



ZOOMERFRAME

The Team



Zimmer Frame

- Black and more advanced casters.
- Springs for further development.
- What could be changed?

New Solution: Why?

- Make the Zimmer Frame more visible.
- Reduce user's fatigue and therefore increase mobility.
- Reduce social impacts.
- "I can go for days without hearing from my family"

The Problem

Lack of Mobility

- 1 in 3 over 65 have difficulty.
- Walking, standing, steps etc.
- Researched current mobility assistive devices.

Genny Harris

- Initially focused and researched
- Really well developed

How it works

The Zoomerframe

Why it works:

- Best in the class (lowest in the field)
- System functionality complete
- The thing is stable and reliable to touch
- No battery required
- Reduced user fatigue

Why is it better?

- Retrofit system.
- Parts can be easily sourced.
- Low cost.
- Increased mobility





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Zimmer Frame

- Black and more colorful casters.
- Sides for further development.
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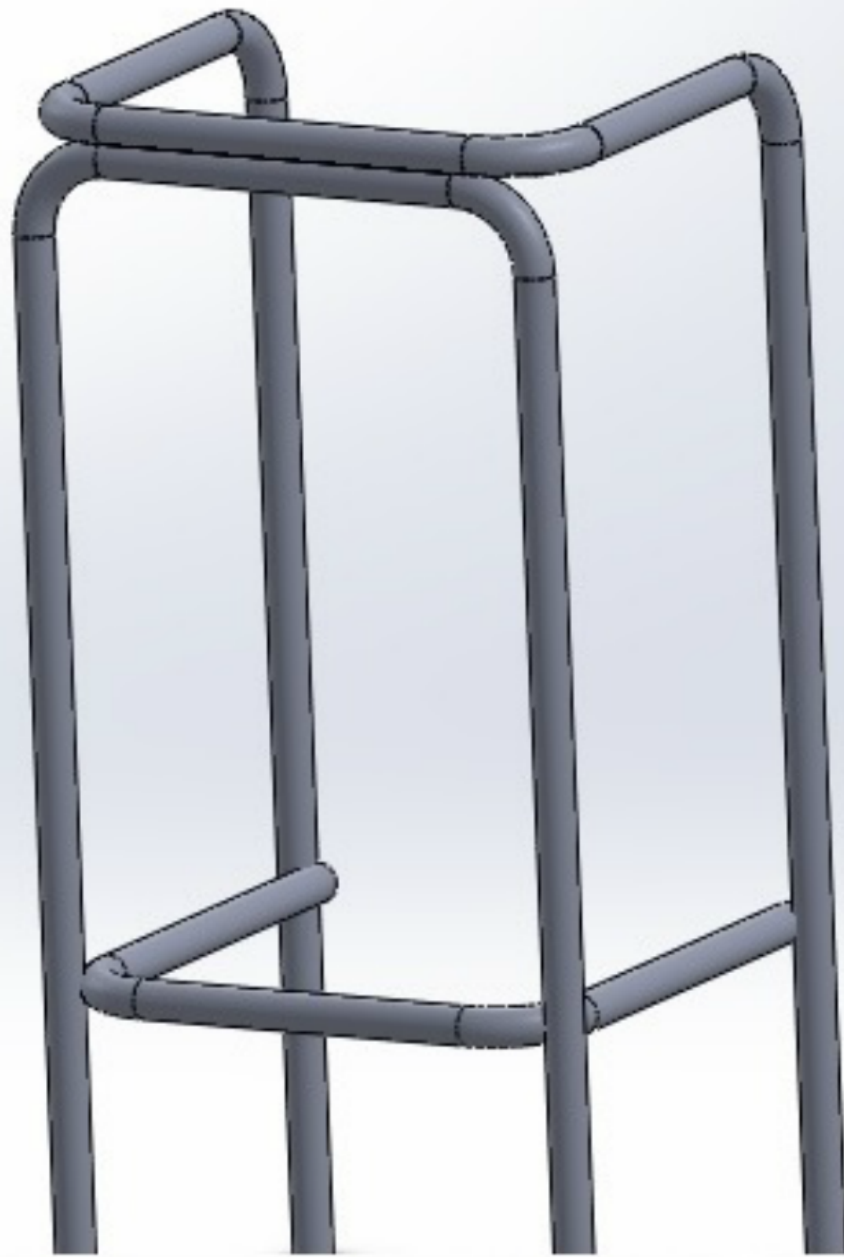
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Cian O'Donoghue
Manufacturing



