

[PEDALING]

Making Cycling Accessible for All

BY LISA EVANS

Will McDonald is a 26-year-old industrial engineer who wants everyone to experience the joy of cycling. His adaptive tandem cycle was the result of a fourth-year project to complete his Bachelor of Arts in industrial design at Carleton University and has already been the recipient of design awards, including the 2012 IDEa Ontario Universities Innovative Designs for Accessibility Competition.

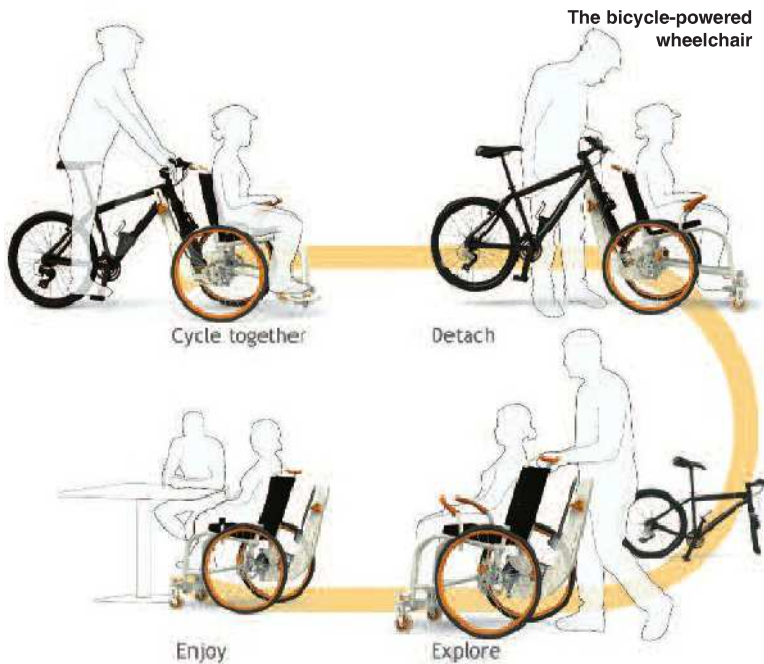
His motivation for the bicycle-powered wheelchair came from Larry McCloskey, the director of the Paul Menton Centre for Students with Disabilities, who approached the industrial-design department to make a tandem bicycle that would allow him to cycle with his wheelchair-bound brother, Mike. Mike McCloskey is a former Olympic cyclist who was struck with multiple sclerosis. "He was too disabled to use a hand-cycle, but Larry wanted to see if there was an opportunity for him to participate [in cycling] even if it was more passive," says McDonald.

Inspired by stroller-bike concepts, McDonald got to work, meeting



Industrial engineer Will McDonald with his prototype of the bicycle-powered wheelchair

Gregory Abraszko



with the McCloskey brothers to understand what they would like to see in the bike. While the stroller-bikes McDonald researched required the user to purchase both the bike and the stroller, he wanted to design a wheelchair that could fit onto any bike the user already had.

He designed a system that attaches to the back of a wheelchair and allows the bicycle behind to provide all the power. The front wheel of the bicycle is removed and the fork is attached to the rear of the wheelchair. The gears and frame of the bike remain intact, allowing the cyclist to power and steer the wheelchair using their own handlebars.

Handlebars on the wheelchair provide a sense of safety and allow users to feel that they're more than just a passive participant. "They're not contributing to any steering or powering of the vehicle, but they feel more involved. It's not just a normal wheelchair experience that they have every day," says McDonald.

When the McCloskey brothers tested the prototype on campus they loved it, but discovered a few glitches. "They couldn't go too fast or go over big bumps," says McDonald. Since graduating, McDonald has landed a job at Midland Power, a company that makes e-bikes. In his spare time, he's working on a second prototype to address the design issues raised by the McCloskey brothers and is seeking an investor who can help bring the adaptive tandem cycle to a manufacturer and eventually to market with the ultimate goal of allowing all those who use assisted-mobility devices to experience the joy of cycling.

► IN BRIEF

Continued from page 16 to the Order of Canada. The new appointees included philanthropist, Peter Gilgan, who is very involved in cycling in Canada.

Pedal readers will associate Gilgan's name with the new 250-metre indoor velodrome under construction for the 2015 Toronto Pan/Parapan Am Games in Milton, Ont. In fact, the facility will be named the Mattamy Velodrome.

Gilgan, the president and CEO of Mattamy Homes, has offered to pay up to \$9 million of the projected \$56-million price tag for the 154,000-square-foot facility expected to open in August 2014. In March 2012, Gilgan also donated \$40 million to Toronto's Hospital for Sick Children. Gilgan is a member of Les Domestiques, an Ontario riding club that played a very important background role in

funding the velodrome. "There is a lot of money committed so far and Peter is the largest contributor," Tim Hockey, the club's founder and president, previously told *Pedal*. "Others from Les Domestiques are also helping financially. Gilgan is a big philanthropist and he is very much involved with Milton. Because he has a lot of business there, this is just one of his ways of giving back to the community."

CCES Tests Cycling More Than Other Sports

The Canadian Centre for Ethics in Sport (CCES) performed more anti-doping tests on cyclists than any other athletes during the period of July through September 2013, including 53 in-competition urine tests and 13 in-competition blood tests as well as 24 out-of-competition urine tests and four out-of-

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