



Zero MAS

Mobile Arm Support System

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Fall 19'

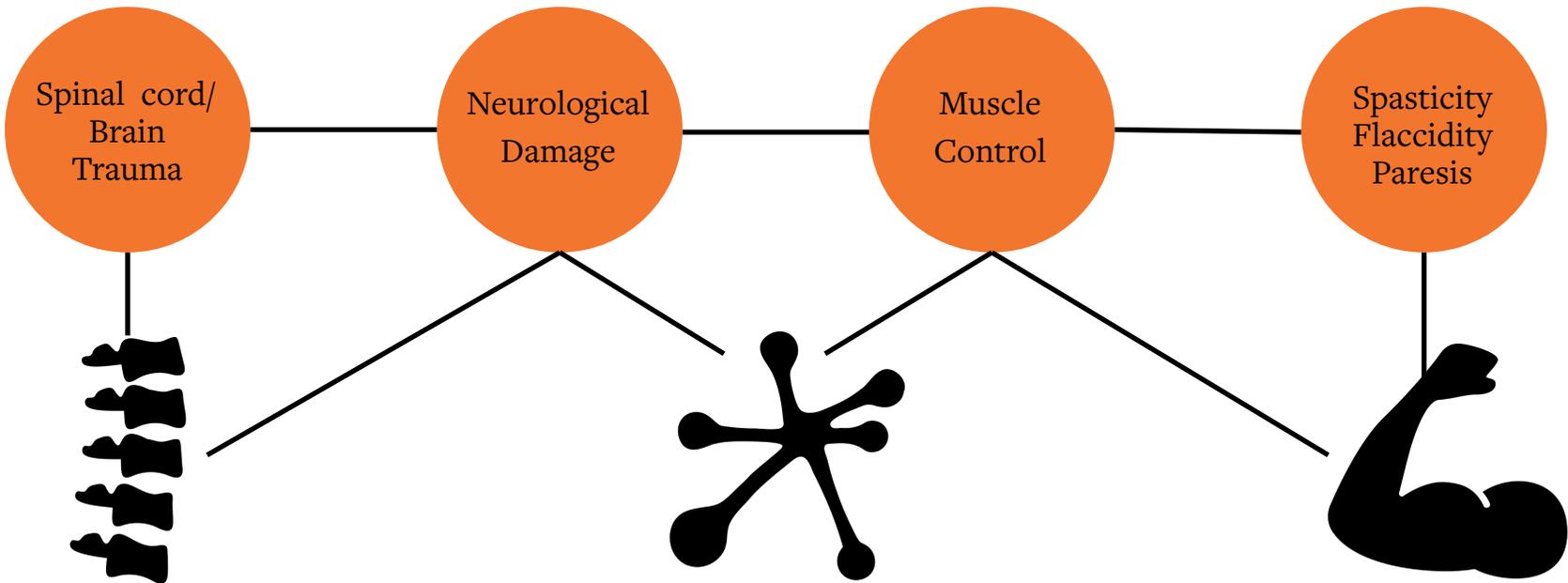
MAS (Mobile Arm Support)

A MAS is a device that supports the weight of the arm and provides assistance to the shoulder and elbow motions.

Common MAS users are diagnosed with: Spinal cord injury, Muscular dystrophy, Guillian-Barre Syndrome, Amyotrophic Lateral Sclerosis, Poliomyelitis, and Polymyositis

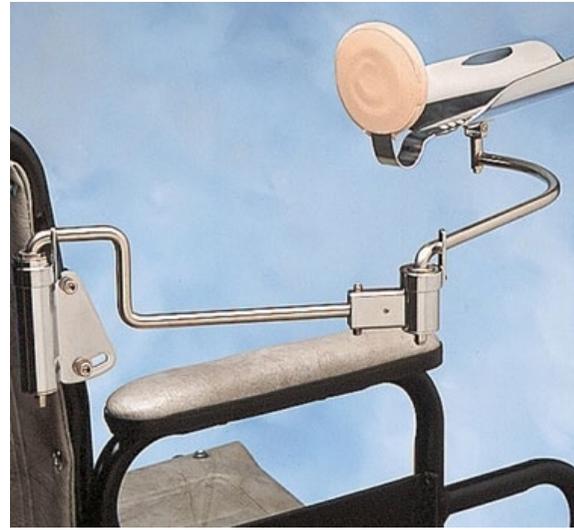


Diagnoses



The type of movements that occupational therapist aim to help patients perform are everyday actions that we normally take for granted.





