The Internet can control your body

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 The Internet really can do anything. Like telekinesis, for instance. It’s got that covered, too.

A new open API called BodyRemote [1] uses connected devices like computers and even iPhones to control someone’s body from across the great space of the Internet anywhere in the world. But to do good — promise!

A bunch of graduate students in New York University’s Interactive Telecommunications Program (ITP) have developed [2] the platform they’re calling Open Limbs, which right now only applies to arms. Legs are too heavy; each constitutes about 10 percent of total body weight compared to the 6 percent of each arm. (Our chests, abdomen, spine, and pelvic bones comprise 60 percent while our head is about 8 or 9.) The range of motion is smaller, and electricity doesn’t go deep enough in the muscle.

Open Limbs works by attaching electrodes to someone’s arm and letting computers do the work of stimulating the nerves. These electric impulses make the muscles contract. The team also accomplished this by fitting the Wilmington Robotic Exoskeleton (WREX), an orthopedic device, with sensors. When someone moved the model’s arm, the person hooked up to the electrodes would experience the same phenomenon.

Open Limbs Demonstration [3] from Carl Jamilkowski [4] on Vimeo [5].

 One of BodyRemote's creators, Will Canine, even demonstrated how configuring the electrodes to an infrared finger-tracking sensor could trigger these muscle contractions just by waving a hand in front of the device to activate it.

Canine and fellow creators Carl Jamilkowski and Andy Sigler hacked an off-the-shelf muscle-stimulator unit and then connected the API to an Arduino [6], an easy-to-use electronics prototyping platform that can monitor the unit's output. That way any interface — keyboards, joysticks, and even Leap Motion sensors — can control it.

This basic kind of electrical stimulation assists in physical therapy by strengthening weak muscles. Even the WREX aids children who suffer from neuromuscular disease, like muscular dystrophy, spinal muscular atrophy, and arthrogryposis, which causes stiff joints and abnormal muscle development.

openLimbs [7] from Andrew Sigler [8] on Vimeo [5].

That's why — while BodyRemote might sound scary on paper — the creators are hoping the technology can help people who struggle to control their own bodies due to paralysis or other medical conditions or events, like strokes, which can have long-lasting and permanent effects. It might improve the recovery experience for many patients.

I have to wonder, too, whether this could have beneficial applications for astronauts, who hemorrhage muscle mass in space — up to 20 percent during a space flight that lasts five to 11 days, according to [9] the National Aeronautics and Space Administration. (Bone density suffers, as well.) While astronauts perform cardiovascular exercises and strength training every day to curb the effects of zero gravity, they don't necessarily have access to weight machines on shuttles like they do at the International Space Station, so it's harder to sustain and prevent muscle

mass.

BodyRemote is also intriguing people who don’t have medical advancements in mind, like avant-garde choreographers. Now the ITP group just needs to refine the system so that Open Limbs can support, well, every limb and body part that people need help moving. Until then, this cool version of Internet Simon Says has its limitations. But I’m looking forward to seeing its potential.

Links:
[1] http://www.openlimbs.com/bodyremote/
[2] http://www.popsci.com/gadgets/article/2013-05/control-someone-elses-arm-over-internet-api
[3] http://vimeo.com/65162857
[4] http://vimeo.com/cjam
[5] http://vimeo.com
[6] http://www.arduino.cc/
[7] http://vimeo.com/66107820
[8] http://vimeo.com/andysigler
[9] http://www.menshealth.com/fitness/muscle-mass