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Powered Exoskeleton Legs

Posted by [michael](#) on

Thu Mar 04, '04

10:23 AM

from the [leap-small-buildings-in-a-single-bound dept.](#)

[dyoo78](#) writes

"Berkeley Engineers have [come up with an ingenious mechanism](#) that almost mimics, well, Borg technology. Developed by UC Berkeley's Robotics and Human Engineering Laboratory, the [Berkeley Lower Extremity Exoskeleton \(BLEEX\)](#) consists of mechanical metal leg braces that are connected rigidly to the user at the feet, and, in order to prevent abrasion, more compliantly elsewhere. The device includes a power unit and a backpack-like frame used to carry a large load. This development bring to the forefront the ability to not only carry large loads in wartime efforts, but may possibly help people with limited muscle ability to walk optimally."



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(1) | 2

Already in use (Score:5, Funny)

by [andyrut \(300890\)](#) on Thursday March 04, @10:23AM (#8463303)
(<http://www.andyrut.com/> | Last Journal: [Tuesday January 13, @03:53PM](#))

[Steven Hawking](#) [theonion.com] has been using this technology for years!

Re:Already in use (Score:2)

by [andyrut \(300890\)](#) on Thursday March 04, @10:25AM (#8463337)
(<http://www.andyrut.com/> | Last Journal: [Tuesday January 13, @03:53PM](#))

D'oh, Stephen* :)

Re:Already in use (Score:1, Funny)

by Anonymous Coward on Thursday March 04, @11:22AM (#8464141)

That would be the [mighty Stephen Hawking](#) [mchawking.com] to you grasshopper!

Step One... (Score:1)

by [Moryath \(553296\)](#) on Thursday March 04, @03:47PM (#8467914)

Step one... miniaturize.

Step two... add giant robot.

Step three... [BATTLEMECH](#) [classicbattletech.com].

Re:Already in use (Score:2)

by [NonSequor \(230139\)](#) on Friday March 05, @01:29AM ([#8473007](#))

(Last Journal: [Tuesday April 29, @08:44PM](#))

That link gets posted in 90% of all Slashdot science stories.

Stephen Hawking beat them to it... (Score:1, Funny)

by [inertia@yahoo.com \(156602\)](#) * on Thursday March 04, @10:24AM ([#8463310](#))

(<http://www.martin-studio.com/> | Last Journal: [Monday February 09, @08:06PM](#))

According to [this](#) [theonion.com] story, Stephen Hawking already designed and built something better. *"I am faster, stronger... better than before," Hawking told reporters via his suit's built-in voice synthesizer.*

Ironically... (Score:5, Funny)

by [Tikaro \(726048\)](#) * on Thursday March 04, @10:25AM ([#8463320](#))

(<http://www.tikaro.com/>)

"In the UC Berkeley experiments, the human pilot moved about a room wearing the 100-pound exoskeleton and a 70-pound backpack while feeling as if he were lugging a mere 5 pounds."

...Is that because the backpack contains a 75-pound battery?

Re:Ironically... (Score:5, Funny)

by [saxgod007 \(759027\)](#) on Thursday March 04, @10:29AM ([#8463396](#))

and then ofcourse, the remaining power readings are wrong and when it says 5 Hours left it says at once: WARNING! You must switch to a power outlet at once or you will break your legs! 'FWEF', power loss 170 pounds on ur legs..

Re:Ironically... (Score:5, Funny)

by [Tikaro \(726048\)](#) * on Thursday March 04, @10:36AM ([#8463498](#))

(<http://www.tikaro.com/>)

Maybe the battery can be pulled along behind in a twenty-dollar roly cart. For that matter, so could the 70-pound backpack in the first place!

A rich Texan in an airport sees a mad-scientist type puffing along under the weight of two huge and weighty suitcases. "Say, pardner, what time is it?" he asks. The fellow puts down his suitcases and refers to his watch, a humming black conglomeration of dials and lights with a miniature satellite dish spinning on top. "It's 10:28:32 here, precisely, and..." (the inventor's eyes flicker to a set of displays) "your flight is on time, your rental car is waiting in Dallas, and your wife is cooking ribs for dinner tonight!"

"Holy cow! Sell me that durn thing!" says the Texan, and after some intense negotiations the inventor lets him have it for several million in cash right then and there. The Texan straps the device to his arm and begins to walk away.

"Hold on!" shouts the inventor, pointing to the two colossal suitcases. "You forgot the batteries!"

Re:Ironically... (Score:2)

by [stephenisu \(580105\)](#) on Thursday March 04, @10:49AM ([#8463655](#))

But will it lug it uphill in the snow both ways?

Re:Ironically... (Score:1)

by [parroyo \(546279\)](#) on Friday March 05, @04:04AM ([#8473457](#))

Actually, I worked on the original prototype for this as my PhD thesis under Professor Kazerooni. The neat thing about this machine is that it's **not** battery powered at all. The main power plant is actually an internal combustion engine. That's what's so practical about it. I remember spending months looking for a suitable power plant and then finally settling on a 1.5HP Ryobi weed-whacker engine. Worked like a charm.
Pedro

Re:Ironically... (Score:2)

by [Pooua \(265915\)](#) on Friday March 05, @11:30PM ([#8482378](#))

(<http://members.aol.com/pooua>)

Actually, I worked on the original prototype for this as my PhD thesis under Professor Kazerooni.

That's interesting. I've been fascinated by these machines since I saw them in Popular Mechanics, back in the '70s (about 1974 or so). They were powered by a lawnmower engine back then, too. A more recent design spin-off doesn't use any power plant; it's more of a spring walker, more like stilts. There is video on the Web, though I don't have any links right now.

Wouldn't want to get a virus (Score:2, Funny)

by [Space cowboy \(13680\) *](#) <simon@@@hostip..info> on Thursday March 04, @ 10:25AM ([#8463327](#))
(<http://hostip.info/>)

Doing the splits is hard enough, but doing them sideways, in the middle of a somersault would be worse...

or:

The infantry advances with incredible speed towards the enemy, the men running across the battlefield at 50 miles/hour, then suddenly start to hop in circles as a small but significant grin occupies the face of the enemy commander...

[yeah, I know they're not netowrked, yet...]

Simon

Re:Wouldn't want to get a virus (Score:4, Insightful)

by [hazee \(728152\)](#) on Thursday March 04, @ 10:29AM ([#8463381](#))

Yeah, it only takes a slight bug in the software and this thing will break both your legs in a second.

Exoskeletons have been designed before, but no-one dared try them on for just this reason.

Pyhsical Limits (Score:5, Insightful)

by [EnglishTim \(9662\)](#) on Thursday March 04, @ 10:34AM ([#8463475](#))

I'm sure it wouldn't be too tricky to put physical or electrical limits on the exoskeleton to prevent it from moving into a position that the human body can't. I seriously doubt it'd be a big problem.

Re:Wouldn't want to get a virus (Score:5, Insightful)

by [bfree \(113420\)](#) on Thursday March 04, @ 10:37AM ([#8463517](#))

A bug in the software could only cause your legs to break if one of two conditions apply:

1. You have the leg strength to break your own leg and do so by resisting a machine movement.
2. The machine is designed so that it can manouver so as to break a leg. The machine should have a physically limited range of motion which does not exceed the wearers!

So I would have no problem wearing an exoskeleton, if it was designed not to be able to break the human body inside, if it isn't ... who the hell designed it?

Re:Wouldn't want to get a virus (Score:5, Funny)

by [Realistic Dragon \(655151\)](#) on Thursday March 04, @10:56AM ([#8463756](#))

(<http://www.realistic-dragon.co.uk/>)

So I would have no problem wearing an exoskeleton, if it was designed not to be able to break the human body inside, if it isn't ... who the hell designed it?

The same people who brought you the mail client that could execute binary code without user intervention, naturally!

Re:Wouldn't want to get a virus (Score:2, Funny)

by [pointbeing \(701902\)](#) on Thursday March 04, @02:31PM ([#8466741](#))

(<http://ebassist.com/>)

So I would have no problem wearing an exoskeleton, if it was designed not to be able to break the human body inside, if it isn't ... who the hell designed it?

Why, the lowest bidder, of course ;-)

Re:Wouldn't want to get a virus (Score:5, Insightful)

by [dave420 \(699308\)](#) on Thursday March 04, @10:44AM ([#8463595](#))

All they have to do is make sure it can only move in the same directions and extents as a human. Once that's achieved, it can't possibly break your legs off. After all, it's enhancing existing human motions, not inventing new ones.

Which human? (Score:2)

by [Galvatron \(115029\)](#) on Friday March 05, @01:03AM ([#8472880](#))

Some people can do the splits, or put their feet behind their heads. Are we going to mimic those people, or unflexible schmucks like me who, on a good day, can just barely touch our toes? I suppose you could calibrate it to each person's range of motion, but even then, there's a pretty big difference between slowly easing into a stretch and being suddenly pulled into one. The latter can cause serious damage.

Re:Wouldn't want to get a virus (Score:2, Insightful)

by Anonymous Coward on Thursday March 04, @10:49AM ([#8463661](#))

A simple mechanical solution:

They could put in some easily breakable restraints.

so in case the exoskeleton goes malfunctions,
you could easily detach your legs from it..
or the restraints would break off before
the force would be strong enough to damage your
legs.

Can it stand still? (Score:3, Insightful)

by [CriX \(628429\)](#) on Thursday March 04, @12:55PM ([#8465430](#))

I've only managed to download the first two videos so maybe it shows in the third, but I wonder if this thing can let the "pilot" stand still with the 100lb bag on his back. You can see the kid kinda throwing his hands out for balance once in a while. For some reason I imagine standing still and balancing the weight would be a lot harder for the machine to interpret and more difficult for the kid to balance than the walking.

Re:Wouldn't want to get a virus (Score:3, Interesting)

by [Discoflamingo13 \(90009\)](#) on Thursday March 04, @01:28PM (#8465849)

(<http://discoflamingo.livejournal.com/> | Last Journal: [Thursday May 02, @01:13AM](#))

Oh, that's the kind of thing a smart designer has hammered out in requirements analysis, and the kind of thing a stupid designer will get caught in cert review people. I imagine it really only works in a *military review*, though, where the human subjects can be commanded to do just about anything, as long as it's reasonable. (And yes, "try to break your legs wearing the exoskeleton" is probably considered reasonable by most military cert types). I just wouldn't expect a civilian model for quite a while.

Re:Wouldn't want to get a virus (Score:1, Interesting)

by [ebyte \(94664\)](#) on Thursday March 04, @01:53PM (#8466186)

I've been in the design process of a hydraulic-assist exoskel for the past year or so, and safety was also a major consideration of mine. My design includes not only mechanical limits in the range of motion of the machined joints, but also a passive hydraulic bypass at the limit of each joint. This *should* limit the hydraulic joints ability to move past a position that its human counterpart would get pissy with.

Any testers :)

My design incorporates the valve into the joint itself. In the event of mechanical failure in terms of range of motion, the valve fails too. Fluid everywhere, no force applied to the joint. With clever valve designs, the hydraulic system itself can be used as a buffer or counter safety for the mechanical limits. This isn't foolproof though, a major component malfunction during heavy use can still cause human harm. But this is true with many machines that we come into contact with on a daily basis. With care, a human exoskel can be very reliable. I hope.

Again, want to be first? :)

Re:Wouldn't want to get a virus (Score:1)

by [Inuchance \(559556\)](#) <inu@NOspam.inuchance.net> on Thursday March 04, @03:11PM (#8467333)

(<http://www.inuchance.net/>)

Who cares if your legs are broken if you have a machine to move for you?

If it's the pain you're worried about, haven't you ever played Max Payne? Just take a few bottles of pain-killers and you're health'll be full again.

Re:Wouldn't want to get a virus (Score:1)

by [simonharvey \(605068\)](#) on Thursday March 04, @06:32PM ([#8470095](#))
(<http://www.simonharvey.com/>)

just stretch before you put it on.

it shouldnt take more than 15min

Re:Wouldn't want to get a virus (Score:1)

by [airblaine \(700353\)](#) on Thursday March 04, @06:36PM ([#8470134](#))

I hope this thing isn't running m\$. It could give new meaning to the BSOD!

Re:Wouldn't want to get a virus (Score:5, Funny)

by [TopShelf \(92521\)](#) on Thursday March 04, @10:35AM ([#8463490](#))

(<http://slashdot.org/~TopShelf/journal/> | Last Journal: [Wednesday February 25, @10:40AM](#))

And you know that a cheat for Dance Dance Revolution will make the rounds, too...

Re:Wouldn't want to get a virus (Score:3, Funny)

by [stephenisu \(580105\)](#) on Thursday March 04, @10:54AM ([#8463715](#))

Actually, it's already done, just need to port it.

www.stepmania.com [stepmania.com]

Yeah, but.... (Score:2, Funny)

by [JustinXB \(756624\)](#) on Thursday March 04, @10:26AM ([#8463340](#))

(<http://insanity.homeunix.org/>)

Alright, cool... But can it play Max 300 on hard in DDR? Yeah, I thought not.

Re:Yeah, but.... (Score:1)

by [Ethon \(759020\)](#) on Thursday March 04, @10:27AM ([#8463352](#))

(<http://www.suxorz.com/>)

Max 300 please....the real challenge would be Legend Of Max Heavy

"Haven't you ever seen a little boy..." (Score:1)

by [bad enema \(745446\)](#) on Thursday March 04, @10:26AM ([#8463342](#))

"with braces on his legs before?"

Of course, there's nothing like curing muscle deficiency like getting chased by goons on bikes.

Re:"Haven't you ever seen a little boy..." (Score:3, Funny)
by [chef_raekwon \(411401\)](#) on Thursday March 04, @ 10:40AM ([#8463542](#))
(<http://www.likwit.com/>)

"with braces on his legs before?"

certain gives new meaning to "Run, Forest, Run!"

Re:"Haven't you ever seen a little boy..." (Score:3, Funny)
by [Tackhead \(54550\)](#) on Thursday March 04, @ 12:58PM ([#8465462](#))

> Of course, there's nothing like curing muscle deficiency like getting chased by goons on bikes.

Of course, there's nothing like curing goons chasing you on bikes... by using your powered exoskeletal legs and arms to rip their ugly pink fleshsticks from their sockets.

"It's Payback Time!"
- The Terminator

welcome! (Score:3, Funny)
by Anonymous Coward on Thursday March 04, @ 10:26AM ([#8463346](#))

i, for one, welcome our robotically enabled masters!

borg technology or MS assimilating SCO (Score:4, Funny)
by [stonebeat.org \(562495\)](#) on Thursday March 04, @ 10:27AM ([#8463355](#))
(<http://validate.sf.net/>)

I wasn't sure story to read first, the borg technology or MS assimilating (giving money to) SCO. But they sounded similar, so I went ahead with latter one. :)

heavy loads? (Score:2, Funny)
by Anonymous Coward on Thursday March 04, @ 10:27AM ([#8463361](#))

Carrying heavy loads in wartime? You mean, like, say, that backpack full of batteries and equipment to power your cyberlegs?

Re:heavy loads? (Score:5, Funny)
by [grub \(11606\)](#) <grub@grub.net> on Thursday March 04, @ 10:29AM ([#8463403](#))
(Last Journal: [Wednesday March 17, @10:45AM](#))

Carrying heavy loads in wartime?

Bush wants his soldiers to carry back the oil a barrel at a time.

Re:heavy loads? (Score:5, Informative)
by [rogue555 \(671448\)](#) on Thursday March 04, @ 10:35AM ([#8463482](#))

No, it uses a free piston hydraulic pump that runs off catalyzed hydrogen peroxide. Actually quite small and light for the power it provides.