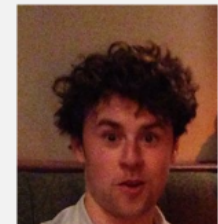
Lyes Djennadi
Manufacturing



Alexander Rumball
3D Design



John Lane
Arduino Control



Stefan Walshe
Programming



Josh Tanner
Materials



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Gantry Hoists

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Mission Statement

"We need to design and create a solution that will allow the safe moving of patients who have reduced mobility. It must not impose too much work on both the operator and the patient. The design could either be retro-fitted or completely new."

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“We need to design and create a solution that will allow the safe moving of patients who have reduced mobility. It must not impose too much work on both the operator and the patient. The design could either be retro-fitted or completely new.”

Zimmer Frames

- Basic and more advanced options.
- Scope for further development.
- What could be changed?



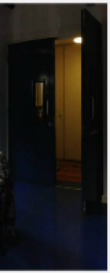
New Solution, Why?

- Make the Zimmer Frame more mobile.
- Reduce user's fatigue and therefore increase mobility
- Reduce social impacts.
 - "I can go for days without hearing from my family"

Refined Mission Statement

"We want to design a retro fit or new Zimmer frame to assist/ ease in the safe movement of a person of the aging population."

Control



Refined Mission Statement

“We want to design a retro fit or new Zimmer frame to assist/ ease in the safe movement of a person of the aging population.”

The Zoomerframe



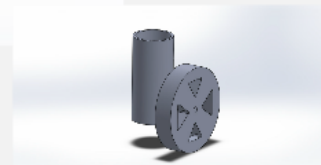
Arduino UNO



Ultrasonics



Power Source



Motorized wheels

How it works



Ultrasonic sensor sends out sound waves and waits for an echo



Arduino receives signal and converts time to distance



The arduino tells the H-Bridge what speed to turn the motors

Wheels start turning



Better Mobility!



Emergency Stop!



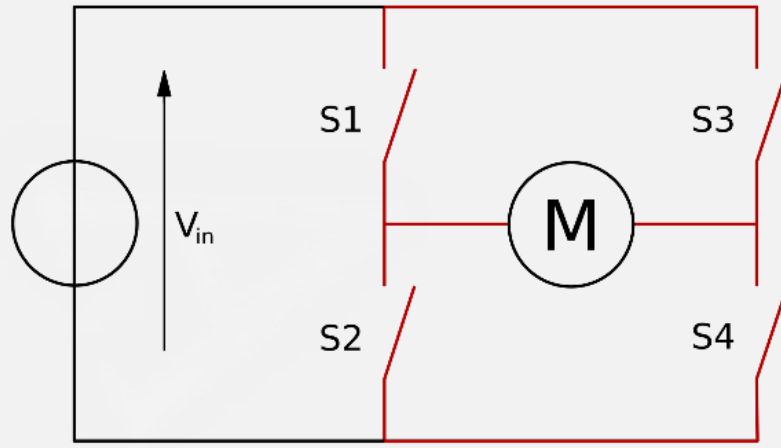
Push to make switch mounted in the handles.



Ultrasonic sensor sends out sound waves and waits for an echo



Ardunino receives
signal and converts
time to distance



The arduino tells the H-Bridge what speed to turn the motors

Wheels start turning



Better Mobility!



Emergency Stop!



Push to make switch mounted
in the handles.

Why it works:

- Tests in the lab showed the full system functioning properly.
- The frame is stable and unlikely to topple.
- No lifting required.
- Reduced user fatigue.



