



Standing Aid

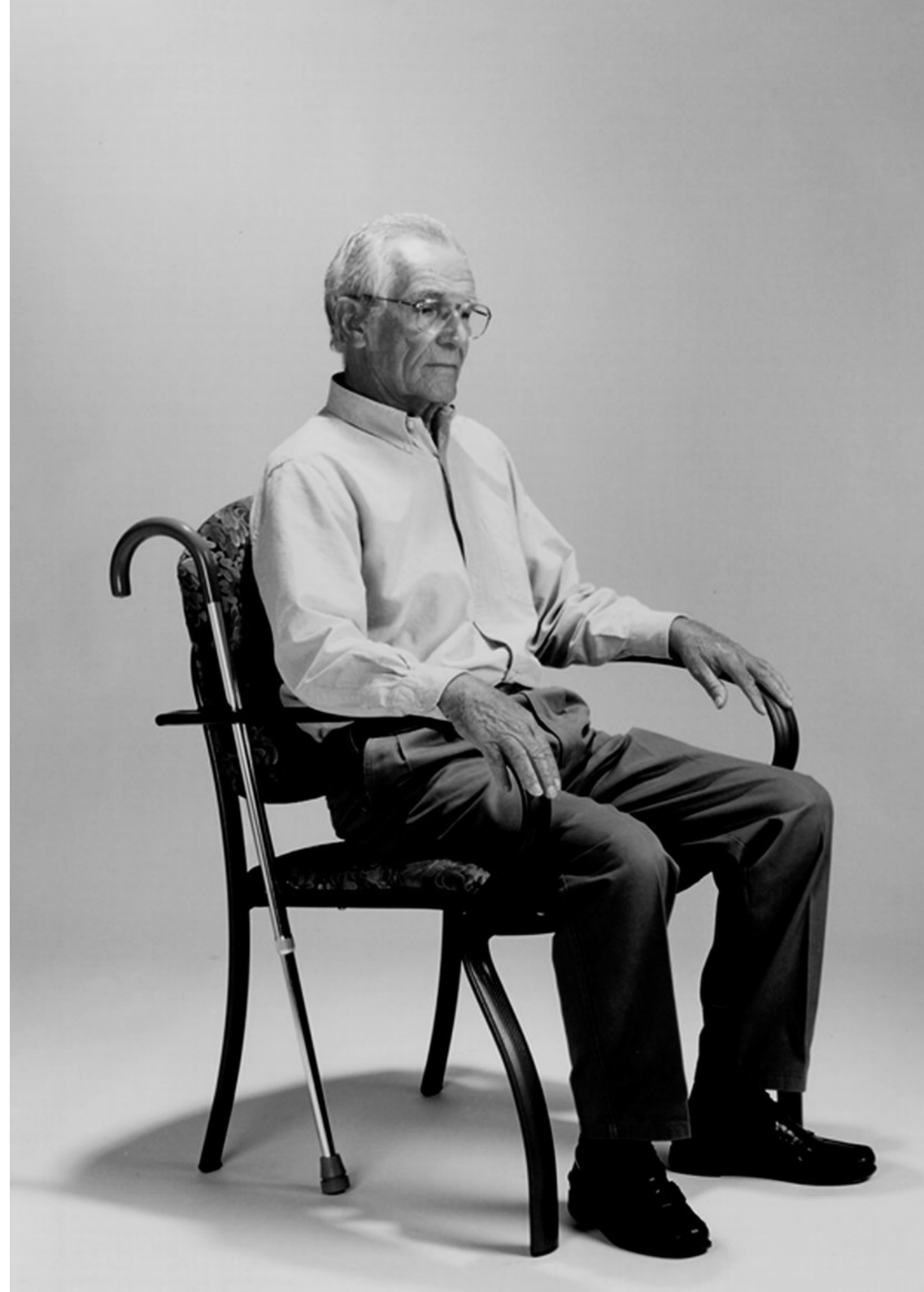
Andrew Lynch

Process Book



Contents

- Brief + vision
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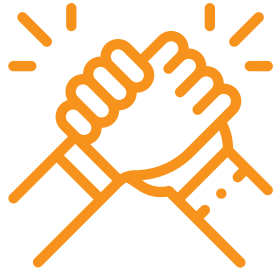




Confidence & Independence

Designing a device to offer elderly people the ability to regain some independence in confident way for the user.