Re:heavy loads? (Score:2)

by [Muhammar \(659468\)](#) on Thursday March 04, @04:11PM ([#8468284](#))

Shuttle moves wing flaps on similar principle - by compressed gas (hydrogen +nitrogen) from hydrazine decomposition. And with using both fuels (peroxide +hydrazine) at the same time, you would need no complicated hydraulics to move your legs - just a nozzle would be enuf.

T-Stoff/C-Stoff [www.walter-rockets.i12.com]

<http://www.walter-rockets.i12.com/design/fuels.htm>

<http://www.walter-rockets.i12.com/walter/me163b.htm>

Super Granny (Score:2)

by [nycsubway \(79012\)](#) on Thursday March 04, @10:28AM ([#8463373](#))

(<http://gbookcards.com/>)

Oh no... not super grannies! Kids giving their grandparents jars to open... I know where this is going!

From Berkeley! (Score:5, Funny)

by [LookSharp \(3864\)](#) on Thursday March 04, @10:28AM ([#8463375](#))

Yes, Berkeley-ites! With our patented "Hippie Assist" functionality, you can flee the tyranny of pepper-spray-wielding police at up to three times the speed! And the titanium-alloy supports allow you to carry up to SIX times as many picket sign bearing snappy slogans!

Worry no more as you march around protesting the cause of the day, as you can taunt the pigs with impunity!

(Hemp-shoe compatibility guaranteed!)

Re:From Berkeley! (Score:1, Interesting)

by [SubtleNuance \(184325\)](#) on Thursday March 04, @10:59AM ([#8463787](#))

(Last Journal: [Thursday November 28, @09:21AM](#))

Worry no more as you march around protesting the cause of the day

There are so many causes because there is so much injustice. Sorry pal, this isnt funny, its +1 Compassion-less.

Should social-justice advocates give up because the challenge is too great? Simply because side-line selfishness-advocates (like yourself) snipe with witless barbs like "hippy" and "cause whore" and such? Some people actually WANT a better, more just, more peacefull world. Protesting in public is a way to actualize that goal... undermining that action with stupidity like yours only serves those who want to Make the World Suck, m'kay? So, think a little before you propagate this hollow meme, it has a purpose... and its not a good one.

Re:From Berkeley! (Score:2, Offtopic)

by [LookSharp \(3864\)](#) on Thursday March 04, @11:09AM ([#8463933](#))

It was humor, and you've removed your funny bone (and sense of rationality as well, apparently) to fit more activism. Not only that, you presume to judge me as an incompassionate war-monger based on an off-the-cuff (and VERY funny) comment I put together, parodying the stereotype of Berkeley-area activists. Who's close-minded now?

All things in moderation. I pick my battles, after learning at about age 17 that there is no way one person can fight all of the world's injustice without going insane and effecting no change whatsoever. Learn about scope of influence and scope of control, and work to improve things that you have control or can realistically gain influence over. Just some friendly advice.

Re:From Berkeley! (Score:3, Insightful)

by [Planesdragon \(210349\)](#) <[dagondge@\[\]ap.rr.com](mailto:dagondge@[]ap.rr.com) ['nyc' in gap]> on Thursday March 04, @11:25AM ([#8464187](#))

(<http://www.castlesteelstone.us/> | Last Journal: [Wednesday March 17, @11:39PM](#))

Should social-justice advocates give up because the challenge is too great?

No. They should change their tactics because they're counter-productive.

And they should *stop* looking for causes to champion, and stop thinking that tactics that worked for civil rights will work for everything.

You know what would either kill or equalize gobalization? If the protestors would stop trying to riot around the WTO meetings, and start convincing the unions to act on the cause.

Re:From Berkeley! (Score:2)

by [Effugas \(2378\)](#) on Friday March 05, @07:56AM ([#8474086](#))

(<http://www.doxpara.com/>)

And why do you think unions are effective? Strikes, picket lines, work stoppages, etc. are all by definition non-violent protest.

All rights have to be fought for. Non-violent protest exists, and is respected, so they don't have to be died for. But do you not realize that the implicit threat of a hundred thousand person protest is that that's numerically a gigantic army with high morale, that is peaceful today but possibly not tommorrow?

--Dan

Re:From Berkeley! (Score:2)

by [Planesdragon \(210349\)](#) <[dagondge@\[\]ap.rr.com \['nyc' in gap \]](mailto:dagondge@[]ap.rr.com ['nyc' in gap])> on Friday March 05, @09:53AM (#8474926)

(<http://www.castlesteelstone.us/> | Last Journal: [Wednesday March 17, @11:39PM](#))

And why do you think unions are effective?

Because they have a direct effect on the bottom line, and they're mobilized enough to have a meaningful impact on political elections?

A bunch of non-producing "profresional protestors" do nothing more than diminish the value of a tool that people like unions rely upon. They simply aren't numerous to effect any but the smallest company's bottom line, or to be a politically important force.

Re:From Berkeley! (Score:2)

by [Effugas \(2378\)](#) on Friday March 05, @10:37AM (#8475412)

(<http://www.doxpara.com/>)

The business of a city is smooth operation. Disruption of that business is what gave India back to the Indians. And since the business of elected officials is to get re-elected, large numbers of people who will refuse to vote for you, and will actively work to illustrate that fact to your other constituents, can be pretty terrifying.

Look. Just because you don't like the anti-globalization cause doesn't mean you can deny the mechanism, or especially state that only unions should be allowed to use them.

--Dan

Re:From Berkeley! (Score:2)

by [Planesdragon \(210349\)](#) <[dagondge@\[\]ap.rr.com \['nyc' in gap \]](mailto:dagondge@[]ap.rr.com ['nyc' in gap])> on Friday March 05, @10:54AM (#8475603)

(<http://www.castlesteelstone.us/> | Last Journal: [Wednesday March 17, @11:39PM](#))

Look. Just because you don't like the anti-globalization cause doesn't mean you can deny the mechanism, or especially state that only unions should be allowed to use them.

Actually, I'm extremely sympathetic to the anti-globalization cause. Globalization, as it is now, is horrendously unfair to the workers and to poorer countries.

It is BECAUSE I sympathize with the cause that I feel that the professional protestors should just shut up and go integrate themselves into the capitalist society. As it is now, they are *not* having significant effect, as because of such the only thing that they're accomplishing is giving unions and groups with a real reason to protest a reason NOT to use otherwise successful tactics.

Re:From Berkeley! (Score:1)

by [Lord Agni \(643860\)](#) on Thursday March 04, @01:05PM ([#8465560](#))

There are so many causes because there is so much injustice.

No, because there is too much free time for people who have only learned to emote and not to think. The things the Green Party advocates are always the wrong things, but they *feel* right. Social justice always means taking from those who produce and giving it to those who don't, or won't (if it's the case that they can't, that's what private charities are for). Anyhow, he was making a joke, and you greenie libs are notoriously humorless unless a conservative is the butt of the joke.

[This will straighten you out.](#) [capmag.com]

Re:From Berkeley! (Score:1)

by [Erasmus \(32516\)](#) on Thursday March 04, @03:15PM ([#8467395](#))

So you would rather we all just follow your lead and propagate the meme that activists all have no sense of humor? Fine by me!

Don't forget optional accessories (Score:2)

by [GunFodder \(208805\)](#) on Thursday March 04, @02:08PM ([#8466426](#))

The website doesn't mention the extra-burly bike option for Critical Mass rides. Or the extra-large stash box attachment for holding your weed.

Re:From Berkeley! (Score:1)

by [lee7guy \(659916\)](#) on Thursday March 04, @07:54PM ([#8470905](#))

Any my sister goes to a "conservative" college. It took her two years to turn from a moderate conservative like my parents to a propaganda-spewing hippie bot.

And now you live in fear the time has almost come for you to follow big sisters example and start thinking for yourself?

Btw, moderate and conservative are not compatible for use in one single sentence.

Not really Borg-like (Score:1, Funny)

by Anonymous Coward on Thursday March 04, @10:28AM ([#8463377](#))

Was more of a standup version of the technology used on captain Christopher Pike's beeping chair.

Re:Not really Borg-like (Score:2)

by [The_K4 \(627653\)](#) on Thursday March 04, @12:07PM ([#8464785](#))

No No No. It's M.A.N.T.I.S. Now we just need the flying Chevy Nova!

Military applications? What about students? (Score:2)

by [mikeophile \(647318\)](#) on Thursday March 04, @10:28AM ([#8463378](#))

I sure could have used one of those in school.

Lockers? I don't need no steeking lockers!

Re:Military applications? What about students? (Score:2)

by [millahtime \(710421\)](#) on Thursday March 04, @10:43AM ([#8463582](#))

FOr a military application. Imagine a soldier that could roll over a 70 ton tank. It would be like having an army of He-men. We could rule the world.

like having an army of He-men (Score:1, Funny)

by Anonymous Coward on Thursday March 04, @11:52AM ([#8464554](#))

We could rule the world.

"could"?

;P

Re:Military applications? What about students? (Score:1)

by [GlassUser \(190787\)](#) <slashdot@nOSPAm.glassuser.net> on Thursday March 04, @01:06PM ([#8465569](#))

(<http://www.glassuser.net/> | Last Journal: [Tuesday February 10, @04:10PM](#))

Seems to work fine.

Oh and I'm five minutes late for my lunch time beer. BBL.

Excellent. (Score:5, Funny)

by [MondoZ \(672060\)](#) on Thursday March 04, @10:29AM ([#8463383](#))

Add on robotic arms, and we'll be ready to fight off alien queens and throw them out airlocks.

Re:Excellent. (Score:1, Interesting)

by Anonymous Coward on Thursday March 04, @10:32AM ([#8463442](#))

actually, check here...

<http://me.berkeley.edu/hel/extarms.htm>

Re:Excellent. (Score:1)

by [Patrik_AKA_RedX \(624423\)](#) on Thursday March 04, @02:34PM (#8466774)
(<http://users.pandora.be/redx> | Last Journal: [Monday February 16, @04:35PM](#))

and we'll be ready to fight off alien queens and throw them out airlocks.

And you're suprised Earth never made contact with alien life forms?

Re:Excellent. (Score:1, Funny)

by [Erasmus \(32516\)](#) on Thursday March 04, @03:18PM (#8467421)

Add on robotic arms, and we'll be ready to fight off alien queens and throw them out airlocks.

I've had enough of this anti-gay bias on Slashdot! You people just... oh wait...

Sorry...

Re:Excellent. (Score:3, Interesting)

by [Senjaz \(188917\)](#) on Thursday March 04, @06:36PM (#8470139)
(<http://www.chaos-engine.com/>)

The loaders out of Alien were actually modelled on a real thing: the hardiman exoskeleton. It was designed by General Electric and I don't think they ever got it working completely.

Re:Excellent. (Score:1)

by [parroyo \(546279\)](#) on Friday March 05, @04:14AM (#8473484)

Actually, the professor cited in the article (my old research advisor) consulted on the Aliens movie for their "lifter" technology.

Trust me, this guy's lab has the best toys.

Check [this baby](#) [berkeley.edu] out. Yup that's Alan Alda in the pics. :)

Pedro

Re:Excellent. (Score:1)

by [vortexau \(471931\)](#) <vortexau@nOspAm.swiftdsl.com.au> on Friday March 05, @08:58AM (#8474417)
(<http://home.swiftdsl.com.au/~vortexau>)

or . . add arms to handle kegs of beer, or to fight Matt Helm (Dean Martin) without breaking into a sweat. . . when you're in The Ambushers.

[IMDB](#) [imdb.com]

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muscles (Score:2, Funny)

by [dj245 \(732906\)](#) on Thursday March 04, @10:29AM (#8463385)

All your muscles are belong to us!

Re:muscles (Score:1)

by [gilmet \(601408\)](#) on Thursday March 04, @10:43AM (#8463591)

Says the enemy haXors.

Dupe? (Score:1)

by [Cheerio Boy \(82178\)](#) on Thursday March 04, @10:29AM (#8463389)

(Last Journal: [Sunday March 02, @11:38AM](#))

Item I mean - not story.

Didn't a Russian scientist come up with something similar several years ago?

Re:Dupe? (Score:5, Informative)

by [dave420 \(699308\)](#) on Thursday March 04, @10:38AM (#8463536)

If you're thinking of the same one I am, they came up with jet-powered shoes, which is a similar yet fundamentally different technology.

This suit enhances strength and load-bearing capability. The jet-shoes enhanced speed alone. There was no back brace or luggage compartment - just big-ass loud shoes :)

Then again, there was the spring-loaded running suit those guys made. It retained almost as much energy running as a Kangaroo (one of the most efficient runners on the world). With it, people could run really fast and jump high, all without power. True, it was massive and you'd look a dick wearing it, but technologically fantastic.

Re:Dupe? (Score:2, Funny)

by [Ba3r \(720309\)](#) on Thursday March 04, @11:33AM (#8464309)

I prefer the acme-rocket pack to the jet powered shoes personally, although springs on the soles of shoes can get that kangaroo motion down. Either way, that damn Fastus Birdus will always get away.

Re:Dupe? (Score:3, Informative)

by [moorley \(69393\)](#) on Thursday March 04, @11:35AM (#8464337)

You're talking about the [Springwalker](#) [springwalker.com]. I always like that big hurking exoskeleton. I heard that it was going to be developed with SoloFlex but that was 4-5 years ago. Site is still up. Anybody know if there are any new developments on it?

Short of it being used for a [Burningman](#) [burningman.com] Project, I think it's life is over. (Sniff...)

Re:Dupe? (Score:1)by [Lady Jazzica \(689768\)](#) on Thursday March 04, @ 12:06PM ([#8464772](#))

Then again, there was the spring-loaded running suit those guys made. It retained almost as much energy running as a Kangaroo (one of the most efficient runners on the world). With it, people could run really fast and jump high, all without power. True, it was massive and you'd look a dick wearing it, but technologically fantastic.

Someone else mentioned the SpringWalker, but I think [Bionic Boots](#) [zoom.co.uk] look a bit "cooler".

Re:Dupe? (Score:1)by [Tyrell Hawthorne \(13562\)](#) on Thursday March 04, @ 12:35PM ([#8465163](#)) (<http://dsv.su.se/~oscar-ja/>)

True, it was massive and you'd look a dick wearing it, but technologically fantastic.

Say, that reminds me of something I saw someone [wearing on the street](#) [footlocker.com] the other day ...

Re:Dupe? (Score:1)by [SnappleMaster \(465729\)](#) on Thursday March 04, @ 02:12PM ([#8466480](#))

ROFL good link!

Price \$149.99

Now \$59.99

I wonder why the price has dropped by over half? Maybe because they're so farging ugly that even the average moron consumer isn't stupid enough to want desperately to own a pair?

This is not new (Score:2)by [Doesn't Comment Code \(692510\)](#) on Thursday March 04, @ 10:29AM ([#8463392](#))

Yeah, I also saw these in such credible movies as Alien and The Matrix.

Re:This is not new (Score:2)by [HTH NE1 \(675604\)](#) on Thursday March 04, @ 10:42AM ([#8463570](#))

Enter the [M.A.N.T.I.S.](#) [imdb.com]?

Re:This is not new (Score:1)by [TykeClone \(668449\)](#) on Thursday March 04, @ 10:45AM ([#8463607](#))

And in the book "Starship Troopers" (but not the movie.

But Does it Run Linux?? (Score:5, Funny)by [RPI Geek \(640282\)](#) on Thursday March 04, @ 10:29AM ([#8463398](#))

Does it run Linux? If so, I'm afraid of it. I wouldn't want a [malicious penguin taking over control](#) [imdb.com].