LEGACY

1936

1949

1952

1978

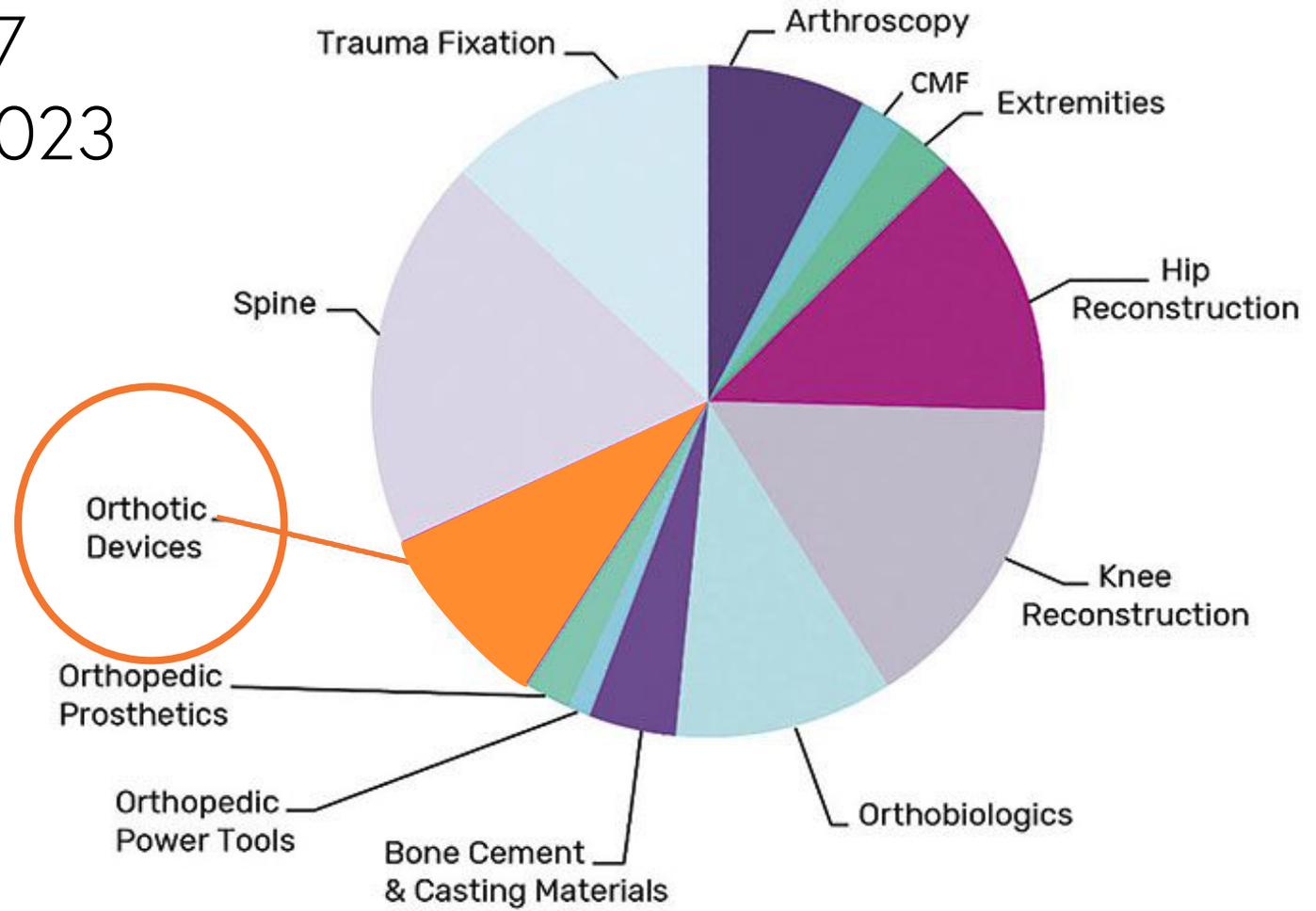
2006

2019

The MAS device has existed for some time now, however has not advanced much further relative to other medical devices.



