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A MODULE TO MAKE POWER WHEELCHAIRS AUTONOMOUS

By Cyberworks

Project URL: http://cyberworksrobotics.com/wheelchair/

The problem

Since Elizabeth Jameson was diagnosed with multiple sclerosis in the 1990s, the former civil rights lawyer and now quadriplegic artist has not been able to use a wheelchair independently. She has no feeling in her limbs to control a power wheelchair joystick.

According to the Centers for Disease Control and Prevention, 18.2 million people in the US find it "difficult or cannot walk a quarter of a mile," and children and the elderly are often denied access to powered wheelchairs due to safety regulations. While self-driving cars and delivery drones could help, getting around the house or from a building into a vehicle would remain an issue.

The response

Jameson is a strong advocate for using autonomous tech to help people with disabilities move around more easily, and is excited about research at the University of Toronto in collaboration with Cyberworks, a Canadian robotics company.

Last summer, Cyberworks developed a motion-sensor module that can be attached to a power wheelchair enabling it to navigate through a building autonomously, without even knowing its layout, seamlessly moving through doorways and around furniture.

The wheelchair can be summoned by the user and is controlled by voice, eye-gaze or a touch screen. A mapping functionality allows a carer or user to

program set routes and destinations like 'the kitchen', and the unit is intelligent enough to distinguish between fixed furniture and moving obstacles such as a pet.

The potential

Cyberworks says the module will retail at less than $1,000 and enter the market in the next four years. It could help Jameson fulfil her dream of independently getting a coffee around the corner, and bring autonomy to millions of people with restricted mobility across the globe.

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