

[News](#)

Engineering grads create app to make travel easier for wheelchair users

written by Kanwal Rafiq | February 4, 2016

The engineering grads behind the intelliChair is taking their device to the next level with an upgrade to a smartphone app.

Two years ago, Danny Porthiyas, Raymon Atienza and Stephanie Iossifidis created the intelliChair, the prototype of a device that would allow wheelchair users to customize their control system. With it, users can plug in their choice of controller (joystick, mouthguard or sip and puff) via a USB port on the arm of a wheelchair. They then use a touch screen on the same arm to choose the setting.

SOCIAL NETWORKS

[f](#) FACEBOOK [T](#)

[@](#) INSTAGRAM [Y](#)

[✉](#) EMAIL [SI](#)

RECENT POSTS

Bill Morr
environr
Ryerson

SPONSORED

Are you a Millennial looking to meet people your age in a relaxed environment?

Try Intro to Social Dancing with a Scottish flair!

Dancing is about fun and exercise with no partner needed.

Everyone is welcome! First week free. Rest \$10/class (\$8 for students)

**St Thomas's Anglican Church,
383 Huron Street
(South of Bloor near St George station)**

Thursdays at 7:30 from Oct 24 to Dec. 12.

CLICK THIS AD FOR DETAILS

The



Left to right: Raymon Atienza, Danny Porthiyas and Stephanie Iossifidis (Courtesy Ryerson University Magazine).

smartphone app will replace the screen on top of the wheelchair's arm. This will allow users to wirelessly connect their smartphones to the wheelchair via Bluetooth and customize controller settings. The app will also auto-recognize which controller is plugged into the wheelchair.

The device was specifically created for people with multiple sclerosis (MS) and amyotrophic lateral sclerosis (ALS). Both are neurodegenerative diseases that affect the central nervous system of a person.

Porthiyas was working at a pastry shop when he would see customers struggling to use the traditional joystick on their power wheelchairs. "Some people would have to put a tennis ball on it," he said.

As an engineering student, he knew he could help. He wanted to create something that would make daily travel easier for people with disabilities, even if it were just to the pastry shop.

The IntelliChair prototype explained:

January 13

**Labour r
investig**

January 13

**20 ways
Toronto**

December

**RSU vice
operatic**

December

**Opinion:
in sports
still stru**

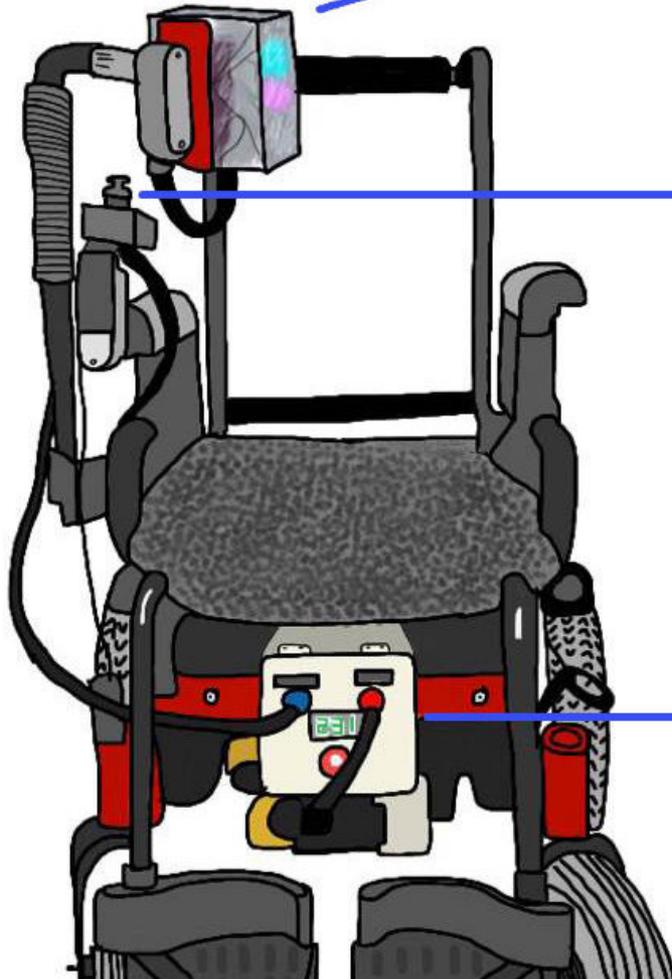
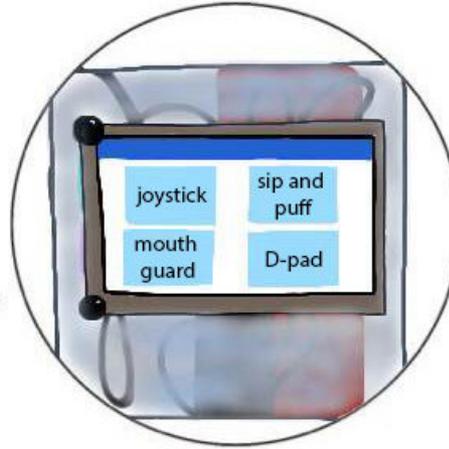
December