10-15% Market Share
 \$5.5bn in 2017
 \$7.1 bn proj. 2023



“The global orthopedics market was valued at \$52.8bn in 2017, driven primarily by the growth of the aging population. The market is set to grow to \$66.2bn in 2023 at a steady Compound Annual Growth Rate (CAGR) of 3.8%, according to GlobalData, a data analytics company.”



PATTERSON - \$588.79

- Great versatility and range of motion
- Customizable
- Overhead structure
- Not easily adjustable



JAECO - \$399.95

- Great versatility and range of motion
- Too many parts
- Lower profile
- Not easily adjustable



SAEBO - \$6.820

- Great versatility and range of motion
- Expensive
- Bulky
- Easier adjustability



REHAB PROFESSIONAL

“The SAEBO works well but it’s very large which can be difficult to roll around when we are full”

“The JAECO has too many parts, we lose pieces all the time”

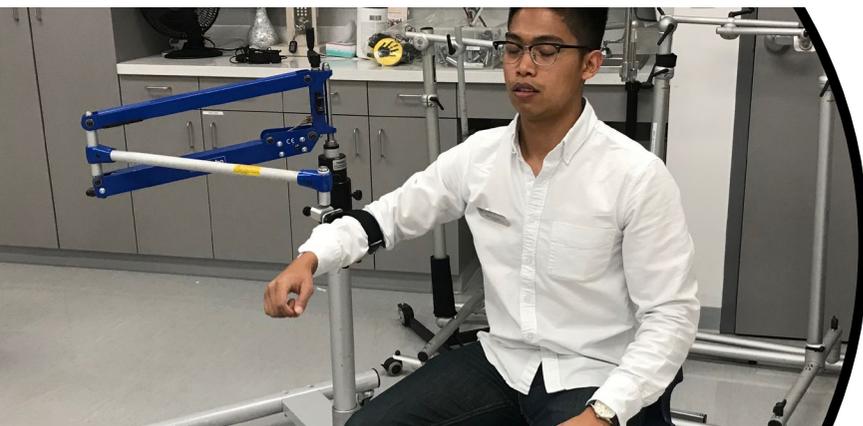


PATIENT

According to Kumar and Philips (2013)

“I feel more confident because I can feed myself.. without getting fed, it’s less embarrassing.”

CUSTOMER SEGMENTS



REHAB PROFESSIONAL

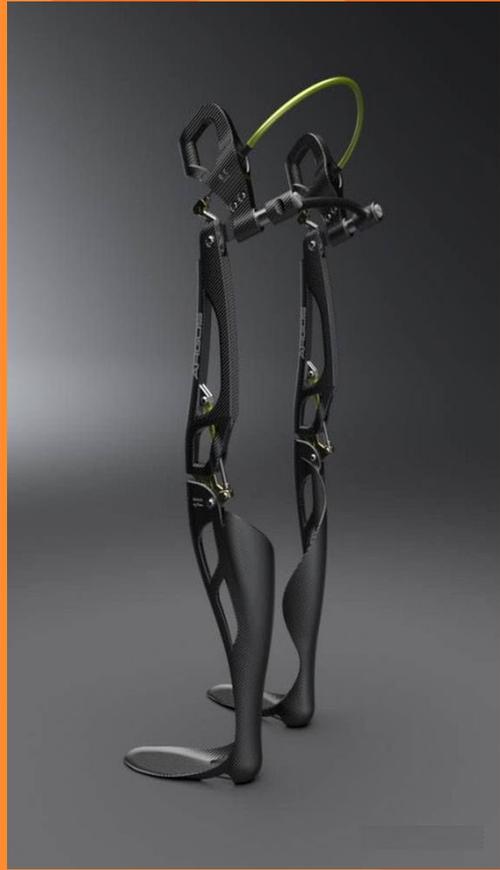
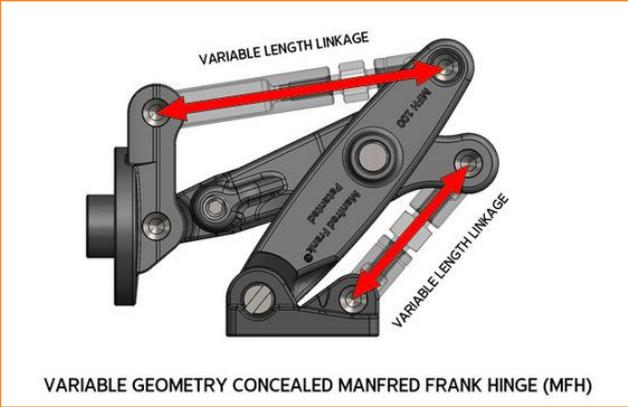
Professionals need a MAS that does not obstruct therapy, that is easy to move and adjust while performing purposeful activities with patients.