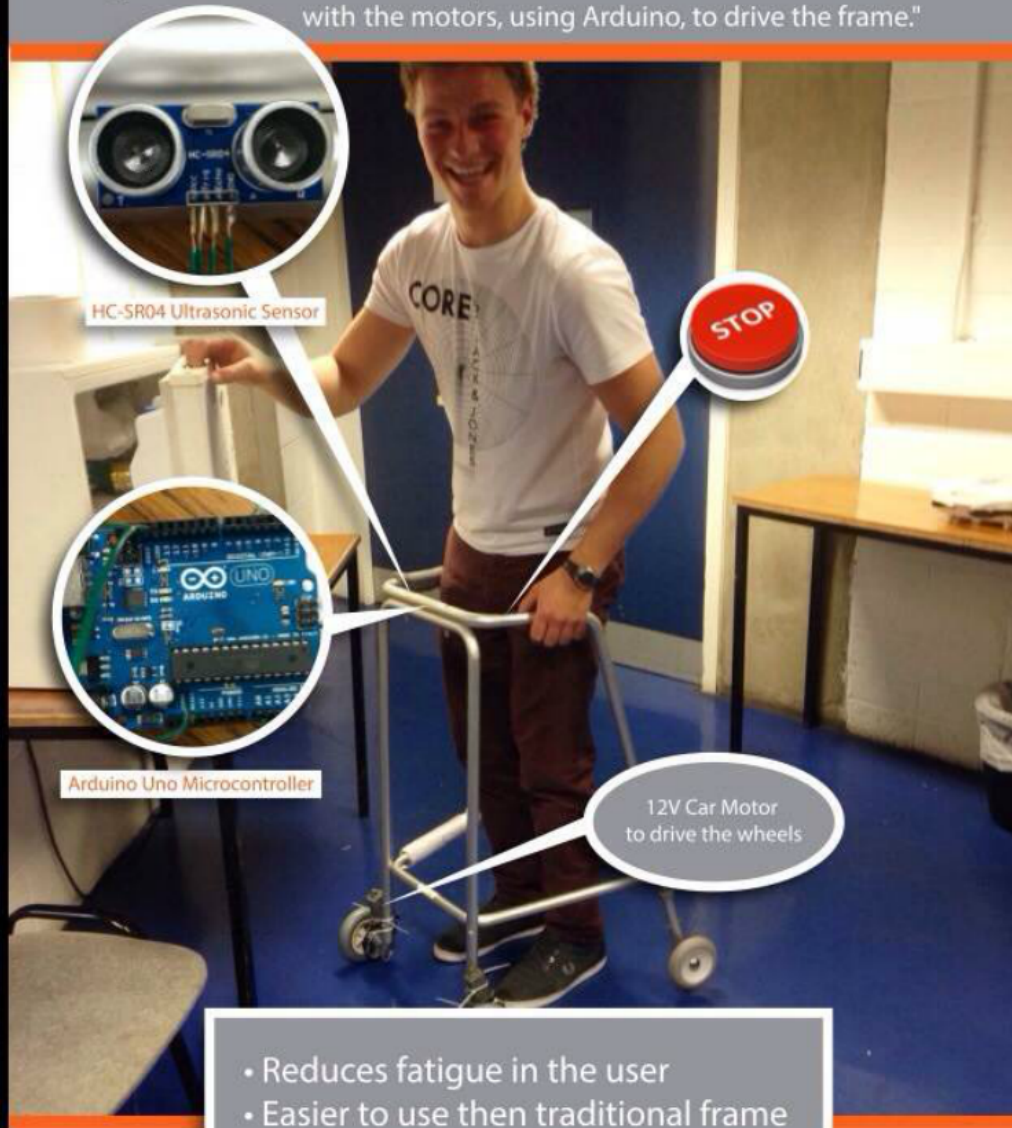
Why is it better?!

- Retrofit system.
- Parts can be easily sourced.
- Low cost.
- Increased mobility



—ZOOMERFRAME—

"Our improved design eliminates the awkward clumsiness of zimmer frames, using ultrasonic sensors to detect presence in the frame and communicate with the motors, using Arduino, to drive the frame."



By Group 5: Stefan Walshe, Alexander Rumble, Cian O'Donoghue, Joshua Tanner, John Lane, Lyes Djennadi



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How it works

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Why it works:

- Fits in the car, allowed to be left open, functions properly.
- The thing is stable and reliable to touch.
- No battery required.
- Reduced user fatigue.

Why is it better?

- Retrofit system.
- Parts can be easily sourced.
- Low cost.
- Increased mobility