The Vision



Help elderly people up and out of their armchair



Offer the elderly a safe and secure way to balance themselves in the initial moments after standing



Reduce the amount of falls leading to injury of elderly people in the home



Why use Libra?

Libra was designed for elderly people who may suffer from dizzy spells or any form of balance issues after standing up.

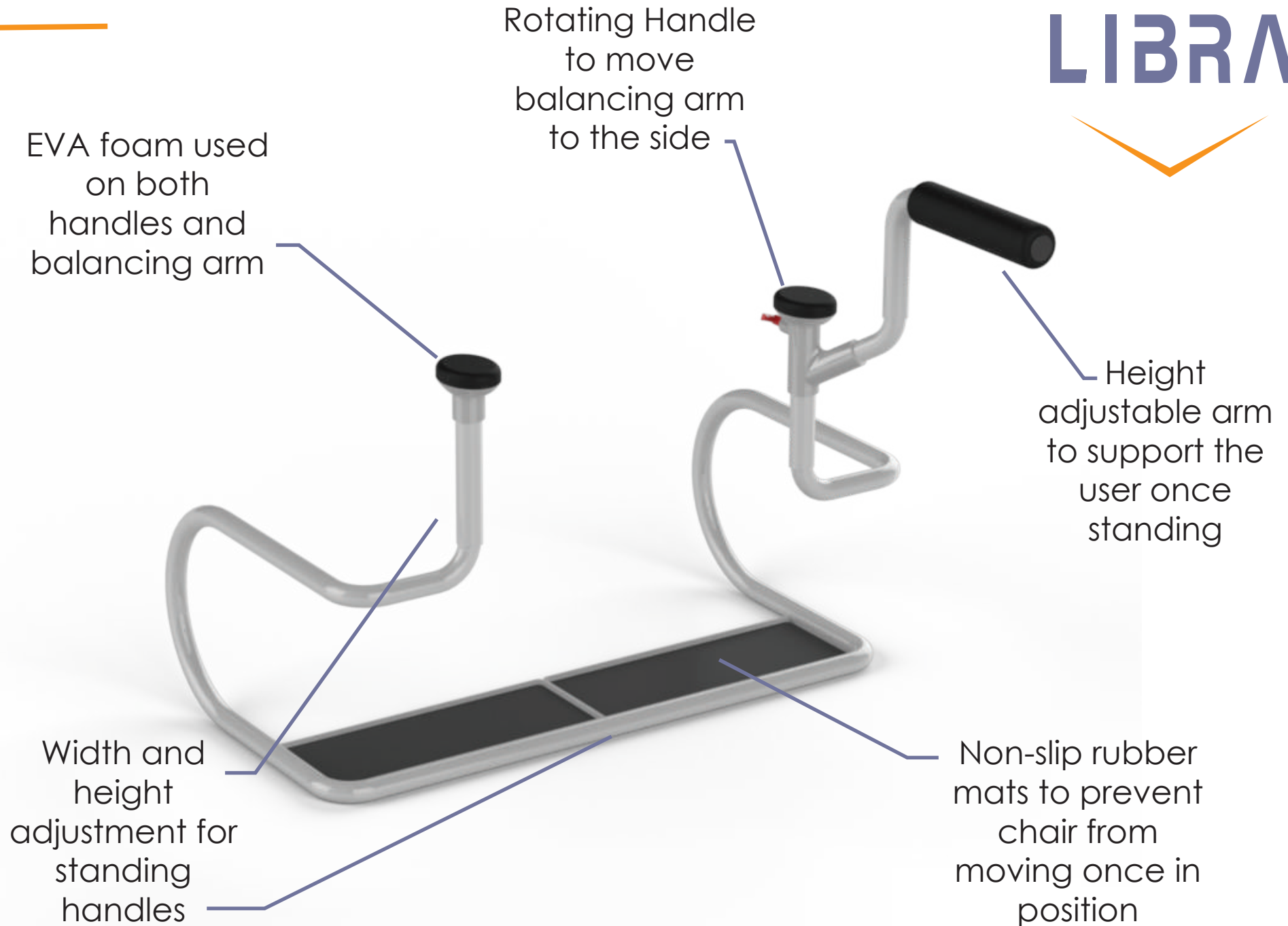
It offers the user a safe way of standing up and then also lends them a helping hand if they feel they may lose their balance.

