



Portable Ramp

ENGR 1100 - Engineering Design I

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+2.5 Million

Canadians aged 15 years and over have a mobility disability.
That's almost 10% of Canada's total population! [1]



Wheelchair Inaccessible Cities.

There are plenty of buildings and vehicles that don't have any ramp. That's the problem we solve by **designing** and constructing a **portable, lightweight** and **easy to use** ramp.





Introducing our Portable Ramp.

We came up with a straightforward design which lets the user unfold the ramp, making it portable and easy to use.

Some of the Features



- **Foldable** allowing the ramp to be stored easily
- Handlebars incorporated for **comfortably** carrying
- Can go to a wide **range of heights** depending on user

Our solution is a robust lightweight ramp that is portable and foldable, while also being cheap and accessible.



More Than Just a Ramp

Environment friendly

We built our design out of **cardboard**, which can be **recycled** very easily and can be used for other purposes. We also used a hot glue gun which is also **safer for the environment** compared to alternatives.

Safe for the users

We added **structural supports** all around the base with many strips of cardboard compiled together. We also **rounded** off the **corners** to ensure we only have **smooth edges**.

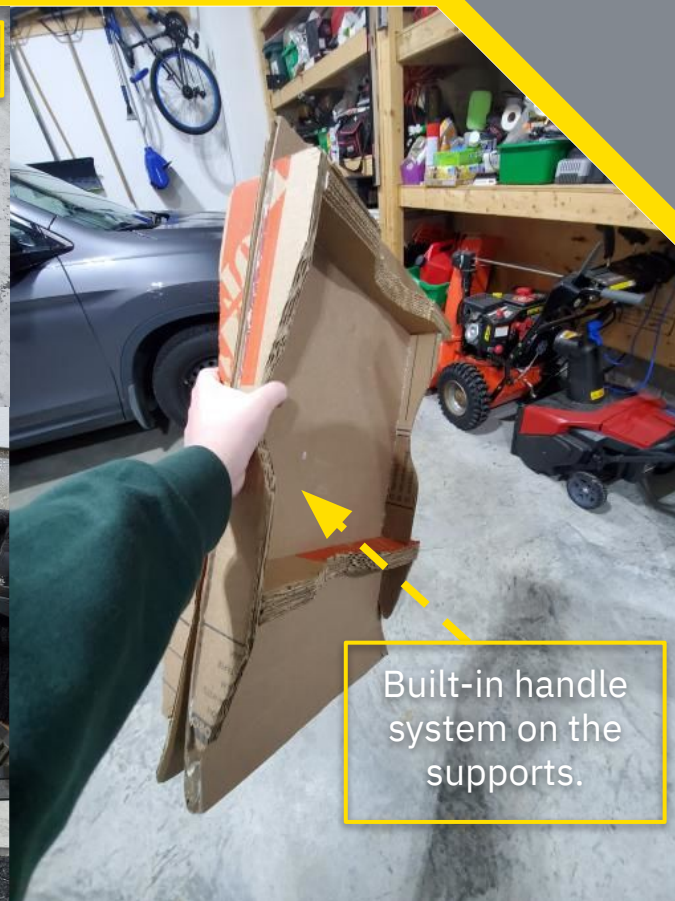
Easily Foldable



Many supports for maximum strength



Built-in handle system on the supports.





So Why is our Solution the Best?

Lightweight

Weighing just under **1kg**, everyone can carry it with just one hand.

Foldable

Design that can fit into small spaces for **easy storage**. Making this design portable allowing you to take it **anywhere**.

Robust

Reinforced contact points for added support. It **can take** easily even more than **20kg**.

Environment friendly

Made out of cardboard to make it **highly recyclable**. Glued with a hot glue gun which is much safer for the environment.

Safe for the user

Tested in multiple situations to ensure that it is **safe** to use for the average user on **different heights**.

LESS THAN \$15!!!

Up to **20x cheaper** than other aluminum alternatives. We offer the best **price-quality** relationship.

A background image showing three people (two women and one man) sitting around a wooden table, smiling and looking at laptops. The image is darkened and framed by a yellow border. A yellow speech bubble icon is in the top right corner.

Thanks!

If you have any questions don't hesitate to contact us.

- Luka Aitken
- Toma Aitken
- Emiliano Garcia



References

1. S. Morris, G. Fawcett, L. Brisebois, and J. Hughes, “A demographic, employment and income profile of Canadians with disabilities aged 15 years and over, 2017.,” Canadian Survey on Disability Reports, 28-Nov-2018. [Online]. Available: <https://www150.statcan.gc.ca/n1/pub/89-654-x/89-654-x2018002-eng.htm>. [Accessed: 17-Oct-2020].
2. S. Kennedy, The Bullitt Center features the “irresistible stairway,” glass-enclosed stairs with panoramic views to entice people to climb. The New York Times, 2013.
3. Azamara, 2020. https://www.azamara.com/sites/default/files/heros/mobility-disabilities_4.jpg. [image].
4. Mobilitywithlove, 2019.
5. T. Kitchen, 2020.
6. A. Leary, 2019.