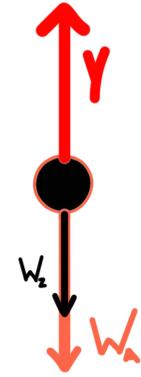
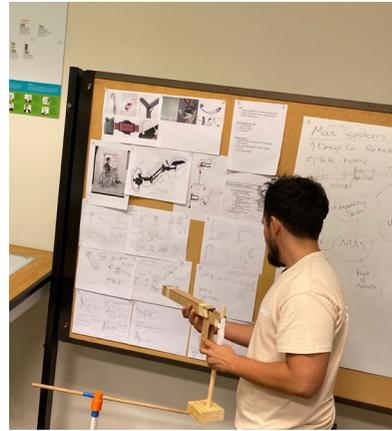
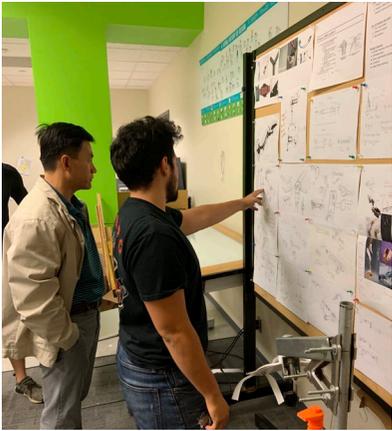