Re:But Does it Run Linux?? (Score:2)

by [Walkiry \(698192\)](#) on Thursday March 04, @10:45AM ([#8463609](#))
(<http://walkiry.no-ip.org/>)

It just runs.

Although I bet there's room in the backpack to put a knoppix CD or something like that.

Re:But Does it Run Linux?? (Score:1)

by [hplasm \(576983\)](#) on Friday March 05, @05:33AM ([#8473675](#))
(Last Journal: [Sunday December 21, @09:10PM](#))

Not yet. It just walks Linux at the moment. *duck*

Re:But Does it Run Linux?? (Score:1)

by [anon_dod \(759164\)](#) on Thursday March 04, @04:19PM ([#8468429](#))

no. it does not run linux. I know.

Go, Go, Gadget Legs... (Score:3, Funny)

by [Vexler \(127353\)](#) on Thursday March 04, @10:29AM ([#8463399](#))
(Last Journal: [Thursday December 11, @11:03AM](#))

Wooowwwwwzzerrrrrrsssssss!!!!!!

Walkies, Gromit! (Score:4, Funny)

by Anonymous Coward on Thursday March 04, @10:30AM ([#8463409](#))

They're robo-trousers, ex-NASA!

I love the photo (Score:5, Funny)

by [The I Shing \(700142\)](#) * on Thursday March 04, @10:30AM ([#8463418](#))
(Last Journal: [Tuesday March 16, @05:24AM](#))

I love the photo of the guy wearing it. Let's put Bill Murray, Dan Aykroyd, and Harold Ramis in that get-up and see if it looks familiar. Who you gonna call?

Re:I love the photo (Score:2)

by [Doesn't Comment Code \(692510\)](#) on Thursday March 04, @10:36AM ([#8463500](#))

It's true! He looks just like a young Dan Akroyd! It's funny because it true! All he needs is one of those beam guns and a trap.

Re:WTmuthaF? (Score:2)

by [The I Shing \(700142\)](#) * on Thursday March 04, @10:46AM ([#8463628](#))
(Last Journal: [Tuesday March 16, @05:24AM](#))

Although Ernie Hudson didn't appear on the original poster for the movie, I enjoyed the character Winston very much.

Janine Melnitz: "Do you believe in UFOs, astral projections, mental telepathy, ESP, clairvoyance, spirit photography, telekinetic movement, full trance mediums, the Loch Ness monster and the theory of Atlantis?"

Winston Zeddemore: "Ah, if there's a steady paycheck in it, I'll believe anything you say."

Re:WTmuthaF? (Score:2)

by [Galvatron \(115029\)](#) on Friday March 05, @12:57AM (#8472858)

I freely admit that this is pure hearsay, but someone once told me that Winston, being the "cool black guy," had all the good lines in the original script. Then, Dan Aykroyd and Harold Ramis said "wait a minute, why not give ourselves (and our buddy Bill) the good lines?" and so Winston was pared down to the minor supporting role he ended up with.

Lower Extremity Exoskeleton? (Score:1, Funny)

by Anonymous Coward on Thursday March 04, @10:31AM (#8463432)

If I was refering to legs, I call them *extremities*.

I only have one lower extremity that isn't plural. And no, it doesn't require an exoskeleton to maintain it's rigidity.

Re:Lower Extremity Exoskeleton? (Score:2)

by [spood \(256582\)](#) on Thursday March 04, @03:44PM (#8467858)

So *you're* the one responding to those spams! I'll get you, AC, whoever you are!

Re:Lower Extremity Exoskeleton? (Score:1)

by [parroyo \(546279\)](#) on Friday March 05, @04:23AM (#8473516)

Actually, when I originally worked on the project the acronym stood for "Lower Extremity Enhancer".

The running joke in the MechE department was that I was researching a new kind of "penis pump".

Wallace and Gromit (Score:4, Funny)

by [Gothmolly \(148874\)](#) on Thursday March 04, @10:32AM (#8463435)

It's the wrong trousers!

Re:Wallace and Gromit (Score:1)

by [hazee \(728152\)](#) on Thursday March 04, @10:38AM (#8463532)

And weren't the techno-trousers commandeered by a penguin in disguise? Hmm...

Yes, but he had physical access. (Score:2)

by [oneiros27 \(46144\)](#) on Thursday March 04, @10:47AM ([#8463637](#))

(<http://www.annoying.org/>)

[Feathers McGraw](#) [aardman.com] read [Gromit's](#) [aardman.com] copy of "Electronics for Dogs", and then modified the (ex-NASA) [trousers](#) [aardman.com], so they were remote controlled, and removed the local control panel.

So it was a hardware hack, not a software hack. [But it's the hardware equiv of [Back Orifice](#) [cultdeadcw.com]]

Any time to let someone get physical access, especially if it's unsupervised, especially a jewel thief penguin, you're screwed.

Thank God (Score:1, Funny)

by [somethinghollow \(530478\)](#) on Thursday March 04, @10:32AM ([#8463439](#))

(<http://www.robertdot.org/> | Last Journal: [Friday January 23, @06:02PM](#))

At long last, no more engaging in that irritating self propulsion. This will be the ultimate means of locomotion when other means are unavailable (trains and automobiles and such).

Segway, eat your heart out.

Re:Thank God (Score:1)

by [Short Circuit \(52384\)](#) <[short.circuit@grnet.c3.14159om minus pi](mailto:short.circuit@grnet.c3.14159om-minus-pi)> on Thursday March 04, @11:09AM ([#8463928](#))

(Last Journal: [Tuesday March 16, @04:42PM](#))

Once it's either comfortable and inconspicuous, or very easy to take off (and diable!), it'll be a useful means of propulsion.

Re:Thank God (Score:2)

by [chef_raekwon \(411401\)](#) on Thursday March 04, @11:28AM ([#8464229](#))

(<http://www.likwit.com/>)

no more engaging in that irritating self propulsion

reminds me of a simpsons episode, where homer proclaims that "here I am using my legs like a sucker!"

I wonder (Score:2)

by [Bendebecker \(633126\)](#) on Thursday March 04, @10:32AM ([#8463441](#))

(Last Journal: [Thursday October 02, @03:54PM](#))

If you could beef them up with up with better hydrolics - jumping over buildings and matrix type stuff? You got lett it all go Neo, fear, doubt, disbelief, and a sizeable chunk of you savings.

Re:I wonder (Score:3, Insightful)

by [Wardish \(699865\)](#) <wardg.writeme@com> on Thursday March 04, @12:25PM (#8465035)

(Last Journal: [Monday March 01, @01:43PM](#))

chuckle

Don't forget, strength doesn't negate inertia.

You can go splat insided an exoskeleton just as nicely as you can outside one.

automatically controls itself based on user (Score:5, Insightful)

by [randyest \(589159\)](#) <ranorano@nOsPAM.hotmail.com> on Thursday March 04, @10:32AM (#8463451)

(<http://randyrandy.net/>)

This is great -- it senses your motions and accomodates you, helping you along:

The researchers point out that the human pilot does not need a joystick, button or special keyboard to "drive" the device. Rather, the machine is designed so that the pilot becomes an integral part of the exoskeleton, thus requiring no special training to use it. In the UC Berkeley experiments, the human pilot moved about a room wearing the 100-pound exoskeleton and a 70-pound backpack while feeling as if he were lugging a mere 5 pounds.

There was a /. article a few months ago about a Japanese team of researchers who were working on the same sort of device (I don't recall the name, but I'm sure the dupe-hounds will point it out). But if I recall correctly, that system required control input, such as from a joystick-like device. That limits the robustness and usability pretty severely, IMHO.

Interestingly, this thing runs on a gas engine (which powers hydraulics for the powered joints and provides electricity for the computer controls), and:

The current prototype allows a person to travel over flat terrain and slopes, but work on the exoskeleton is ongoing, with the focus turning to miniaturization of its components. The UC Berkeley engineers are also developing a quieter, more powerful engine, and a faster, more intelligent controller, that will enable the exoskeleton to carry loads up to 120 pounds within the next six months. In addition, the researchers are studying what it takes to enable pilots to run and jump with the exoskeleton legs.

I want my robot body now please. Price?

As predicted by Robert A. Heinlein! (Score:4, Informative)

by [Wacky_Wookie \(683151\)](#) <lambert@NOSPAM.assael.co.uk> on Thursday March 04, @11:06AM (#8463881)

(<http://in-real-time.blogspot.com/> | Last Journal: [Tuesday July 29, @09:45AM](#))

This was invented by Robert A. Heinlein in the book *Starship Troopers!*

Looks like Mr. Heinlein has done it again. He predicted more than a half century ago that the interface for an exoskeleton (which is what the powered armour in *ST* is) would be through a force feedback system, where the suit reads human movement and then reacts to it. Thus very little special training is required to use the powered suit, or exoskeleton.

Robert A. Heinlein was also the guy that invented the water bed.

Re:As predicted by Robert A. Heinlein! (Score:2)
by [cowscows \(103644\)](#) on Thursday March 04, @11:27AM ([#8464220](#))
(<http://shawn.redhive.com/>)

Predicted does not equal invented. Heinlein is great and all, but don't pretend that he deserves the credit for all the work engineers have put into this thing.

Re:As predicted by Robert A. Heinlein! (Score:1)
by [lee7guy \(659916\)](#) on Thursday March 04, @08:21PM ([#8471093](#))

Just like we shouldn't give Arthur C Clarke credits for satellites?

Sometimes one visionary/designer is worth more than a dozen engineers combined.

Re:As predicted by Robert A. Heinlein! (Score:5, Insightful)
by [MotherInferior \(698543\)](#) * on Thursday March 04, @11:32AM ([#8464289](#))
(<http://www.goodmancounty.com/>)

No, Heinlein did not *invent* these devices any more than Gibson *invented* the internet (or Stevenson did VR). Scientists and engineers read these books and say to themselves, "Neeto," and then set about to putting in the long hours and frustration to actually make these ideas happen.

Mucho deserved props to Heinlein et al., but it's the "nobodies" in academic institutions (PhD's and don't forget those indentured servants, aka grad students) and the tinkerers in garages that really make the world go round. Heinlein gets the fame, but sorry, he shouldn't get the credit.

Re:As predicted by Robert A. Heinlein! (Score:2)
by [K8Fan \(37875\)](#) on Thursday March 04, @12:34PM ([#8465138](#))
(Last Journal: [Thursday September 26, @01:15PM](#))

No, Heinlein did not invent these devices any more than Gibson invented the internet (or Stevenson did VR). Scientists and engineers read these books and say to themselves, "Neeto," and then set about to putting in the long hours and frustration to actually make these ideas happen.

Right. But, on the other hand, Aurther C. Clarke did "invent" the geostationary satellite - by that I mean he came up with the concept and worked out the math. He didn't build any satellites or build the rockets to get them up there.

Re:As predicted by Robert A. Heinlein! (Score:2)

by [PMuse \(320639\)](#) on Thursday March 04, @12:44PM ([#8465296](#))

Or than Arthur C. Clarke invented [the space elevator](#) [liftport.com]. Much praise though [Foundations of Paradise \(1978\)](#) [alibris.com] deserves.

Re:As predicted by Robert A. Heinlein! (Score:1)

by [CFTM \(513264\)](#) on Thursday March 04, @12:58PM ([#8465458](#))

Wait a minute, I thought Al Gore invented the internet!

I don't agree at all (Score:1)

by [Wacky_Wookie \(683151\)](#) <lambert@NOSPAM.assael.co.uk> on Thursday March 04, @01:43PM ([#8466055](#))

(<http://in-real-time.blogspot.com/> | Last Journal: [Tuesday July 29, @09:45AM](#))

I think Heinlein SHOULD get the credit, or who ever thought up the idea in the first place.

IMHO thinking up the ideas in the first place is the real breakthrough, or at the very least EQUAL to implimenting the idea. I think PHDs already get a lot of credit for things that other people invented, or thought up, but had neither the time, nor the funding to develope.

Not that have anything against PHDs, but I think the real brains is in the creative process.

Of course people that are both (i.e. Nicola Teasla), well, I'm just in awe of.

I, for one, welcome our new Teasla overlords.

Re:I don't agree at all (Score:1)

by [MotherInferior \(698543\)](#) * on Thursday March 04, @03:51PM ([#8467960](#))

(<http://www.goodmancounty.com/>)

In my NSFHO, I think that we should use the zero-point energy of the universe to create matter, hence making matter replication possible.

Now, if I can just write a good enough work of fiction that enough people read it, then I can claim credit for actually inventing it.

Hell, while I'm at it, let's just give Michener credit for landing the Eagle on the moon. Oh, and didn't H.G. Wells invent the submarine? Too bad we can't bring him back to life to award a patent and 1.21 gojillion dollars to him.

Wait! We can! I'll just write a novel about resurection technology! And it'll get invented; no, wait, I already invented it. This is all so confusing....

Re:I don't agree at all (Score:1)

by [MotherInferior \(698543\)](#) * on Thursday March 04, @10:55PM ([#8472190](#))
(<http://www.goodmancounty.com/>)

Dear AC,

Because you are anoninimous and unconscionibly anal, I feel the necessisy to call you a moron. You such suck unimaginatatively large rocks that my speak has become unintellecable. You can fly off this flat earth with the force of a thousand donkey farts.

Oh, I'm sorry. Lost myself. Anyway, you missed the point entirely. Michener wrote Space after 1969. HG Wells (sic, it's H.G. by the way) didn't write about submarines. Writers don't do anything but write, unless they choose to do something else. NASA (and the American taxpayer) put Neil Armstrong et al. on the moon. The first submarines were put to use by the American, Japanese and Russian navies of the late 19th century. They were designed by John P. Holland and Simon Lake. By your argument, any drunken Elizabethan riding the Thames in a wine barrel could have been the inventor of the submarine.

Re:As predicted by Robert A. Heinlein! (Score:1)

by [sfprairie \(626602\)](#) on Thursday March 04, @02:13PM ([#8466502](#))

Heinlein should get some credit. It takes both the creative process to come up with the idea and the logical process to implement the idea. I think Heinlein deserves a lot of credit simply for inspiring me, and many others, in math and science. It was his books, and his ideas, that formed my love of reading.

Re:As predicted by Robert A. Heinlein! (Score:1)

by [MotherInferior \(698543\)](#) * on Thursday March 04, @11:08PM ([#8472270](#))
(<http://www.goodmancounty.com/>)

Thank you. You get the point. Heinlein was an inspiration and should be lauded to high heaven for it. He was conscientious, meticulous, and adventurous in his writing, just as a scientist should be. He also had a brazen disregard for what was improperly proper.

In short, you are quite correct. He should get some credit, just as J.F.K. should get some credit for Apollo 11. Heinlein is one of the reasons why we've come as far as we have in science and technology. He dared, with fists outstretched, his readers to dream the impossible and make it happen.

Re:As predicted by Robert A. Heinlein! (Score:2)

by [spood \(256582\)](#) on Thursday March 04, @03:38PM ([#8467775](#))

Along the same lines, I just got around to reading a compilation of Asimov stories called *Robot Visions* and in his introduction he humbly accepts credit for inspiring the pioneers in the robot industry.

The definition of invent that I found simply says it means to come up with (an idea, plan, explanation, theory, principle) after a *mental* effort. So I don't agree with you at all that Heinlein, Gibson, Asimov, et al. shouldn't get the credit. If anything, they should get *all* of the credit.

However, mad props to the "nobodies" and the entrepreneurs for taking the initiative to implement these inventions.

