICES

Thursday, March 11, 2004 - Page updated at 12:00 A.M.

## Researchers take strides toward lightening loads

By Michelle Locke  
*The Associated Press*

BERKELEY, Calif. — Move over Bionic Man and make room for BLEEX — the Berkeley Lower Extremities Exoskeleton, with strap-on robotic legs designed to turn an ordinary human into a superstrider.

Ultimately intended to help people such as soldiers or firefighters carry heavy loads for long distances, these boots are made for marching.

"The design of this exoskeleton really benefits from human intellect and the strength of the machine," said Homayoon Kazerooni, who directs the Robotics and Human Engineering Laboratory at the University of California, Berkeley.



[enlarge](#) AP

A model wears the BLEEX, or Berkeley Lower Extremities Exoskeleton.

The exoskeleton consists of a pair of mechanical metal leg braces, a power unit and a backpack-like frame. The braces are attached to a modified pair of Army boots and are also connected, although less rigidly, to the user's legs.

More than 40 sensors and hydraulic mechanisms function like a human nervous system, constantly calculating how to distribute the weight being borne and create a minimal load for the wearer.

"There is no joystick, no keyboard, no push button to drive the device," said Kazerooni, a professor of mechanical engineering. "The pilot becomes an integral part of the exoskeleton."

In lab experiments, Kazerooni said, testers have walked around in the 100-pound exoskeleton plus a 70-pound backpack and felt as if they were

### NATION/WORLD NEWS SEARCH

Today Archive  
[Advanced search](#)

ADVERTISING



Factory specials  
available in  
Western  
Washington.



Celica



Camry



Corolla



Prius



Tacoma Regular Cab



ADVERTISING

**Scarff Motors**  
in Auburn

**ISUZU**

**Ford**

carrying just 5 pounds.

Eventually, the device could help rescuers haul heavy equipment up high-rise buildings or turn tired troops into striding supersoldiers.

The exoskeletons "are really good, it turns out, at enabling firefighters, soldiers, post-disaster rescue crews to carry heavy loads over great distances for hours," Kazerooni said.

Video of the BLEEX in action — which can be viewed at [www.me.berkeley.edu/hel/bleex.htm](http://www.me.berkeley.edu/hel/bleex.htm) — shows a steel-spiked symbiosis of man and machine, marching about to the techno-industrial drone of grinding motors. The next steps for the BLEEX team are making the power source quieter and stronger and miniaturizing components.

BLEEX is funded by the Defense Advanced Research Projects Agency, the Pentagon research-and-development arm, and was among the projects being showcased at a DARPA technology symposium this week in Anaheim.

ADVERTISING

**\$1 A Day Can Buy You**

10 Year Level Term Life Insurance . Male . No Nicotine

AGE	AMOUNT OF COVERAGE
35	\$1,211,538
40	\$900,000
45	\$484,615
50	\$324,742
55	\$146,512

Sample rates underwritten by First Penn-Pacific Life Insurance Company.

**ReliaQuote**<sup>®</sup> **CLICK HERE FOR INSTANT QUOTES**  
 A Better Way to Buy Life Insurance LEGAL INFO.

Copyright © 2004 The Seattle Times Company

[More nation & world headlines](#)

[seattletimes.com home](#)

[Home delivery](#) | [Contact us](#) | [Search archive](#) | [Site map](#) | [Low-graphic](#)  
[NWclassifieds](#) | [NWsource](#) | [Advertising info](#) | [The Seattle Times Company](#)

Copyright © 2004 The Seattle Times Company

[↑ Back to top](#)