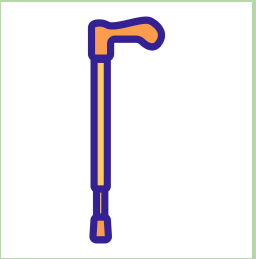
The Lifter 3000

Problem

People with lower-body weakness due to disabilities need a safe, simple, and portable way to lift their leg in and out of a car without relying completely on another person.

This project is important to me because my dad has trouble getting in and out of the car due to a disability affecting his limbs. People with mobility challenges, such as Multiple Sclerosis, often struggle to lift their legs independently, which can make getting in and out of a vehicle difficult and frustrating. I want to create an invention that makes this process easier and safer for him. Although my dad inspired this idea, I believe it could also help many others with similar mobility challenges.

Why Solve This Problem?



Supplies

[1] 1 yard of nylon

[2] 1 strap

[3] 1 foot of velcro

[4] 2 small springs

[5] talent

[6] perseverance

How I Made It

I cut the nylon fabric to fit the circumference of my dad's leg. I hot glued velcro at the edges and a strap at the top, which he can use to lift his leg.

Prototype

This is my Dad, trying the Lifter 3000. It helps give him a place to easily grip which allow him to lift his leg out of the car.

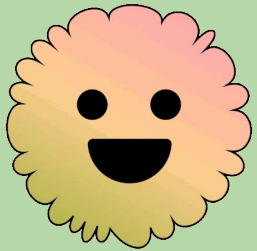
Improvements

- To be stronger, I could use a material like seat belt strapping, called webbing. It would be the type with the sticky material on the one side to prevent slipping down the leg.
- There also could be an option for a belt attachment for the upper strap to click into to prevent slipping or falling off.
- I could also use buckles and adjustable straps to be able to fit many sizes of legs instead of Velcro which can come undone and cause injury.

Iteration: Version 2.0

- For my version 2.0, I would add additional straps around the ankle and another under the foot.
- I would also add springs on the sides at the knee to help lift and bend the leg.
- Lastly I would add removable/movable handles that you can click onto the buckle where you need them. Either on the upper leg, above your foot, at the ankle, or even all of them.

Yay Engineering!

Thank you

to my parents for helping me get the materials
I needed for this engineering project.