For what? Dreaming? Thinking? (Score:1)

by [MotherInferior \(698543\)](#) * on Thursday March 04, @04:12PM ([#8468303](#))

(<http://www.goodmancounty.com/>)

They didn't build a damn thing. They sat around and wrote about it. They didn't work out the details, they didn't do any of the blood-sweat-and-tears work.

And \$\$\$#@#@, YES there is more work to it than just coming up with the damned sacrosanct *idea*. Have you not ever written code? The devil, the WORK, is in the details. Any writer will tell you this about his craft. I guaran-damn-tee you that writers spend far more time working out plot structures than working on the details of their "inventions." The inventions are *plot tools*. Devices for moving the friggin story along. If the writer really wanted the thing to materialize, he'd \$\$\$(*&% BUILD it. See [John \[xprize.org\]](#) [Carmack](#) [slashdot.org].

Re:For what? Dreaming? Thinking? (Score:1)

by [lee7guy \(659916\)](#) on Thursday March 04, @08:30PM ([#8471157](#))

Let me guess, the designers at where you do your engineering doesn't have an easy time?

I bet the manufacturing guys say the same thing: "Well, the engineers take all the credit for doing calculations and stuff, but **we** build the damn things. Without us there wouldn't be any [insert gizmos of your choice]".

See my point?

What point? (Score:1)

by [MotherInferior \(698543\)](#) * on Thursday March 04, @10:25PM ([#8471973](#))
(<http://www.goodmancounty.com/>)

See my point?

As it applies to anything other than an ad hominem attack? No.

So what if I get a little hot under the collar about this? At issue here is people's willingness, heck, frothing desire to attribute [insert virtue of your choice] to their pet celebrity. It's gotten to the point that people place far more importance on fame than real accomplishment. People would much rather *play* a doctor on television than *be* a doctor helping real people with real problems.

Heinlein wrote some good, thoughtful *fiction*, and now he's a great inventor? What's next, knighthood? Oh, wait.

You just go ahead, take me wrong all you want. I've read Heinlein, I like Heinlein, and I respect Heinlein for what *he's* accomplished. He elevated science fiction to a new degree of moral, societal and scientific relevancy. The man was a damn good writer. An inspiration to millions.

But only that. An inspiration.

Bollocks, Popular Mechanics circa 1960 (Score:3, Informative)

by [GuyFawkes \(729054\)](#) on Thursday March 04, @11:50AM ([#8464532](#))
(<http://www.google.com/intl/xx-hacker/>)

Had an extensive article on full body exoskeletons VERY reminiscent of the kit ripley wore in aliens...

The article included actual photographs of actual working (though tethered by hoses to a static power pack) units that were being developed by/for the US Army.

I cannot remember the exact issue or year because I was a mere sprog and my dad used to buy the occasional pop mechanics, but it was early sixties.

This was 45 years ago people....

Please don't tell me I'm the only fart on /. over 30 who hasn't suffered from terminal alzheimers....

Re:Bollocks, Popular Mechanics circa 1960 (Score:2)

by [tmortn \(630092\)](#) on Thursday March 04, @12:48PM ([#8465350](#))

Ummm Starship troopers was written in 58 and published in 59 [Opus List](#) [nitrosyncretic.com]

Not that I think he invented the thing. However, one has to wonder how many people that have worked on this kind of technology read ST and other Heinlien books growing up. Of course there are many other sources of mecha as well. I have always wondered how much influence our imagination has over what we pursue in technology.

Re:Bollocks, Popular Mechanics circa 1960 (Score:1)

by [CFTM \(513264\)](#) on Thursday March 04, @01:04PM ([#8465550](#))

Time for the obligatory six degrees of separation comment. My neighbors uncle was a high ranking officer in the Air Force working in the R&D department. One day my neighbor was talking to him and asked him for a general idea of what sort of stuff they were developing, realizing that all this stuff was classified. The guys response was imagine the most fantastic stuff you can think of in terms of science fiction/fantasy/technology etc and push it 50 years past that and we're probably working on something like that. The government probably has all sorts of stuff we don't know about, let's face it they've been using GPS since what the 60's-70's and it's just starting to become mainstream technology.

Re:Bollocks, Popular Mechanics circa 1960 (Score:1)

by [lee7guy \(659916\)](#) on Thursday March 04, @08:36PM ([#8471226](#))

Your neighbors uncle is full of shit or doesn't have any imagination.

Faster than light travel or teleportation aren't by far the most fantastic stuff you could think of in terms of science fiction/fantasy/technology, but I still seriously doubt that they are working on something 50 years past that in the US air force R&D department.

Re:Bollocks, Popular Mechanics circa 1960 (Score:2)

by [blincoln \(592401\)](#) on Thursday March 04, @02:06PM ([#8466389](#))

(Last Journal: [Saturday March 06, @12:46AM](#))

The article included actual photographs of actual working (though tethered by hoses to a static power pack) units that were being developed by/for the US Army.

You're thinking of GE's Hardiman exoskeleton. They built a prototype, but never had anyone wear the full suit because they couldn't get it working properly.

Re:As predicted by Robert A. Heinlein! (Score:2)

by [Rorschach1 \(174480\)](#) on Thursday March 04, @12:06PM ([#8464770](#))

(<http://home.miller.org/> | Last Journal: [Wednesday April 03, @02:21PM](#))

I was just reading that book again yesterday. Now if only we could un-make that awful movie.

I think I'll go make a thirty-second bomb.

"I am a thirty-second bomb! I am a thirty-second bomb! Twenty-nine!... twenty-eight!... twenty-seven!..."

Re:As predicted by Robert A. Heinlein! (Score:1)

by [Patrik_AKA_RedX \(624423\)](#) on Thursday March 04, @02:41PM ([#8466910](#))

(<http://users.pandora.be/redx> | Last Journal: [Monday February 16, @04:35PM](#))

Twenty-seven!...Twenty-six!...Twenty-five!....

Hey Bomb!

Yes what?... Oh, damn now I lost my count! thirty!... twenty-nine!...

(Stolen from Starship Titanic)

Re:automatically controls itself based on user (Score:1)

by [MotherInferior \(698543\)](#) * on Thursday March 04, @11:53AM ([#8464570](#))

(<http://www.goodmancounty.com/>)

There was a /. article a few months ago...

[Yep.](#) [slashdot.org]

Re:automatically controls itself based on user (Score:1)

by [sprekken \(623464\)](#) on Thursday March 04, @12:03PM ([#8464723](#))

(<http://fred.darkpenguin.com/>)

If any researchers are reading this post, I have a cool idea that I'd like to see in the future... part of it came from a Popular Science a few months ago:

Instead of using a gasoline powered engine to provide the energy, there should be research into how to transfer energy from the human body. I mean, who wouldn't love to eat high sugar/carbohydrate foods all day to power their exoskeleton?

That kind of technology could be used for a multitude of other things as well.

Now that is one sweet video (Score:5, Interesting)

by [purduephotog \(218304\)](#) <moc.tibroni@ta.hcsrih> on Thursday March 04, @10:33AM ([#8463454](#))

(Last Journal: [Wednesday August 13, @11:49PM](#))

Took nearly 2 minutes to download, but watching those short steps around... *then* finding out that the backpack was loaded with 100lbs.... wow.

Obviously the future of movement and an important first step, no pun intended.

So we've got a unit that can carry up to 120lbs of weight. Figure a few more lbs and it may now be able to 'support' a man whos legs no longer work properly. Although this design is based upon feedback from a proper leg to calculate where it is supposed to move/balance.

The old quote about the yellow pages- let your fingers do the walking- may soon become far more true than you've realized... especially for those born or brought to wheelchair bound.

Re:Now that is one sweet video (Score:2)

by [_phlux_ \(216706\)](#) on Thursday March 04, @02:07PM ([#8466407](#))

well actually what would be interesting is combining this with the segway's balancing algorithm.

If you have one who can move his legs enough to fire offthe robo-legs sensors, but are not strong enough to support the body, and thereby balance - the segway's brains may keep the thing upright....

the other issue is a parking frame, while this thing is great for ambulating about a flat area... I doubt a single user would be able to don the cyber-garment, or sit or remove himself from it without the assistance of at least several others... if it had som frame that could straddle a wheel chair, which you walked up to it - and hooked the thing to via connectors at about the shoulder area, then it would support the unit while you de-mount it, and slowly lower yourself into the wheelchair below.

Ripley would be pleased... (Score:2)

by [addie \(470476\)](#) on Thursday March 04, @10:33AM ([#8463465](#))

So... I can use this to pick up aliens and throw them out airlocks right? Right? No?!

Centre of balance (Score:5, Interesting)

by [dj245 \(732906\)](#) on Thursday March 04, @10:34AM ([#8463480](#))

I'd be worried about the centre of gravity on this thing. From the picture, things don't look too good. Sure, the person can carry a huge load. But that load is all on his back, with some of it a foot or more away from his body. If he tips over will the legs be any help getting him upright?

Re:Centre of balance (Score:1)

by [Jru Hym \(609379\)](#) on Thursday March 04, @02:00PM ([#8466302](#))
(<http://folding.stanford.edu/>)

That's why it comes equipped with [Life Alert\(R\)](#) [lifealert.com]

Re:Centre of balance (Score:2)

by [Doubting Thomas \(72381\)](#) on Thursday March 04, @09:01PM ([#8471401](#))

Tip over, hell. With 175+ lbs on your back, what happens if you -trip-?

crunch

We are on our way... (Score:5, Insightful)

by [cnelzie \(451984\)](#) on Thursday March 04, @10:35AM ([#8463485](#))
(<http://slashdot.org/>)

...to having technology seen only in science fiction stories happen right in front of our eyes.

This technology could easily make it possible for soldiers to carry very heavy armor that could possibly protect them from most all small arms fire and possibly even some heavy fire. All the while carrying heavy machine guns and small autoloading cannons that these days require crews to move and operate.

Re:We are on our way... (Score:1)

by [visgoth \(613861\)](#) on Thursday March 04, @11:13AM ([#8463993](#))
(<http://members.rogers.com/rtrska/> | Last Journal: [Sunday February 29, @09:23PM](#))

Yummy. Where can I pre-order a [Landmate](#) [mibozu.free.fr]?

Realistically though, we're going to have to find a compact and efficient energy source first. Gas powered suits don't sound too viable for combat. Maybe [these guys](#) [slashdot.org] are onto an eventual source of power?

Re:We are on our way... (Score:1, Flamebait)

by [SubtleNuance \(184325\)](#) on Thursday March 04, @11:14AM ([#8464008](#))
(Last Journal: [Thursday November 28, @09:21AM](#))

This technology could easily make it possible for soldiers to carry very heavy armor that could possibly protect them from most all small arms fire and possibly even some heavy fire

EXCELLENT! Now, OUR soldiers will be able to kill more of the Evil Enemy(TM)! YEAH! WHAAT A TERRIFIC DEVELOPMENT! Lets buy more!

Re:We are on our way... (Score:1)

by [FroMan \(111520\)](#) on Thursday March 04, @11:59AM (#8464665)

(<http://www.crazydays.org/> | Last Journal: [Monday March 15, @08:45AM](#))

Do you feel somehow better by posting twice to this comment?

As someone has rebutted you above, military applications do lend themselves to more advanced tech.

Would you rather have armies that are equal in strength fighting it out or one army grossely overpowering fighting a weaker army. Personally, if the goal is to minimize casualties all around, I think disproportionate armies save lives since the war is over much quicker.

I sure would be nice if everyone would lay down there weapons and be nice to each other, but the simple fact of the matter is that will not happen. So, it makes sense to have the biggest baddest army to shorten the wars that do occur.

Re:We are on our way... (Score:1)

by [meadowsp \(54223\)](#) on Thursday March 04, @12:11PM (#8464847)

(<http://www.mp3.com/djphilsavage>)

"Would you rather have armies that are equal in strength fighting it out or one army grossely overpowering fighting a weaker army. Personally, if the goal is to minimize casualties all around, I think disproportionate armies save lives since the war is over much quicker.
"

The point here is that if everyone is roughly on the same level, then one side is LESS likely to initiate a war in the first place.

Re:We are on our way... (Score:1)

by [FroMan \(111520\)](#) on Thursday March 04, @12:40PM (#8465240)

(<http://www.crazydays.org/> | Last Journal: [Monday March 15, @08:45AM](#))

Worked wonderfully for 1812, WWI, WWII, pretty much every war up until the Cold War. No, it wasn't until the Cold War that your idea worked, where two sides equally powered actually caused a stalemate. And you know what made the cold war work? Advanced tech. Basically we were at the point where each side was able to annihilate the other side and the rest of the world. MAD.

Remember that the folks who start wars are not the people who fight them. Soldiers are the ones who fight, I see no reason to not try and keep them alive.

However, in the event of wars like in Afghanistan and Iraq I would much rather have one side far more powerful to keep the casualties down.

Re:We are on our way... (Score:1)

by [lee7guy \(659916\)](#) on Thursday March 04, @08:46PM ([#8471309](#))

However, in the event of wars like in Afghanistan and Iraq I would much rather have one side far more powerful to keep the casualties down.

Yeah, as long as it is your side, right?

Re:We are on our way... (Score:2)

by [rritterson \(588983\)](#) * on Thursday March 04, @12:03PM ([#8464718](#))

If you protect soldiers from small arms, you only add incentive for everyone else to make larger arms. You can see the obvious cycle.

I'm not so sure I really want Mechwarrior to become reality either, unless i get a really cool gauss cannon. Then it's fine by me.

Re:We are on our way... (Score:2)

by [Lehk228 \(705449\)](#) on Thursday March 04, @12:19PM ([#8464976](#))

you can have the gauss cannon i got dibs on the ER-PPC and the LRM-15

Re:We are on our way... (Score:1)

by [The12thRonin \(749384\)](#) on Thursday March 04, @01:57PM ([#8466258](#))

What about the extra heat sinks for the ERPPC? 15 points of heat vs. 1 pt of heat is a big difference and he's putting the extra weight into ammo...

Re:We are on our way... (Score:3, Insightful)

by [BCoates \(512464\)](#) on Thursday March 04, @03:02PM ([#8467226](#))

You can see the obvious cycle.

RPG rounds cost a whole lot more than AK rounds.

It gets increasingly less practical to fight against modern armies due to the massive supply expense, even if you have a giant contingent of Angry Young Men(tm).

I'm not really sure how this is a "cycle" though.

Re:We are on our way... (Score:1)

by [Lehk228 \(705449\)](#) on Thursday March 04, @12:17PM ([#8464950](#))

But Didn't you ever play mechwarrior? the elementals sucked ass and were a pain to kill 'cause they ran around so damned much.... we should be working on real battlemechs. With a few combat battlemechs you can get anyone to surrender.... a giant semi-humanoid robot capable of taking direct hits from an RPG is really intimidating regardless of it's effectiveness compared to the same amount of money's worth of tanks.

Re:We are on our way... (Score:1)

by [The12thRonin \(749384\)](#) on Thursday March 04, @02:10PM ([#8466456](#))

Obviously you never read the Blood of Kerensky series. The last thing you want is an point of elementals on your mech. A Clan Dasher variant with MASC, flamers and a point of elementals will quickly kill about any mech.

The elementals in the game were gimped when forced to move along the field along with all other vehicles and armor because it wasn't a game about power armor or vehicles, but 'Mechs. Try some of the level 3 rules for elementals/power armor and tell me it sucks.

Re:We are on our way... (Score:2)

by [kmac06 \(608921\)](#) on Thursday March 04, @01:30PM ([#8465877](#))

...to having technology seen only in science fiction stories happen right in front of our eyes.

