

Aerobic exercise for the wheelchair-bound

September 10 2008



Students from the University of Texas partnered with alumnus to create an arcade experience for the wheelchair bound. Credit: Stephanie Peco

University of Texas at Austin alumnus, Chris Stanford (MSEE '91), and Electrical & Computer Engineering undergraduates are working on making exercise fun for wheelchair users. For the last year, Stanford has been partnering with engineering seniors to test his idea for a virtual reality treadmill for the disabled.

"Not many people realize," says Stanford who has been confined to a wheelchair since 1988, "the special health risks faced by wheelchair users. Everything is more difficult, including eating right and getting enough exercise. Because of this, the incidence of obesity, diabetes, and cardiovascular disease is several times the rate of the general

population."

Stanford's solution, called TrekEase, approximates an arcade driving game. Users back a manual wheelchair into a frame, engage the flywheel for resistance, and start the driving software.

"When Chris approached me last year about using [TrekEase] as one of our senior design projects," says UT-ECE professor Jon Valvano "I was enthusiastic. It's an interesting engineering challenge. He came in with a mechanical system that had already been vetted for safety. The students added software and sensors that make the experience interactive."

Users can control speed and direction. A new group of students is continuing the project this semester. They plan to enhance the existing design so the system detects tilt making flight simulation possible and to work on the packaging so it will be affordable and easily reproducible.

"There is no way I could've done this by myself. I don't have the skill set," says Stanford." The students are amazing. They step up to every challenge."

Source: University of Texas at Austin

Citation: Aerobic exercise for the wheelchair-bound (2008, September 10) retrieved 13 March 2024 from <https://phys.org/news/2008-09-aerobic-wheelchair-bound.html>

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