Libra = Balance

Libra is the Latin word for balance. The Libra aid has an adjustable height grab rail perpendicular to the front of the armchair, this 'Balancing Arm' gives the user a sturdy way to balance themselves and the name of this product is derived from that



Features



Design Process

Through the design process I aimed to use user centered design techniques to try and get the best understanding of the user and their needs. Empathy was key in this process. There were 5 broad categories of the design process.

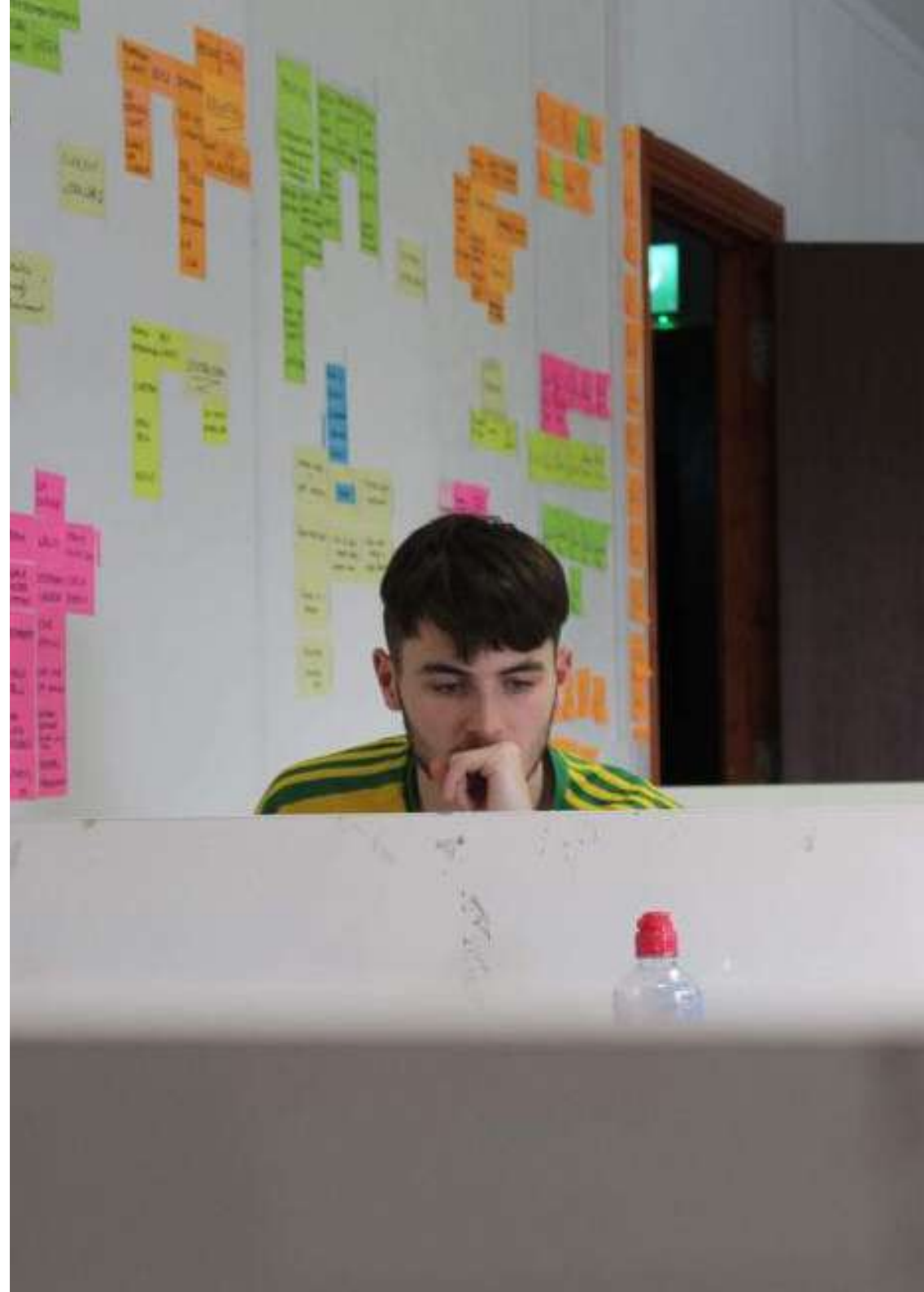
User investigation

Define

Ideation

Prototype

Testing



Research

5 Interviews



Ruth Lynch
Nurse



Matthew Lines
Carer/Trainee nurse



Daniel McSherry
Physiotherapist



Rosemary Daly
Elderly Female



Malachy Lynch
Elderly Male

Online Survey

I conducted a quick online survey to determine what carers thought were the key problems for elderly people and what they thought of the products designed to solve these issues. The survey had 64 responses