This technology could easily make it possible for soldiers to carry very heavy armor that could possibly protect them from most all small arms fire and possibly even some heavy fire. All the while carrying heavy machine guns and small autoloading cannons that these days require crews to move and operate.

How could any of you think this is a bad thing? If the US Army had full armored exoskeletons, there would have been virtually 0 US casualties. Most Iraqis would not even try small arms (and protection from some small explosions/grenades is not unreasonable). What's the problem if it lowers casualties, probably on both sides?

When lower casualties are bad (Score:1, Informative)

by Anonymous Coward on Thursday March 04, @02:28PM ([#8466697](#))

> How could any of you think this is a bad thing?

For the same reason we think it would have been bad if 1930's Germany or 1950's USSR had had this technology - we find ourselves unable to trust the 2000's US government to responsibly use the power this technology provides. We're afraid that the US government might find the prospect of low-casualty wars too tempting, and engage in them too frequently and for questionable reasons.

More subtly, those wars would create no less fear, frustration, and resentment among the attacked nations and peoples, meaning they would still be filled with a desire to fight back. And if they can't fight back against the armoured military, they'll fight back against a target they can hurt.

That's us, the civilians.

Terrorist attacks are the logical result of this type of asymmetric warfare. When you can't hurt your enemy's troops, you'll find a target you can hurt. When faced with a stealth bomber, the logical weapon is a box cutter.

Sad - and scary - but not a surprise. Stronger weapons will not win modern ideological wars; stronger diplomacy will.

Re:We are on our way... (Score:1, Funny)

by Anonymous Coward on Thursday March 04, @01:49PM ([#8466136](#))

So the Japanese people might have been right about mecha combat armor?

Oi veh. Remind us to sign up lots of hotshot teen pilots with various issues to man these things... After all, we know that that's the best way to run these, right?

Re:We are on our way... (Score:2)

by [BCoates \(512464\)](#) on Thursday March 04, @02:55PM ([#8467141](#))

Who do you think operates US army tanks, well-adjusted 40 year olds?

No real change (Score:1, Insightful)

by Anonymous Coward on Thursday March 04, @02:36PM ([#8466813](#))

- > This technology could easily make it possible for
- > soldiers to carry very heavy armor that could
- > possibly protect them from most all small arms
- > fire and possibly even some heavy fire.

Due to the high-quality body armor already used in the US army and due to the use of armored troop transports, the main source of direct-fire casualties in Iraq has been from rocket-propelled grenades. These weapons can penetrate the armor on light troop transports, so any solution to protect infantrymen from RPGs would require such heavy armor that the result would be like making each man his own light tank.

The technology isn't even close to being there for that transformation, and neither would it be useful. The military can already pound the enemy into paste with nigh-invulnerable tanks, but restoring order afterwards requires interacting with the people, something that is hardly more possible in a mech than in a tank.

Re:We are on our way... (Score:1)

by [hplasm \(576983\)](#) on Friday March 05, @05:40AM ([#8473693](#))

(Last Journal: [Sunday December 21, @09:10PM](#))

I want my Galactic Patrol space armour!! (now where did I put those thought screen plans?..ah well, back to the tinfoil hat...)

OT? yes, it is rather warm...

Which end you want to be on? (Score:3, Insightful)

by [cnelzie \(451984\)](#) on Thursday March 04, @11:39AM ([#8464395](#))

(<http://slashdot.org/>)

The side with that technology, thus cutting down considerably on the losses of your armed forces or the side that this technology would be used to defend against?

Personally, one would imagine that faced with the possibility of fighting such a foe that most governments would most likely reconsider any potentially hostile activity towards such an equipped government.

Of course, such is the march of human progress. One could argue forever that military forces and armed conflict do nothing but ill for all of humanity, yet at the same time someone else can point out the near endless series of side benefits that have been brought to humanity because of humanity's propensity towards killing eachother.

For instance, the computers that you and I are both sitting in front are the progeny of now 'ancient' military computer systems built during WWII. We may never have had RADAR systems developed if not for war. Same goes with rocket and jet engine technology...

Sure, war sucks. Sure, people die from armed conflict. However, without war, we would most assuredly not have the technology that we have today as artists,

philosophers and pacifists aren't as prone to push forward the march of technology as much as those that have been put into desperate situations that need a radical new way of thinking to achieve a goal do.

Re:Which end you want to be on? (Score:1)

by [meadowsp \(54223\)](#) on Thursday March 04, @12:09PM ([#8464816](#))

(<http://www.mp3.com/djphilsavage>)

Here's a situation for you, the US has already got the most powerful military in the world and you're still getting attacked on a regular basis.

So tell me again, how will exoskeleton legs stop another 9-11 or an Iraqi style roadside bomb?

On your WWII front, we probably would have radar now, perhaps a number of years later, but with much less death and devastation. I'd rather wait a bit and not have war if it's all the same to you.

Same here... (Score:1)

by [cnelzie \(451984\)](#) on Thursday March 04, @12:33PM ([#8465130](#))

(<http://slashdot.org/>)

...I would rather wait it out not have a war myself. Unfortunately, I am not GOD in heaven. So, that is something that I don't have the opportunity to control, affect or slightly alter.

When did flowers and nice sentiments stop someone from being attacked as well?

If the US wasn't the most powerful nation in the world at the time of the WTC Sept. 11th attacks, then those attacks would have happened against another nation with a similar societal view...

Hmmm.. Let me think for a second... Ahhhh... yes, it would be Canada that would have been attacked.

See, this 'War on Terror' is a war against Islamic Fundamentalist Extremists. The closest correlation to that group in Christianity, as an example, is the KKK. Any government providing true freedom to its people are the sworn enemies of groups like Al-Qaeda.

From what I understand, Canada allows women to dress as they wish, talk back to their men and even run for public office! That is the antithesis of Islamic Fundamentalist Extremists. That is what makes the United States and any other nation with a similar political/social ground the 'Great Satan' to those people.

If it wasn't the WTC Sep. 11th Attack, it could very well have been the Sep. 11th Big Ben Attack, or the Sep. 11th CN Tower Toronto Attack.

Those kind of attacks will likely be impossible to forever eradicate from humanity. However, with aggressive military research and development ending up with the creation of powered armor suits and weapon systems, the chances of a full-scale world war are greatly decreased.

Re:Same here... (Score:1)

by [handslikesnakes \(659012\)](#) <therion@@@tifointer...it> on Thursday March 04, @08:10PM ([#8471019](#))

However, with aggressive military research and development ending up with the creation of powered armor suits and weapon systems, the chances of a full-scale world war are greatly decreased.

You forgot to add "unless the folks with the tech are the ones who start it."

Re:Which end you want to be on? (Score:1)

by [CFTM \(513264\)](#) on Thursday March 04, @01:09PM ([#8465621](#))

Indeed, it's interesting because until modernity there death was not such a taboo thing. It was everyday and common place, even fifty years ago things were different. Case and point, how many people actually know that in three years 50,000 Americans died in the Korean War? Moreover, how many people know that that is roughly how many died in Vietnam except it was over 13-15 years. Death is one of those things that has always been apart of life, and modernity has decided that we can fight it. We're out of our fucking minds...

Hmmmm (Score:4, Funny)

by [Stupid White Man \(750118\)](#) on Thursday March 04, @10:35AM ([#8463486](#)) (<http://www.teknobabbleconsulting.com/>)

"the wearer can walk, squat, bend and swing from side to side without noticeable reductions in agility."

But can he LIMBO!

Re:Hmmmm (Score:2)

by [eth1 \(94901\)](#) on Thursday March 04, @02:47PM ([#8466993](#)) (<http://andrew.theharms.org/>)

Given that you've got an extra 100lbs of ballast attached to your legs, I'd say probably yes. :)

Obligatory Onion reference (Score:3, Funny)

by [joshv \(13017\)](#) on Thursday March 04, @10:36AM ([#8463505](#)) (<http://slashdot.org/>)

The onion is rarely this prescient: <http://www.theonion.com/onion3123/hawkingexo.html>

any bets? (Score:2, Interesting)

by [blue_adept \(40915\)](#) on Thursday March 04, @ 10:37AM ([#8463521](#))

on how long it will be before this kind of equipment becomes standard fare in mountain climbing? Everest may not be so hard anymore, with a mechanical exoskeleton and oxygen tanks, and the kind of people who climb everest (which generally costs over \$100,000) have the kind of money to blow on this kind of technology when it becomes available.

Re:any bets? (Score:1)

by [Mr. Slippery \(47854\)](#) <tms@NOSPam.infamous.net> on Thursday March 04, @ 10:45AM ([#8463614](#))

(<http://www.infamous.net/>)

on how long it will be before this kind of equipment becomes standard fare in mountain climbing?

Kind of defeats the purpose, doesn't it? If you just want to get to the top without the physical challenge, you could already helicopter up.

Would be great for search & rescue in mountain areas, though.

Re:any bets? (Score:2)

by [Da VinMan \(7669\)](#) on Thursday March 04, @ 10:49AM ([#8463660](#))

Errr... I'm no climber, or pilot, but isn't the Everest peak inaccessible to helicopters because the air is too thin?

Re:any bets? (Score:1)

by [Mr. Slippery \(47854\)](#) <tms@NOSPam.infamous.net> on Thursday March 04, @ 11:07AM ([#8463892](#))

(<http://www.infamous.net/>)

I'm no climber, or pilot, but isn't the Everest peak inaccessible to helicopters because the air is too thin?

I did some [Googling](#) [google.com] and it seems you are correct. Copters can only get about 2/3 of the way up. And there have been crashes. But most other mountains are well below the ceiling for helicoptering (they can function at altitudes of several kilometers).

Re:any bets? (Score:1)

by [blue_adept \(40915\)](#) on Thursday March 04, @ 11:05AM ([#8463866](#))

nope, not when it comes to Everest, helicopters can't get that high, even if the conditions weren't way too dangerous to try. You might be able to get a helicopter to base camp, but as far as climbers are concerned, that's the bottom.

Consider that when attempting to mount the summit, climbers are so exhausted (partly from lack of oxygen) that they generally only take a couple steps per minute. A robotic exoskeleton would sure come in handy, seems to me.

Re:any bets? (Score:2)

by [SB9876 \(723368\)](#) on Thursday March 04, @01:39PM ([#8465996](#))

Well, most climbers would consider something like this an anathema but that's never stopped the lazy. ;) These days, the 'in' thing is to climb w/o oxygen which requires you to be a superhuman mutant like Meissner or Veisturs (sp?). Although I can see rich people using something like this to ascend a mountain, they'd be the laughingstock of everyone else there - kinda defeats the purpose of climbing the mountain.

I see two reasons why this would get used. One: letting disabled people climb mountains. Two: rescue work.

Unfortunately, even though these suits would be pretty good on paper, I can't see them being used in reality. Mountain climbing is about much more than pure strength - there's a lot of things like crossing snow bridges and ascending steep snow slopes where an additional 300 pounds of metal on you will get you killed regardless of the amount of strength you have.

Similar (Score:2)

by [Richard Allen \(213475\)](#) on Thursday March 04, @10:39AM ([#8463538](#))

to this technology for nurses. I think the military has similar things in R&D.

<http://www.newscientist.com/news/news.jsp?id=ns99991072>

Re:Similar (Score:2)

by [Richard Allen \(213475\)](#) on Thursday March 04, @10:41AM ([#8463561](#))

sorry ... delete the space in the link

Leap over tall buildings (Score:1)

by [Gr8Apes \(679165\)](#) on Thursday March 04, @10:39AM ([#8463539](#))

in a single bound, faster than a speeding train...

All we need now is "more powerful than a bullet" and we'll all be superman (or supergirl...)

One step closer to Metroid (Score:2)

by [BitwizeGHC \(145393\)](#) on Thursday March 04, @10:41AM ([#8463556](#))

(<http://i-0-i.com/parodycheck>)

We know we've really reached the future when we can build [a tank with a hot chick inside](#) [penny-arcade.com].

I'm impressed (Score:1)

by [Woogiemonger \(628172\)](#) on Thursday March 04, @10:41AM ([#8463559](#))

The more and more I read about this, I'm quite impressed, but doesn't it seem really easy to throw the damn 70 pound backpack in my car trunk and drive 15 times faster? :) Also, if that thing runs out of fuel, not only are you carrying 70 pounds, but you're also carrying 100 pounds of exoskeleton. If it merely malfunctions, you have to carry the fuel too! ...Unless you want to explain to your commander why the Army should buy you a new one. Maybe they should add a good set of retractable wheels, so you can carry it around like luggage in an airport.

wrestling (Score:2, Funny)

by [surreal-maitland \(711954\)](#) on Thursday March 04, @10:41AM ([#8463560](#))

(Last Journal: [Friday March 05, @11:38AM](#))

WWF raw next weeks is gonna *rule*.

fiction and reality (Score:1)

by [plams \(744927\)](#) on Thursday March 04, @10:42AM ([#8463574](#))

(<http://home20.inet.tele.dk/plams>)

Could they be used for super kickboxing? Or live action platform gaming? (Jumping like Mario or running like Sonic) These pair of legs just might make reality less boring:)

Forget the Matrix or Borg, this is... (Score:4, Interesting)

by [mykepredko \(40154\)](#) on Thursday March 04, @10:43AM ([#8463583](#))

(<http://www.myke.com/>)

the first steps in producing the powered armor of RAH's "Starship Troopers".

I found it interesting to use the term "Pilot" for the user/wearer - especially in light that the exoskeleton is designed to be used with apparently little training.

It's nice to see that we are taking the first steps (excuse the pun) to fight back after space insects destroy Buenos Aires.

myke

Re:Forget the Matrix or Borg, this is... (Score:2)

by [\(arg!\)Styopa \(232550\)](#) on Thursday March 04, @01:34PM ([#8465926](#))

(<http://www.strategy-gaming.com/>)

...the first steps in producing the powered armor of RAH's "Starship Troopers".

Screw that, Evangelion here I come!

Poor cripple in school (Score:2, Interesting)by [millahtime \(710421\)](#) on Thursday March 04, @ 10:45AM (#8463616)

I can see it now. A poor cripple in school has this exoskeleton. Then the school bully hacks it to beat up the kid wearing it. Then the bully can be lazy, have virtually no evidence he did the beating and still be the bully.

Re:Poor cripple in school (Score:1)by [ggvaidya \(747058\)](#) on Thursday March 04, @ 10:57AM (#8463770)[\(http://sps.nus.edu.sg/~vaidyagi/\)](http://sps.nus.edu.sg/~vaidyagi/)

That's not the bully - that's the nerd!!

;) Huzzah!

Re:Poor cripple in school (Score:5, Insightful)by [American AC in Paris \(230456\)](#) * on Thursday March 04, @ 11:01AM (#8463813)[\(http://www.snowplow.org/tom/\)](http://www.snowplow.org/tom/)

I can see it now. A poor cripple in school has this exoskeleton. Then the school bully hacks it to beat up the kid wearing it.

...dude, what makes you think that hacking an embedded system is somehow easy? It's not like some young Val Kilmer-esque rogue will be able to swipe Jeff Goldblum Jr.'s PowerBook and push the big, red, "Make Bob Beat Himself Up" button.

How do you figure one could quickly, easily and tracelessly hack a system whose only accessible inputs are things like pressure sensors?

Re:Poor cripple in school (Score:1)by [gusmao \(712388\)](#) on Thursday March 04, @ 11:59AM (#8464670)

How do you figure one could quickly, easily and tracelessly hack a system whose only accessible inputs are things like pressure sensors?