**RFA pres
Ryerson
evaluati
professc**

December

The IntelliChair prototype explained:

The IntelliChair's prototype screen mounting. The LCD screen faces the user and displays an easy-to-use interface with various ways to control the chair.



The electric wheelchair's traditional joystick controller.

This box houses the motor controller for the IntelliChair.

Two RSU resignal impact

December

Move to president immediately

December

EDITOR'S PICK

1

2

Labour ministry investigates RSU

January 13, 2020

'The Top decker

Oct

3

4



A diagram of the intelliChair prototype (Lillian Greenblatt/Ryersonian Staff).

Xavier Fernando, the group’s supervisor and chair of Ryerson’s communications lab, says a lot of research needs to be done before the intelliChair is released into the market. According to him, the next big step would be to receive feedback from different power wheelchair users. “It is more about testing the product in all different scenarios.”

No power wheelchair allows users to swap controllers using USB. Another big difference between what is currently offered in the markets and the intelliChair is the “ability to customize it where you are rather than travelling down to the clinic,” according to Iossifidis. The intelliChair can be customized in 10 minutes regardless of location.

For example, individuals in the later stages of MS or ALS have limited hand control. These people might use the device differently.



Julie Gibson started to use a power wheelchair in 2003 (Courtesy Julie Gibson).

Julie Gibson has had MS for over 50 years and started using a power wheelchair in 2003. Gibson said that her diminishing hand mobility has restricted her from operating the chair and a smartphone.

“I can’t type and I can’t turn it off and on.” She is now confined to her home.

She said that her inability to use a smartphone might be a barrier for making use of the intelliChair, but still believes the invention is a step in the right direction.

Manufacturing costs and lengthy approval processes for new products are two of the major reasons why technology for people with

Bill Morneau talks environment with Ryerson students

January 13, 2020



Fou
fac
Dec



The Ryersonian Weekly Wrap: Episode 27

February 6, 2015



RSI
ope
Dec



Why Ryerson is better than the University of Toronto

October 6, 2014



RA
ont
Sep



Hong Kong Student Association helps Cantonese students connect at Ryerson

Ne
get
cla:
pro

disabilities is so behind.

October 22, 2019

Feb

Mauricio Meza, co-founder of an assistive technology company called Komodo OpenLab, has nearly a decade of experience as an assistive technology consultant. He has created products that allow people to use smartphones and tablets despite diminishing hand control.

Meza said the main challenge for creating new wheelchair devices are “establishing partnerships with the manufacturers of the wheelchairs.” Many times there is little incentive for companies to innovate because they already have a product that’s been approved.

As for when the trio’s product will be released, Iossifidis said it would be a matter of taking it back to the whiteboard and laying out a business plan.

There are also many developments that still need to be made with the device itself. “If someone’s going to be using this every day, it has to be nearly perfect,” said Porthiyas.

0 comment



previous post

LIVE: #JIANGHOMESHI'S SEXUAL ASSAULT TRIAL, DAY 3

next post

RYERSONIANTV: FEBRUARY 4, 2016 – GHOMESHI TRIAL, MUZZO PLEADS GUILTY AND RYERSON'S INTERIOR DESIGN BUILDING

YOU MAY ALSO LIKE

SPONSORED

EVERY GAME EVERY TOUCH AND 57 HD SCREENS. SHARK sports LOCATED AT 10 DUNDAS www.sharkclub.