Key insights

“I broke my back trying to pull my husband up”. – Elderly person

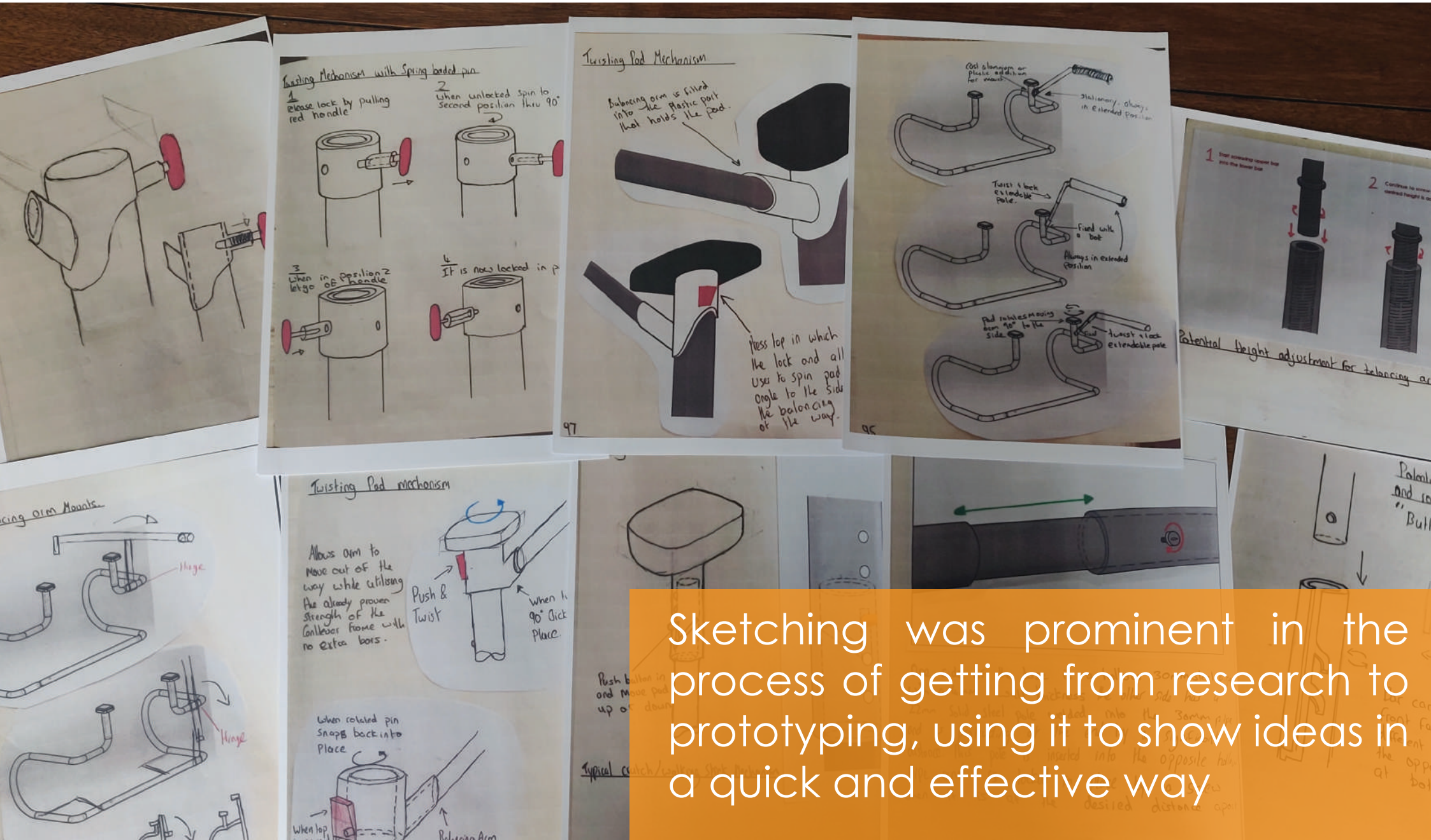
“I find it I'm sitting down for a period of time, when I get up, I'm just dizzy”. – Elderly person

“So, you're actually trying to get them to trust their weight” – Physiotherapist.