The device has a computer and circuits to monitor and control the mechanical legs movement based on the movements of the pilot. You're right, it's probably very hard to break into the embedded program, but the point here is not to become "root" of the system, but to break its control capabilities.

This could be done with electromagnetism for instance, to erase parts of the memory or the code in the ROM (it has been done before in ATMs). God, even water can damage the circuits if they are not properly protected. A shot or nearby explosion can also cause some critical glitches.

Once damaged, it could simply stop, or show a unpredictable behavior, but it certainly will become useless.

Re:Poor cripple in school (Score:2, Interesting)

by [SnappleMaster \(465729\)](#) on Thursday March 04, @02:24PM ([#8466636](#))

You can also ram a stick in the forks of a wheelchair, or take a kid's crutch and bust it over your knee.

Does that mean that wheelchairs and crutches are unsuitable for the disabled in schools?

Methinks you are grasping at straws. And a "nearby explosion"? Where do you go to school, exactly?

Re:Poor cripple in school (Score:1)

by [asoap \(740625\)](#) on Thursday March 04, @12:03PM ([#8464724](#))

I'm going to have to disagree with you. Most bully attacks are not traceless. They usually let you know who's beating your face in for lunch money.

So, a bully could easily just start grounding out sensors/potentiometers, or introduce a different voltage, so then the ecu would read the sensors at fluctuating positions, and start to make large corrections.

Now if the ECU doesn't have any protection from something like this. Little Billy the cripple starts to hit himself in the face.

Bully: "Hey Billy, stop hitting yourself! Hey Billy, stop hitting yourself! Hey Billy, stop hitting yourself!"

Billy: *DUNK* *Sniffle* *THUD* *Blood Spitting* *DUNK*

Re:Poor cripple in school (Score:2)

by [Tackhead \(54550\)](#) on Thursday March 04, @01:11PM ([#8465635](#))

> *Now if the ECU doesn't have any protection from something like this. Little Billy the cripple starts to hit himself in the face.*

>

> *Bully: "Hey Billy, stop hitting yourself! Hey Billy, stop hitting yourself! Hey Billy, stop hitting yourself!"*

>

> *Billy: *DUNK* *Sniffle* *THUD* *Blood Spitting* *DUNK**

Geek: *hacks into unit, points Pringles can at Billy the cripple*

Billy: *WHAM*, huh WTF? Sorry bully!

Bully: AAAaah! It hurts! Stop!

Geek: Yeah! Stop hitting the bully! *clickity-click-WHAM!*

Bully: UUnnngh! *blood spurts*

Billy: *CHOP/HACK/SLASH* I... I can't control it! What's happening to me?

Geek: I don't know! *pushes button* Honest! Must be one of them computer viruses! Are you sure you're patched and up to date Billy?

Billy: *SLAM* Yeah, I'm up to date. Sorry bully, that's gonna leave a mark, damn computer viruses again!

Bully: *bleed, whimper*

Re:Poor cripple in school (Score:1)

by [phazei \(559785\)](#) on Thursday March 04, @05:09PM ([#8469187](#))

I can see it now. A poor cripple in school has this exoskeleton. Then the school bully hacks it to beat up the kid wearing it.*

*How do you figure one could quickly, easily and tracelessly hack a system whose only accessible inputs are things like pressure sensors**?*

*This is a joke.

**This is what happens when there is no disclaimer.

Re:Poor cripple in school (Score:2)

by [dylan_ \(1661\)](#) on Thursday March 04, @12:37PM ([#8465191](#))

(<http://slashdot.org/>)

Guys with cybernetic enhancements who treat 70 pounds like it's 5 pounds don't get bullied...

Is this really better? (Score:1, Insightful)

by Anonymous Coward on Thursday March 04, @10:47AM ([#8463633](#))

How is this better than a cart with wheels?

It looks cool, but it could probably break easilly and the battery life is probably worse than my laptop!

Re:Is this really better? (Score:1)

by [MrWorf \(216691\)](#) on Thursday March 04, @11:05AM ([#8463872](#))

(<http://www.sensenet.nu/>)

It sounded like the power isn't provided by electricity since it states:

"The UC Berkeley researchers are using an engine that delivers hydraulic power for locomotion and electrical power for the computer. The engine provides the requisite energy needed to power the exoskeleton while affording the ease of refueling in the field."

So I guess battery life isn't such an issue anyway. Also, I think it wouldn't be acceptable since it needs to be useable in the field (ie, medic'n'stuff), and a ***beep*Low battery, 5mins left*beep*** thingy isn't good if that means several hours of recharging.

Re:Is this really better? (Score:2)

by [Tackhead \(54550\)](#) on Thursday March 04, @01:13PM ([#8465669](#))

> *How is this better than a cart with wheels?*

"FUCK."

- A Dalek, upon being Photoshopped into an M.C. Escher painting of recursive staircases.

At last! The proper tool for the job. (Score:3, Funny)

by [teamhasnoi \(554944\)](#) <teamhasnoiNO@SPAMyahoo.com> on Thursday March 04, @10:50AM ([#8463675](#))

(Last Journal: [Sunday January 18, @01:56AM](#))

Hey Darl, that innocent 'kick me' sign is going to take on a whole new meaning. Say hi to the martian rover.

Aliens Cargo (Score:2)

by [Krieger \(7750\)](#) on Thursday March 04, @10:54AM ([#8463720](#))

(<http://slashdot.org/>)

Okay, so now they have half of the Aliens Cargo mover exo-skeleton.

Which by the way seems much more efficient than a forklift.

So now they can do a bulky exo-skeleton, but can they slim it down and make it an exo-suit?

Got to love the advances of technology.

Who says sci-fi doesn't get it right. ;)

What would be really cool... (Score:5, Interesting)

by [StressGuy \(472374\)](#) on Thursday March 04, @10:54AM ([#8463722](#))

is to get this developed to the point where it could replace a wheelchair. The psychological advantage to a person who'd lost the use of his legs to actually stand up and interact with the world "eye to eye" would have to be powerful. It probably also doesn't hurt to keep the muscles moving and the appropriate neural pathways firing.

Yea, I know, long way to get there from here, but it's a promising first step. Certainly worth some research dollars in my opinion.

Re:What would be really cool... (Score:2)

by [Kupek \(75469\)](#) on Thursday March 04, @12:49PM ([#8465366](#))

I don't think that this device is a step in that direction. This exoskeleton distributes the weight based on how the person is moving, and it's up to the user to maintain balance. Both of those require complete control of the legs. If you can't walk around normally, you can't use this.

Re:What would be really cool... (Score:2)

by [StressGuy \(472374\)](#) on Thursday March 04, @01:12PM ([#8465654](#))

Actually, I was heading in the direction of taking the signal directly from the brain. Even in a paraplegic, the appropriate part of the brain and much of the nervous system is still there. Granted we are talking about an evolutionary step from here, but worth looking into.

Re:What would be really cool... (Score:1)

by [Kupek \(75469\)](#) on Thursday March 04, @02:57PM ([#8467174](#))

And that was what I meant by this isn't really a step in that direction - that is a much different technology and would require research in different areas.

And curiously, one of the impediments to such a technology is that in a paraplegic, the appropriate part of the brain may *not* still be there. A few years ago I read a Washington Post article that talked about what happens to the brain after debilitating injuries. One of the reasons people often need physical therapy is that they literally need to re-learn how to move properly. If my memory serves correct, the brain will "reallocate" unused portions for stuff that actually will be used. So a large impediment to a device like you mentioned might be that someone who has been paralyzed really doesn't have the means anymore to send the signals to move a limb.

Re:What would be really cool... (Score:2)

by [jonhuang \(598538\)](#) on Friday March 05, @01:44AM ([#8473063](#))
(<http://cityofcity.com/>)

Already done. The OTHER segway (and IMHO, the better of the two). The ibot.

<http://www.dekaresearch.com/ibot.html>

Video Clip Mirrors (Score:3, Interesting)

by [flogger \(524072\)](#) <church_al@ttown.efingham.k12.il.us> on Thursday March 04, @ 10:56AM (#8463745)

(<http://www.alchurch.net/> | Last Journal: [Friday October 04, @09:21AM](#))

They vids aren't that exciting. If you are looking for pr0^h^h^h Cool manga type mechs, but if you are interested in human-robot compatibility, this is nice.

Each video is basically a guy walking around in circles for a minute or so. So if you've seen one, you've seen 'em all. :-)

But as the downloads at berkley were getting slower and slower, I offer a mirror of the three vid clips:

[Bleex-part1.mpeg](#) [alchurch.net](18)

[Bleex-part2.mpeg](#) [alchurch.net](21 meg)

[Bleex-part3.mpeg](#) [alchurch.net](23 meg)

[/karmawhoring]

Berkley students are good at two things. (Score:2)

by [teamhasnoi \(554944\)](#) <teamhasnoiNO@SPAMyahoo.com> on Thursday March 04, @ 10:57AM (#8463764)

(Last Journal: [Sunday January 18, @01:56AM](#))

Kicking ass and chewing Bubble gum. I think we know what they just ran out of.

Re:Berkley students are good at two things. (Score:2)

by [Creepy Crawler \(680178\)](#) on Thursday March 04, @ 12:15PM (#8464908)

Ouch! That mighty boot would REALLY hurt!

Real reason for designing this (Score:5, Funny)

by [raider_red \(156642\)](#) <stodd1111@yahoo.com> on Thursday March 04, @ 10:58AM (#8463774)

(Last Journal: [Tuesday March 09, @01:28PM](#))

The article neglected the real reason for designing it. The guy shown in the picture is an engineering student, and the backpack is full of electrical engineering textbooks. He's trying to make his life easier.

Spitfire and the Troubleshooters (Score:1)

by [ChicagoFan \(125489\)](#) on Thursday March 04, @ 10:59AM (#8463784)

<http://www.technohol.com/new-u/spitfire/index.asp> [technohol.com]

Enough power to carry the power source .. barely. (Score:3, Insightful)

by [TA \(14109\)](#) on Thursday March 04, @ 10:59AM (#8463793)

The video clearly showed that the power pack this device currently needs is so heavy that a guy wearing the skeleton+power pack looks the way I do when I carry 30+ kilos and no exoskeleton! In other words, he would be much better off if he left the exoskeleton+power back behind, and carried on using natural power only.

As with a lot of other cool devices, the really big problem is the need for compact, efficient, lightweight power sources.

They currently don't exist.

did you even bother to read the article? (Score:2)

by [X_Bones \(93097\)](#) <danorz13@yahoo.com> on Thursday March 04, @ 11:43AM (#8464444)

(<http://www.homestarrunner.com/>)

a guy wearing the skeleton+power pack looks the way I do when I carry 30+ kilos and no exoskeleton! In other words, he would be much better off if he left the exoskeleton +power back behind, and carried on using natural power only.

No, in other words *you* would be better off like that. Not everyone has the same physique as you do, and just because you personally wouldn't find it useful doesn't mean nobody else will.

As with a lot of other cool devices, the really big problem is the need for compact, efficient, lightweight power sources. They currently don't exist.

geez, since when did Obvious comments start getting modded as Insightful? And besides, if you RTFA you would see the following:

The UC Berkeley engineers are also developing a quieter, more powerful engine, and a faster, more intelligent controller, that will enable the exoskeleton to carry loads up to 120 pounds within the next six months. In addition, the researchers are studying what it takes to enable pilots to run and jump with the exoskeleton legs.

Re:did you even bother to read the article? (Score:1)

by [TA \(14109\)](#) on Thursday March 04, @ 11:54AM (#8464590)

>No, in other words you would be better off like that. Not everyone has the same physique as you do, and just

>because you personally wouldn't find it useful doesn't mean nobody else will.

You don't get it. That was a guy with a "normal" physique AFAIK, and he carried a backpack which contained the engine+power pack *only*. (nothing there indicated that they had added any additional load), and he *still* looked like he was carrying a heavy load! Did you see the concentration on his face?

Ergo: With the current weight demands of the engine+power pack you're better off without the whole exoskeleton. If you could use it at all with any kind of leg disabilities isn't clear either.

>[developing]

Of course they will try to improve the device in the future.

That doesn't mean we won't comment on the current version..!

Re:did you even bother to read the article? (Score:1)

by [RebelWithoutAClue \(578771\)](#) <rwac@opeCOWramail.com minus herbivore> on Friday March 05, @03:54AM ([#8473432](#))

When most people look at this they see and dream of *what might be*. You choose to see only the current limitations.

Power Assist Suit (Score:2, Interesting)

by [Hiroto. S \(631919\)](#) on Thursday March 04, @11:00AM ([#8463797](#))

This [one](#) [time.com] has arms.

Japan's already built one... (Score:2, Informative)

by [PsychoKick \(97013\)](#) on Thursday March 04, @11:00AM ([#8463800](#))

...and it's smaller to boot:

[Hybrid Assistive Leg](#) [tsukuba.ac.jp]

Re:Japan's already built one... (Score:1)

by [kyoko21 \(198413\)](#) on Thursday March 04, @11:17AM ([#8464052](#))

Wow, that is cool :-) I'd mod you up if I had some mod points...

Mod parent up (Score:1)

by [MotherInferior \(698543\)](#) * on Thursday March 04, @11:41AM ([#8464417](#)) (<http://www.goodmancounty.com/>)

Here's the [slashdot story](#) [slashdot.org], also.

Finally! (Score:2)

by [Darken Everseek \(681296\)](#) on Thursday March 04, @11:01AM ([#8463811](#))

It figures that a university would come up with a way to carry more textbooks! .. now if they could only make the seats in lecture theatres more comfortable.

Nasa (Score:1)by [glass_window \(207262\)](#) on Thursday March 04, @ 11:03AM ([#8463841](#))

I wonder if NASA will get ahold of this to help those astronauts who have been in space too long and need some help walking when they first get back to earth? It might even be a good form of therapy for those who have temporarily lost the ability to move their legs.

Jump like Bruce Banner? (Score:1)by [MightyJB \(685090\)](#) on Thursday March 04, @ 11:04AM ([#8463856](#))

I've been thinking about something like this for a while now. (Too bad, I'm just a DBA and not into robotics.)

How soon before we can jump from large heights? Say jumping from a 2 story building. Where the legs act as a shock absorber. Or what about jumping over large distances? Something similar to the Hulk.

Re:Jump like Bruce Banner? (Score:2)by [MenTaLguY \(5483\)](#) on Thursday March 04, @ 01:39PM ([#8466012](#))(<http://moonbase.rydia.net/mental>)

How soon before we can jump from large heights? Say jumping from a 2 story building. Where the legs act as a shock absorber. Or what about jumping over large distances? Something similar to the Hulk.

The problem is that with normal-length legs, you only have so much space to accelerate/decelerate in.

Typically you'll have maybe three feet of play between standing and a full squat. That means that when jumping, you'll have to accelerate to your maximum velocity in that three feet, and when you land, you'll need to slow down by the same amount.

For even mildly superhuman distances, you'd end up pulling some serious Gs -- and if you don't slow down fast enough when landing, you run out of leg and get to do all that deceleration all at once when you impact the ground.

When exerting superhuman forces (as in attempting to jump very high, or, say, lifting a tank), there's also the problem in that you'll be exerting a large amount of force over a very small area (i.e. that of your feet) of the surface you're standing on. Past a certain point, you're more likely to create (and fill) a you-shaped indentation in the ground than you are to do anything particularly impressive.

Broken Legs (Score:5, Interesting)by [phorm \(591458\)](#) on Thursday March 04, @ 11:05AM ([#8463860](#))(<http://www.phormix.com/> | Last Journal: [Monday May 19, @ 12:08PM](#))

"The fundamental technology developed here can also be developed to help people with limited muscle ability to walk optimally"

Having just broken my ankle recently, I could see how - if priced right - this technology would be great for patients recovering from leg injuries.