30% of people aged over 65 suffer from orthostatic hypotension a condition that causes dizzy spells after standing up.

>635,000 people over the age of 65 in Ireland

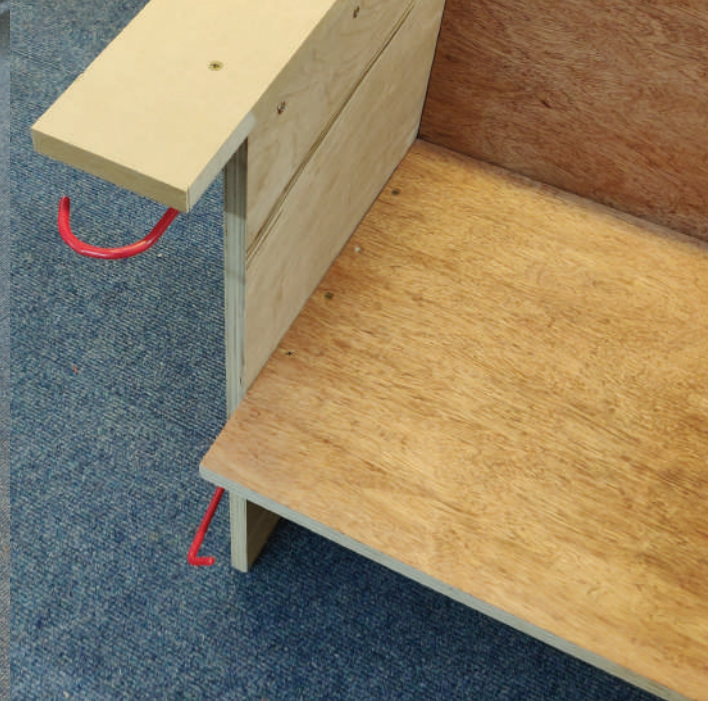
Ideation



Sketching was prominent in the process of getting from research to prototyping, using it to show ideas in a quick and effective way

Early Prototypes

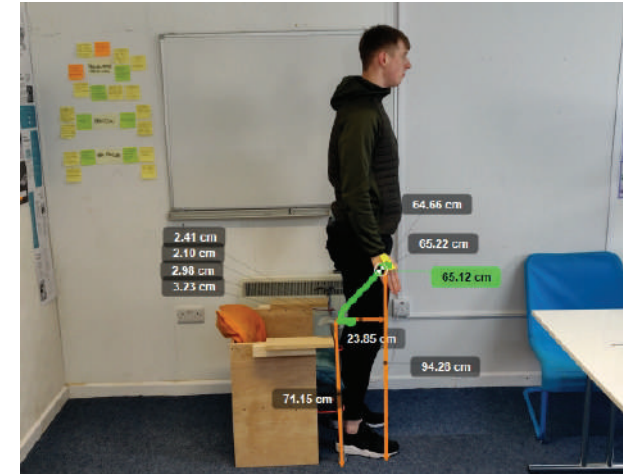
By creating prototypes I could get a better idea of how to solve the problem and where to place each of the aspects of the design.