I'm wondering how well it actually supports the legs. Assumedly, one could splint or cast the broken part of the leg/ankle/etc, and allow the mechanics to take weight off the broken areas.

Even if it weren't useful for an actual break, it would definately be great for the recovery process. I'm getting my cast off tomorrow, but I can see that my muscle atrophied rather quickly. 5 weeks, and my once well-formed muscles are now rather thin (the other leg got a lot stronger though).

An exoskeleton would assist the weak muscles, while the movement should force movement which would strengthen them over time. I'd go for one if I could get it!

Re:Broken Legs (Score:1)

by [kallistiblue \(411048\)](#) on Thursday March 04, @ 12:00PM ([#8464687](#))
(http://www.heel-spur...lantar_fasciitis.php)

I'm sure once the technology gets cheaper that we'll begin seeing applications like this all the time.

I can't wait until someone combines this technology with [the FlyBar](#) [flybar.com] super pogo stick. Soon we'll all be leaping buildings in a single bound :)

Re:Broken Legs (Score:1)

by [SilkBD \(533537\)](#) on Thursday March 04, @01:31PM ([#8465884](#))
(<http://www.blackdagger.com/>)

I disagree. Using this would inhibit or even retard your recovery from injury. You need to TRY to walk normally in order to recondition your body. Otherwise your body will adapt to the new situation and you'll wind up walking all fucked up after you stop using the exoskeleton.

Of course, IANAPT (I Am Not a Physical Therapist)

Re:Broken Legs (Score:2)

by [phorm \(591458\)](#) on Thursday March 04, @02:31PM ([#8466737](#))
(<http://www.phormix.com/> | Last Journal: [Monday May 19, @ 12:08PM](#))

I agree in part... most physical assistance eventually becomes somewhat depended on. Hell, I don't think I'll be able to walk properly without my crutches or even a cane. However, the walking action I would get with such a device would still be more leg/muscle movement than I would otherwise have using the crutches and keeping the leg elevated... which would hopefully slow the degenerative process or allow me to regain some muscle mass after.

Sure, my body would be used to the assistance after awhile, but right now it's used to not using the leg at all. Truly, I cannot **make** myself put full weight on the leg. I can now stand (with cast on), I can lean on it, but I somehow just can't lift the other left. Whether it's some mental paranoia or habit (I'm very used to jerking the broken ankle out of harms way) I'm not sure of yet... but I'd expect that it might take a while before I do adjust to walking - with or without other assistance.

Re:Broken Legs (Score:1)

by [SilkBD \(533537\)](#) on Tuesday March 09, @11:50AM (#8510530)

(<http://www.blackdagger.com/>)

You should try Yoga and various stretching once the wounds are healed. The mind is a pretty powerful tool to get things back to normal (and then some).

Re:Broken Legs (Score:2)

by [phorm \(591458\)](#) on Tuesday March 09, @01:19PM (#8511515)

(<http://www.phormix.com/> | Last Journal: [Monday May 19, @12:08PM](#))

I'm considering it. Also the fact that being on crutches for 5 weeks does do nice things to one's upper-body muscles, I'd like to keep the extra bulk I've put on up here, so regular exercises and stretchings are probably going to become routine.

More Dr. Who than Star Trek (Score:1, Funny)

by [Mateito \(746185\)](#) on Thursday March 04, @11:05AM (#8463875)

The current prototype allows a person to travel over flat terrain and slopes

Great somebody invented an invading force that can be defeated by a staircase. Daleks, anyone?

Mechwarrior (Score:4, Interesting)

by [akiaki007 \(148804\)](#) <aa316@@@nyu...edu> on Thursday March 04, @11:08AM

(#8463912)

(<http://www.5vs1.com>)

So, the engineers finally played this game and decided that it can't be that hard to actually build a machine like that.

On a serious note, that's what this is on the way too. Someone above mentioned that this will enable soldiers to carry very heavy armour that can protect them from most small firearms. Soon, there will be arm exoskeletons and then after that we'll have complete exoskeletons, and at some point, the machines will end up looking like the Mechwarrior machines with missiles and automatic machine guns.

Though it would be nice to think of the possibilities on a humane side. Helping people who've lost the ability to walk, to walk again. But that not what provides the money (the large amounts needed to really propell this). This should make basketball actually watchable again :)

Re:Mechwarrior (Score:4, Insightful)

by [JonKatzIsAnIdiot \(303978\)](#) on Thursday March 04, @12:08PM ([#8464796](#))

I don't think this, or anything else, will lead to actual Mechwarrior-type vehicles. Biped robots make for great movies, video games and comic books, but the design is inherently flawed and inefficient. The facts that it took this long to produce a working prototype proves that it's a very tricky thing to do. In comparisin, wheeled vehicles are much easier to design and produce. This means that for every Mechwarrior on the battle field, you could probably have a hundred tanks. Also - a biped robot would have mobility and stability problems. They would be top-heavy, and be prone to tripping (either accidentally or through enemy efforts), and once they fell over, they would be sitting ducks.

I agree with you about the basketball thing through. Kind of like the basketball game in 'Flubber'!

Re:Mechwarrior (Score:1)

by [Idealus \(688975\)](#) on Thursday March 04, @01:01PM ([#8465505](#))

Well, Mechwarrior on a smaller scale I would say. Biped is bad for stability when the unit is huge and you have relatively little control. If a human's brain is controlling the legs and the unit is 2 stories or less in height I would see it as more valuable than a tank. A tank loses a tread and it has to be replaced before the tank can move anywhere but in circles. People one foot hop all the time when they stub their toes... -_^

Re:Mechwarrior (Score:1)

by [CFTM \(513264\)](#) on Thursday March 04, @01:18PM ([#8465718](#))

Haven't you guys ever seen the full-contact basketball? I think it's on Spike TV or something. There are trampolines throughout the court and everyone is padded. They really fuck each other up, it's sorta like football-meets basketball-meets rugby ... not really that entertaining but if you need some brute violence it'll due.

Re:Mechwarrior (Score:2)

by [mOdQuArK! \(87332\)](#) on Thursday March 04, @01:29PM ([#8465865](#))

Also - a biped robot would have mobility and stability problems. They would be top-heavy, and be prone to tripping (either accidentally or through enemy efforts), and once they fell over, they would be sitting ducks.

You can say that about any biped organism - but there are obvious examples all around you where nature has made it work.

Needless to say, if a "mechwarrrior" were to be useful, it would have to be as stable as the human driving it, and capable of "getting up" if it gets knocked down for some reason. On the plus side, they would have excellent mobility over all kinds of terrain, be able to climb obstacles, exchange tools/weapons fairly rapidly, and feel fairly "natural" for even newbies to drive. I'm sure they'd probably be pretty damn intimidating as well, especially if they moved as fluidly as humans.

If they were strong enough, I'm pretty sure they'd be fairly effective against tanks - either flipping the tank upside down, or jumping up and down on top of the tank would work. (The hard part would be to approach the tank that closely w/o getting hit by the main gun - perhaps either ambush or short-range "jump jet" or parachuting tactics would work - basically, any tactic that a human could imagine themselves doing if they were "big".

Re:Mechwarrior (Score:1)

by [Storklerk \(529418\)](#) on Thursday March 04, @02:39PM ([#8466874](#))

You can say that about any biped organism - but there are obvious examples all around you where nature has made it work.

The problem is the scale. A 10m Robot is much more prone to broken arms or legs than a 2m human. An 1cm insect can fall down over 1m without any broken legs. Try a 200m fall with a 2m human...

Also a human has a protection in form of flesh that softens the impact on the ground. A steel robot would be permanently deformed, if it land on a pointy stone

I'm pretty sure they'd be fairly effective against tanks - either flipping the tank upside down, or jumping up and down on top of the tank would work.

It was 100 tanks against 1 robot. Even at 10:1 the robot would flip over 1 tank and the 9 other tanks could nail it with there main cannons. (Even if it was quick it needs some time to flip over a tank.)

An real advantage would be in heavy terrain, where tanks could not follow. Or maybe things like ducking behind buildings/boulders.

The tanks could try to minimize the terrain advantage by using air support. 1 robot against 4 tanks and 2 predator-drones. If the robot tries to flee into the mountains,

where the tanks could not follow, the drones could still reach it.

Re:Mechwarrior (Score:1)

by [mOdQuArK! \(87332\)](#) on Thursday March 04, @05:42PM ([#8469582](#))

The problem is the scale. A 10m Robot is much more prone to broken arms or legs then a 2m human. An 1cm insect can fall down over 1m without any brocken legs. Try a 200m fall with a 2m human...

Also a human has a protection in form of flesh that softens the impact on the ground.

I would imagine that, up to a certain point, these disadvantages could be dealt with through proper engineering. Such machines would probably look really stocky (thick limbs & torso) to be able to hold the machinery & have the same relative sturdiness as a smaller equivalent organism. Material science gives us structural strength & armor protection which far exceeds the strength of almost any organic creature - this kind of technology can be used to provide some of that structural resilience that a mech would require. I'm sure that a fully-functional mech would also have lots of dynamic features involved in its structure (kind of how muscles provide both power & shock-absorbing abilities, and bones have a certain amount of flexibility).

Also, the mechs might not need to be 10m high - they might be only as big as the tanks that they are competing with (are tanks 10m long?).

A steel robot would be permanently deformed, if it land on a pointy stone

At the scale you're talking about, most stones would be crushed into powder (at least no longer be so pointy) if a mech of those sizes fell on them. Also, the type of armor used would probably not be steel - it would more likely be at least as good as the stuff used on modern tanks. Plus, there would probably be some kind of shock-dispersal mechanism inside the skin. Besides, a well-designed mech isn't going to have any more problems with a dent or two than a human has with a scrape or a bruise - so what if it looks ugly.

The tanks could try to minimize the terrain advantage by using air support. 1 robot against 4 tanks and 2 predator-drones. If the robot tries to flee into the mountains, where the tanks could not follow, the drones could still reach it.

The problem with this reasoning, is that any form of external support that the tanks can use, the mechs can also use. In fact, if I were a mech commander, I would ask air support to send in a bunch of "crater-making" bombs so that my mechs could scramble through and around the craters, using them for cover and waiting until the tanks were struggling over them (or around them), then pop out & flip them over. Also, in such an

engagement, you wouldn't try and flip the tanks over first - you'd disable (bend) the main gun on each tank - then you could flip them over at leisure (when the only effective weapon that the tank has is to try and run over you).

Also, if the mechs can move fast enough in short spurts, I'd say that it would be easier for our air support to shoot the tanks than it would be for the enemy air support to shoot wildly-dodging, jumping & hiding humanoid figures.

The main disadvantages I see with mechs are: 1) cost & complexity, and 2) long-range travel. So far, I haven't seen a convincing argument that a properly-designed mech would have a big disadvantage on most battlefields over a tank - especially if the mech has a "big gun" like the tank which they can point and use with the ease of a handgun or rifle.

Re:Mechwarrior (Score:1)

by [Storklerk \(529418\)](#) on Friday March 05, @08:03AM ([#8474110](#))

I would imagine that, up to a certain point, these disadvantages could be dealt with through proper engineering.

The problem is that when size scales x the mass of an object scales at x^3 . The cut-area of arms/legs/etc that is critical for the robustness of a mechanism only scales at x^2 . This problem can't be solved with engineering.

Yes, a steel bone is better than a real bone, but also weights more. Maybe carbon-fiber would be a better material. But if you scale a human from 2m to 10m you increase the weight by 125 times. The forces you need to move increase by 625 [1]. The area in the limbs only increases by 25. So the material would need to be 25 times as strong.

Material science gives us structural strength & armor protection which far exceeds the strength of almost any organic creature

I think spidersilk is still the stonges thread anyone can make. ;) Nature is VERY resource-efficient.

Also, the mechs might not need to be 10m high - they might be only as big as the tanks that they are competing with (are tanks 10m long?).

A quick google showed a length of 9.83m for an M1A1 Abrahams. So 10m-tanks are OK.

And to tip it over your mech would need to lift nearly 70 tons. At my rough guess you probably would need a 10m mech to tip over a 10m tank.

cruching stones, dents in armor

OK, maybe not stones, but tank-barriers made from steel-grinders could impale the robot (or parts of it).

As for dents: Yes a flexible 'myomer'-muscle would probably be a solution for that particular problem. But (there are always buts. ;)) it would probably mean that you also need a relatively flexible outer armor. A fixed mounted armor of a tank would hold better against gunfire. The main weakness of all plate armors was always the joints. The problem with this reasoning, is that any form of external support that the tanks can use, the mechs can also use. My reasoning included a budget. That you could get air support and the 4 tanks for the price of one mech without air support. But combined tactics should not be overlooked.

Cratering all streets is an idea, but tank-barriers would probably work better. (Tank with shields like bulldozers could push dirt into the crater to pave the way.) But for preparing a battleground mines would be the easiest way. This would work against mech and against tanks. So I would leave this part out when comparing mechs and tanks.

Also, in such an engagement, you wouldn't try and flip the tanks over first - you'd disable (bend) the main gun on each tank - ...

It would be a bad tactic if all tanks would enter the crater-zone at the same time. One would go first and the others will cover it. When it has reached a "safe" position it can stop and cover the next tanks that one by one navigate the obstacle.

Bending the main gun will work well against normal tanks, but if you design anti-tank-mechs, you would have to face anti-mech-tanks or at least mech-proof-tanks. Trade some range of the main gun for a shorter thicker cannon that could not be bent so easily. Or attach huge blades on the side of the turret that could be swung under/over the main gun. So if a mech stands near your cannon to grab it, release the blades and hack its legs or head away.

Also, if the mechs can move fast enough in short spurts, I'd say that it would be easier for our air support to shoot the tanks than it would be for the enemy air support to shoot wildly-dodging, jumping & hiding humanoid figures.

Such actions would require much energy. That means heat, and that means a good IR-target.

OK, mechs might be difficult to hit precisely, but if you have bombs that leave craters that are difficult to drive through with tanks, the precision does not need to be too good.

The main disadvantages I see with mechs are: 1) cost & complexity, and 2) long-range travel.

2) also is true for tanks. Wheeled movement is much better than tracked over long

distance.

But if you count 1) you always have 1 mech against n tanks. and if you mech battles one tank the others have free time to shoot at it.

Over a long distance I would always vote for the tanks. They have the 'same' gun (same technology level on both sides implied), a platform that is more steady and the main factor: They have **more** guns. And they are more targets to kill.

A mech would be a 'hand-to-hand' weapon for me. Like the tactic with bending the main gun, or ripping of the tracks, crashing a bould into the side of the tank so that the turrect can't be turned anymore. Jumping behind a building to take cover. Especialy if the battle takes place in some terrain that is not easy travesable by tanks, the mech would be better.

A mech can't win a gun-fight. The technology that allows it to easily use its rifle could also be use at the tank to move its main gun. So I think they would 'draw' at the same time. But while the mech **may** succeed in shooting the tank. The other tanks will surly finish it.

Re:Mechwarrior (Score:2)

by [Lord Dweomer \(648696\)](#) on Thursday March 04, @02:10PM ([#8466446](#))

Yes, you're 100 little tanks are nice. But I'm sorry, no inherent design flaws or inefficiencies are going to cancel out the FEAR OF GOD it would put into the soldiers when they see a 40 story tall metal killing machine running at 100km/hr towards them.

Dual-use (Score:3, Interesting)

by [AllenChristopher \(679129\)](#) on Thursday March 04, @06:57PM ([#8470358](#))

Oh sure, when you're first fighting over a piece of territory, the value of Mechs vs. tanks is arguable... but which do you think the U.S. army would rather have had AFTER the battle?

A mech could, quite reasonably, lift parts of fallen buildings to rescue people, disassemble roadblocks, dig irrigation canals, replace pipes...

As with human bipedalism, the advantage would be adaptablity. Three fingered hands alone would be able to handle very large custom tools like shovels, as well as any debri that happened to be lying around.

Of course, you could just give a tank robot arms if you felt like it... but then you'd need a raised cockpit or shoulder assembly to be able to use those arms in a decent range of motion. Mech on treads. Whee.

The point is, with this adaptability and the increase in labor efficiency, you're not just replacing a tank. You're replacing a tank, a group of six marines doing manual labor, a steamshovel, a forklift... and what you get in return is a forklift/steamshovel/work team/tank with nightvision, radar, gps, etc. Much, much more reasonable than duplicating those features in each one of those tools...

This would primarily be useful in the first few days after the U.S. sweeps in somewhere because of course commodity bulldozers are very cheap, compared to a battle machine, but as the last war showed, people have more and more come to expect the U.S. to have the entire territory that's been damaged repaired within a week. When your genuine bulldozers have to follow five days behind the advance sweeping in somewhere, you can't even begin repairs until a week after securing the area.

Re:Mechwarrior (Score:2)

by [Galvatron \(115029\)](#) on Friday March 05, @01:21AM ([#8472969](#))

The facts that it took this long to produce a working prototype proves that it's a very tricky thing to do. In comparisin, wheeled vehicles are much easier to design and produce.

Hmm, couldn't someone 100 years ago have said the same thing about airplanes? The fact that something takes more advanced technology to initially prototype has nothing to do with how useful it will turn out to be.

Re:Mechwarrior (Score:2, Insightful)

by [Blastrogath \(579992\)](#) on Thursday March 04, @01:47PM ([#8466114](#))

An exoskeleton is one thing but 30+ ton mech's are impractical because:

1 Legs are more complex and therefore higher maintenance.

2 Walking tanks can't go hull down as easy, so they're better targets

3 Legs are slower than wheels or treads unless you have myomer muscles. (and we don't)

4 Legs mean you have a much higher centre of gravity. (recoil, impacts, etc.)

5 Legs can't support the same armor or equipment loads

6 Feet with that much weight on them would tend to punch through stuff from the impact of stepping, and therefore trip you up. (stuff like bridges, roads with sewers, or even just weak ground)

Re:Mechwarrior (Score:1, Interesting)

by Anonymous Coward on Thursday March 04, @02:03PM ([#8466342](#))

Actually a good comparison would be ExoSquad a short lived cartoon in the early 90s.

<http://www.exosquad.com/>

Re:Mechwarrior (Score:1)

by [Fiz Ocelot \(642698\)](#) on Thursday March 04, @02:34PM ([#8466782](#))

The mechwarrior concept for a giant heavily armed vehicle isn't what we need. What we Do need is a better way to infiltrate small areas, ie: urban combat. With an exoskeleton system we can heavily armor soldiers to be immune to all small arms fire, and small explosives.

Re:Mechwarrior (Score:2)

by [ScottForbes \(528679\)](#) on Thursday March 04, @08:34PM (#8471197)
(<http://www.ravenna.com/~forbes/>)

Someone above mentioned that this will enable soldiers to carry very heavy armour that can protect them from most small firearms.

Actually most of the progress to date has been made in the other direction: The body armor required to protect soldiers from small-arms fire has been getting progressively lighter. The [latest design](#) [defenselink.mil] uses Kevlar vests with ceramic plate inserts, fully protecting the soldier's torso while weighing in at a svelte 16.4 pounds. (A Vietnam-era flak jacket weighed 25 pounds, and didn't offer as much protection.)

What body armor doesn't do (currently) is to protect the arms and legs. It's one thing to wear 16 pounds around your torso; it's another to strap ten extra pounds on each limb. The trade-off between protection and mobility doesn't work in your favor here, especially when you introduce RPGs and explosives into the mix.

Medieval knights overcame the mobility problem by using a horse, but the modern equivalent (an armored Segway? a powered exosuit?) has yet to arrive. If and when it does, though, look for the suit of armor -- after only a 400-year absence -- to make its triumphant return to the battlefield.

A bit noisy? (Score:1)

by [jobbegea \(748685\)](#) on Thursday March 04, @11:08AM (#8463917)
(http://www.heitelan.nl/create.php?card_id=203)

The noise it makes now makes it quite useless to sneak around. What is the part that makes the noise?

Re:A bit noisy? (Score:4, Interesting)

by [Vengeance \(46019\)](#) on Thursday March 04, @11:12AM (#8463979)

That would be the engine and hydraulic pump I'd presume.

Re:A bit noisy? (Score:1)

by [bmf033069 \(149738\)](#) on Thursday March 04, @11:27AM (#8464221)

"Santa, is that you in your new exoskeleton?"

Too light . . . (Score:3, Interesting)

by [scottennis \(225462\)](#) on Thursday March 04, @11:12AM (#8463978)
(<http://www.soupyet.com/>)

The article starts out with a statement of how terrible it would be to haul around a 70 lb pack. That was considered a light load when I was in the Special Forces. Double that capacity and you'll have something the Army might be really interested in.

Re:Too light . . . (Score:1)

by [CFTM \(513264\)](#) on Thursday March 04, @01:21PM ([#8465760](#))

Yeah, I'm no special forces dude, but I can remember carrying an 80 lbs pack in 8th grade over about three miles ... ah the things I'd do to let the bastard guide bring my pillow. If your pack is correctly configured it's really not a big deal because new packs adequately distribute the weight throughout your body. I would imagine 140-180 are the packs used in war but I'm not expert.

the problem I see with many "cool" inventions (Score:2)

by [xutopia \(469129\)](#) on Thursday March 04, @11:20AM ([#8464109](#))

(<http://www.xutopia.com/>)

is that the people in charge of funding them are always looking for military use. It goes to show how the US military is spending way too much for what they get. I mean a missile costing 250,000\$USD?? cmon it's the size of a spray paint can!

Now I'm all for helping people with disabilities and all but if they build this with the military in mind they'll most likely not have an invention which is affordable to someone on disability.

Re:the problem I see with many "cool" inventions (Score:1)

by [TheCatWhisperer \(598825\)](#) <christien@iname.com> on Thursday March 04, @11:41AM ([#8464415](#))

(<http://www.thecatwhisperer.net/>)

Actually, the military is often responsible for funding many projects that at first, yes are only used by the military, but often start to be used by civilians for other reasons. Researchers often have an idea, then slant it so the military will be interested in it. Why? So they get funding, once they have a working product, then they can then slant it back to civilian uses. These are things you have to do in a country which spends large amounts of its public funds on military projects and not enough on civilian or projects for humanity.

Re:the problem I see with many "cool" inventions (Score:2)

by [xutopia \(469129\)](#) on Thursday March 04, @11:42AM ([#8464435](#))

(<http://www.xutopia.com/>)

Same goes to NASA who's purpose isn't to kill people that come in the way of "our national interests".

How to shift 7000lbs (Score:1)

by [AntonyBartlett \(644248\)](#) on Thursday March 04, @11:21AM ([#8464117](#))

Share the weight out, then have a chain of 99 robots following your footsteps.

Please remove your keys, wallet, and Bleex (Score:1)

by [shallow monkey \(155686\)](#) on Thursday March 04, @11:23AM ([#8464154](#))

This will definitely cause some problems at airport security checks:

Please remove your keys, your wallet, and your exoskeleton and step over to the man with the wand...

i wonder if? (Score:1)

by [assimilat \(695151\)](#) on Thursday March 04, @11:24AM ([#8464173](#))

I wonder if this is part of the same government funded super-soldier project? <http://www.wired.com/news/culture/0%2C1284%2C41216%2C00.html>

The Borg had real human legs (Score:1)

by [Manassas \(569545\)](#) on Thursday March 04, @11:25AM ([#8464191](#))

The Borg had real human legs

Re:The Borg had real human legs (Score:1)

by [Manassas \(569545\)](#) on Thursday March 04, @11:29AM ([#8464248](#))

oops..shoulda looked at the pic first! But did the Borg have this type of thing? I don't remember anything that made them stronger or faster.

Exo Suit Plus Laser Rifle Plus Adv. Body Armor = (Score:1)

by [Soccerboy \(751712\)](#) on Thursday March 04, @11:31AM ([#8464278](#))

One kick ass grunt. While looking at the article it occured to me that the power unit in the infantry laser rifle that is under developement may be the power source they are looking for. Combine those two systems with a suit of armor capable of taking 7.62 rounds and with a sealed environment and you have a very robust grunt able to operate in many environments and with high survivability. With the exoskeletons load capability solving the weight problem this would seem feasible in the near future. The laser rifle is due around 2015 if I am remembering correctly. Starship Troopers indeed.

NASA Use? (Score:2)

by [Niles Stonne \(105949\)](#) on Thursday March 04, @11:32AM ([#8464298](#))

(<http://slashdot.org/>)

Would this be something good to build into space suits for exploring places like MARS or the Moon?

Imagine - a single astronaut being able to carry hundreds of pounds of equipment without even noticing it! Want to move the lander? Have three astronauts pick it up and move it.

Re:NASA Use? (Score:2)

by [nacturation \(646836\)](#) on Friday March 05, @06:08AM ([#8473782](#))

(<http://www.bitmotion.com/>)

Would this be something good to build into space suits for exploring places like MARS or the Moon?

Imagine - a single astronaut being able to carry hundreds of pounds of equipment without even noticing it! Want to move the lander? Have three astronauts pick it up and move it.

On the Moon, a 200 pound astronaut could carry 1000 pounds of gear and still end up being the same weight as he would on Earth with no gear due to the fact that the Moon has 1/6th the effective weight. But you'd still have to deal with inertia of that much mass.

Lan Parties! (Score:1)

by [CFBMoo1 \(157453\)](#) on Thursday March 04, @ 11:36AM ([#8464340](#))
(<http://insanity.lost-angel.com/~sean>)

Thats less trips to the car and now I can use my 21" monitor!

Giggle Test (Score:2)

by [danharan \(714822\)](#) on Thursday March 04, @ 11:38AM ([#8464386](#))
(Last Journal: [Wednesday January 28, @ 12:03AM](#))

Here we have the strongest military in human history, with some of the most advanced gadgetry ever devised. **So why the hell are people still "hauling a 70-pound pack across miles of rugged terrain" ?**

This justification does not pass the giggle test.

Re:Giggle Test (Score:2)

by [MenTaLguY \(5483\)](#) on Thursday March 04, @ 01:25PM ([#8465804](#))
(<http://moonbase.rydia.net/mental>)

So why the hell are people still "hauling a 70-pound pack across miles of rugged terrain" ?

Food, water, shelter, and batteries.

Re:Giggle Test (Score:1)

by [danharan \(714822\)](#) on Thursday March 04, @ 01:33PM ([#8465918](#))
(Last Journal: [Wednesday January 28, @ 12:03AM](#))

Uhm, yeah, I figured that much. But why the hell are people still physically carrying it on them?

It's not like wheels are high-tech or anything... or that we couldn't figure out how to get transport units that can follow you in rugged terrain...

Re:Giggle Test (Score:2)

by [MenTaLguY \(5483\)](#) on Thursday March 04, @01:43PM ([#8466058](#))

(<http://moonbase.rydia.net/mental>)

Because infantry often has to go where wheels can't.

Otherwise there wouldn't be much point in having infantry.

(also, it's cheaper)

Balance issues... (Score:3, Insightful)

by [teridon \(139550\)](#) on Thursday March 04, @11:41AM ([#8464423](#))

(<http://slashdot.org/>)

Watch the video, and note the intense concentration on that guy's face! Walking around in those legs is obviously not easy. At some points it looks like he is losing his balance, or at least *he feels like* he's losing his balance, because he puts his arms out.

They obviously still have a lot of work to do...

Re:Balance issues... (Score:1)

by [rk \(6314\)](#) on Thursday March 04, @04:02PM ([#8468105](#))

(Last Journal: [Monday January 19, @02:57AM](#))

Or watch an 11 month old baby walk in a similar fashion. They have to concentrate on it because it's new to them.

Give this guy more time to practice and the neurons will learn how to deal with it. The interface is there and is good, it just needs human practice.

BLEEX + Football = Major Yardage? (Score:1)

by [Crash McBang \(551190\)](#) on Thursday March 04, @11:44AM ([#8464449](#))

So, how far could you kick a football with this rig?

Re:BLEEX + Football = Major Yardage? (Score:1)

by [DangerSteel \(749051\)](#) on Thursday March 04, @11:54AM ([#8464588](#))

Perhaps you jest but that may be a serious issue one day. Remember back 2-3 years ago a golfer wanted to play in a PGA tournament but could not walk the course as per PGA rules. He sued the PGA and a judge ruled they had to let him use a cart to get around and play. Fast forward to little Johnny who could not walk but gets a set of these and now wants to play college ball. What college would not want a kicker who can kick a field goal 99 yards. So after the lawyers get involved the next year we have a field full of exoskeleton-assisted people playing sports.

A Complete Suit (Score:1)

by [Dekar \(754945\)](#) on Thursday March 04, @11:49AM ([#8464514](#))

The extra carrying capacity is interesting for more than actually carrying stuff around.

Take those 50kg, and split them between an heavy armor, a big mean gun, and other enhancements like a weapon-stabilizer. This is the real deal the DARPA is interested into. Nothing has really changed much when it comes down to simple soldiers battle, until this. Who need tanks, jeeps and the like, when every man packs as much firepower and more mobility?

The majority of the funds invested go for technologies useful for civilians and day-to-day life, though. Better energy sources, a lot of medical applications, etc. This is really something they could invest in a lot more, and even if it's for military purposes first, people would not complain.

Re:A Complete Suit (Score:1)

by [Soccerboy \(751712\)](#) on Thursday March 04, @ 11:52AM ([#8464556](#))

That is what I was thinking. See my comment 6 above.

Cyborgs for Small Loads (Score:2)

by [handy_vandal \(606174\)](#) on Thursday March 04, @ 12:05PM ([#8464755](#))

(<http://www.karljones.com/> | Last Journal: [Thursday November 13, @02:33PM](#))

This development bring to the forefront the ability to not only carry large loads in wartime efforts ...

That's all good and fine, there's always plenty of budget for problems of large loads in wartime.

But what about the other demands of wartime -- such as carrying small loads with extreme caution?

Deciding between carrying more dangerous weapons, or carrying fewer but more safely ... that's where the cost-benefit analysis gets tricky, in an age of over-the-counter anthrax and pocket nukes.

I think this exoskeleton thing should be adapted for civilian uses -- such as egg-races, where the cyborgs have to race across broken terrain, carrying an egg balanced on a spoon.

-kgj

backpack (Score:1)

by [stagl \(569675\)](#) on Thursday March 04, @ 12:05PM ([#8464757](#))

(<http://www.staglicious.com/>)

what they fail to tell you is that the backpack in the photo is actually the battery powering those robotic legs!

i am talking out of my ass, but it wouldn't suprise me with all of our power issues these days...

RE: The Clan Version (Score:1)

by [chooks \(71012\)](#) on Thursday March 04, @ 12:07PM ([#8464787](#))

Forget this inner sphere stuff. Wait for the Clan version -- it will weigh less and hold more.

(1) | [2](#)

We should have a Vollyballocracy. We elect a six-pack of presidents. Each one serves until they screw up, at which point they rotate. -- Dennis Miller

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