User testing

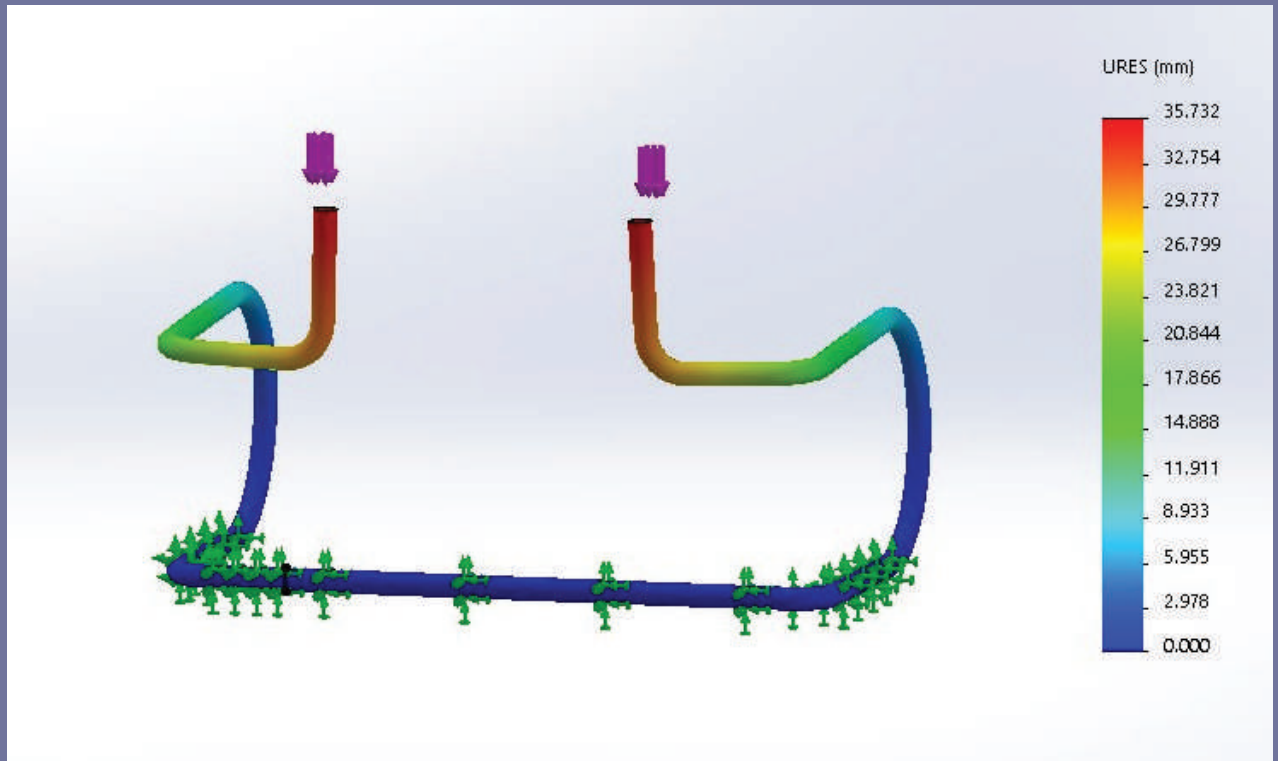


User testing was of great importance as with any product how the user interacts with any product will determine its success, each prototype was tested with users to get a better understanding of how well it worked



Finite Element Analysis

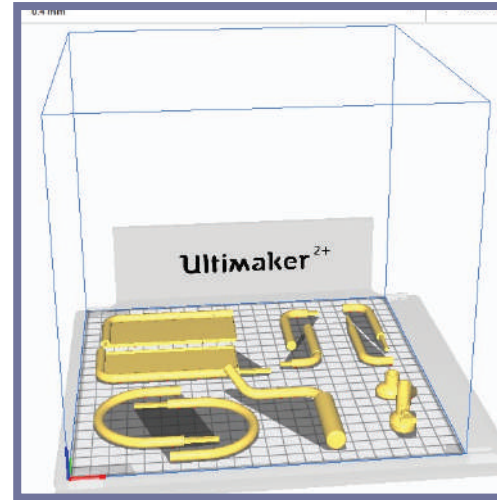
Using the Simulation tool on Solidworks, I could predict the amount of displacement and stress on each frame design with different metals, this allowed me to pick the best shape and most dependable material. This tool uses Finite Element Analysis when making these studies.



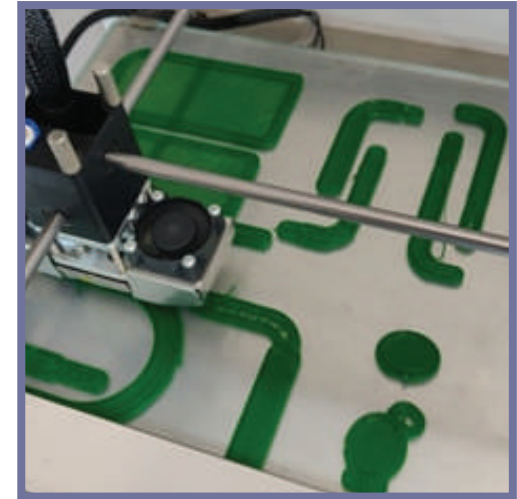
Final Prototype

Unfortunately I was not able to create a full size prototype, so I decided to use a 3D printer to print parts of a 1:5 scale prototype to get an accurate physical representation of how the product would look in the real world. Here are the steps involved in the construction of this prototype.

1. Preparing the print



2. Printing the parts



3. Cleaning the parts



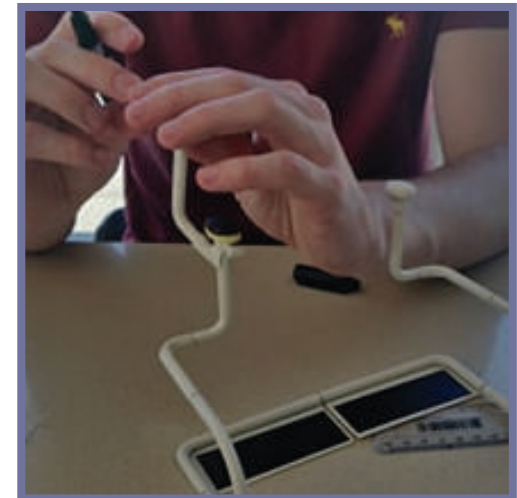
4. Assembly



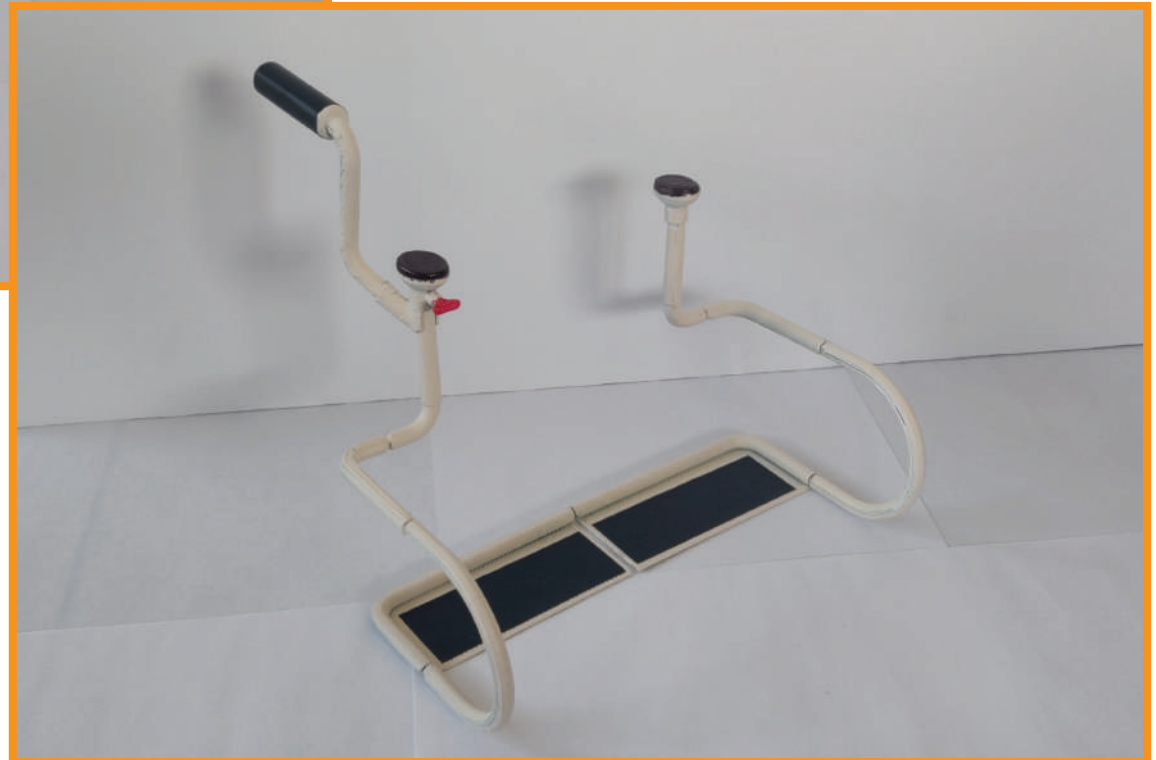
5. Paint



6. Detailing



Final Prototype - Finished





Thanks for reading!