PATIENT

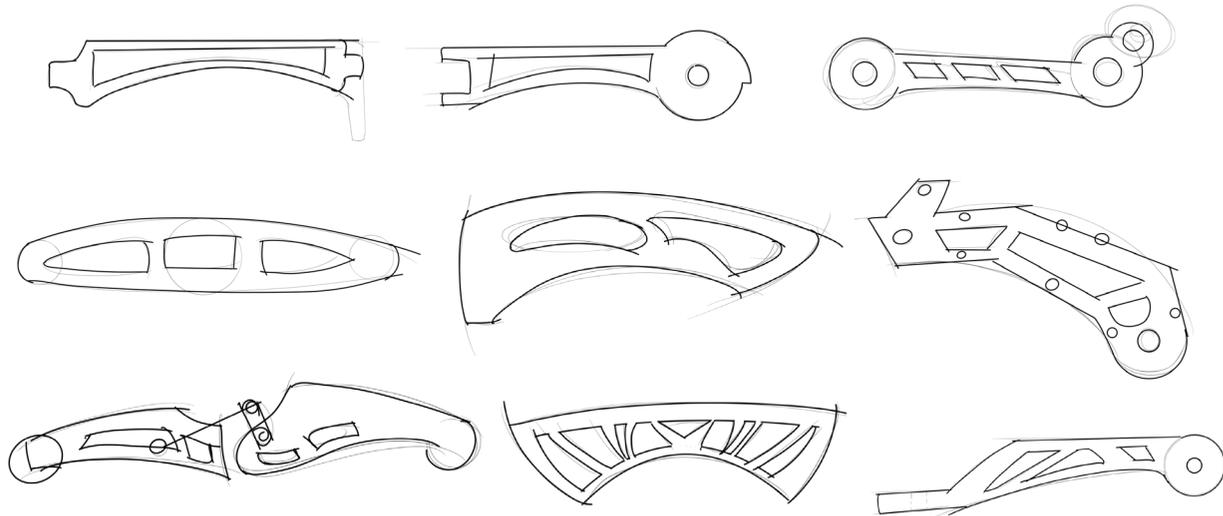
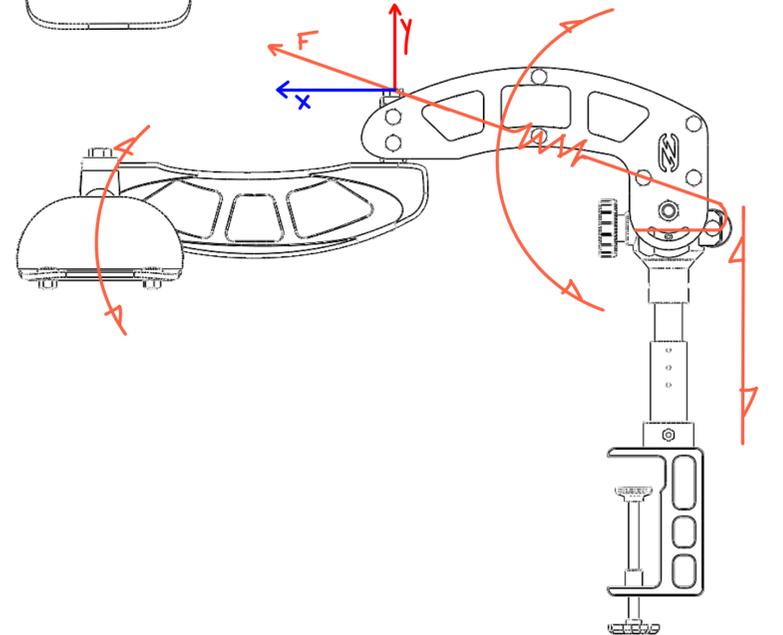
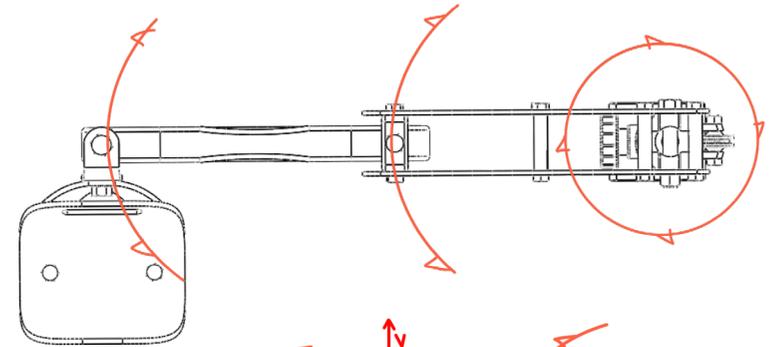
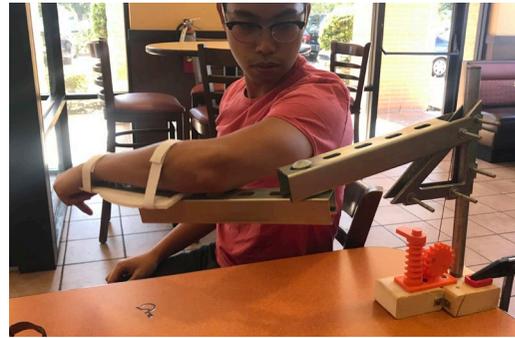
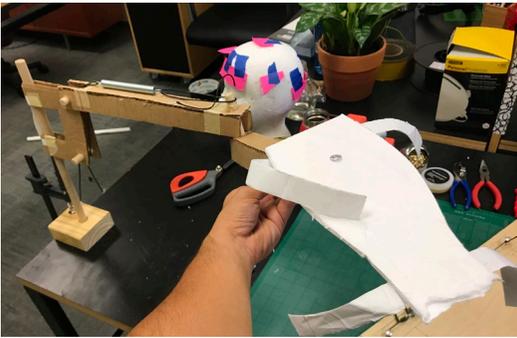
Current MAS can be stigmatizing, effecting its adoptability while be difficult to use and adjust alone. This functionality is necessary while maintaining dynamic free motion at an affordable cost.

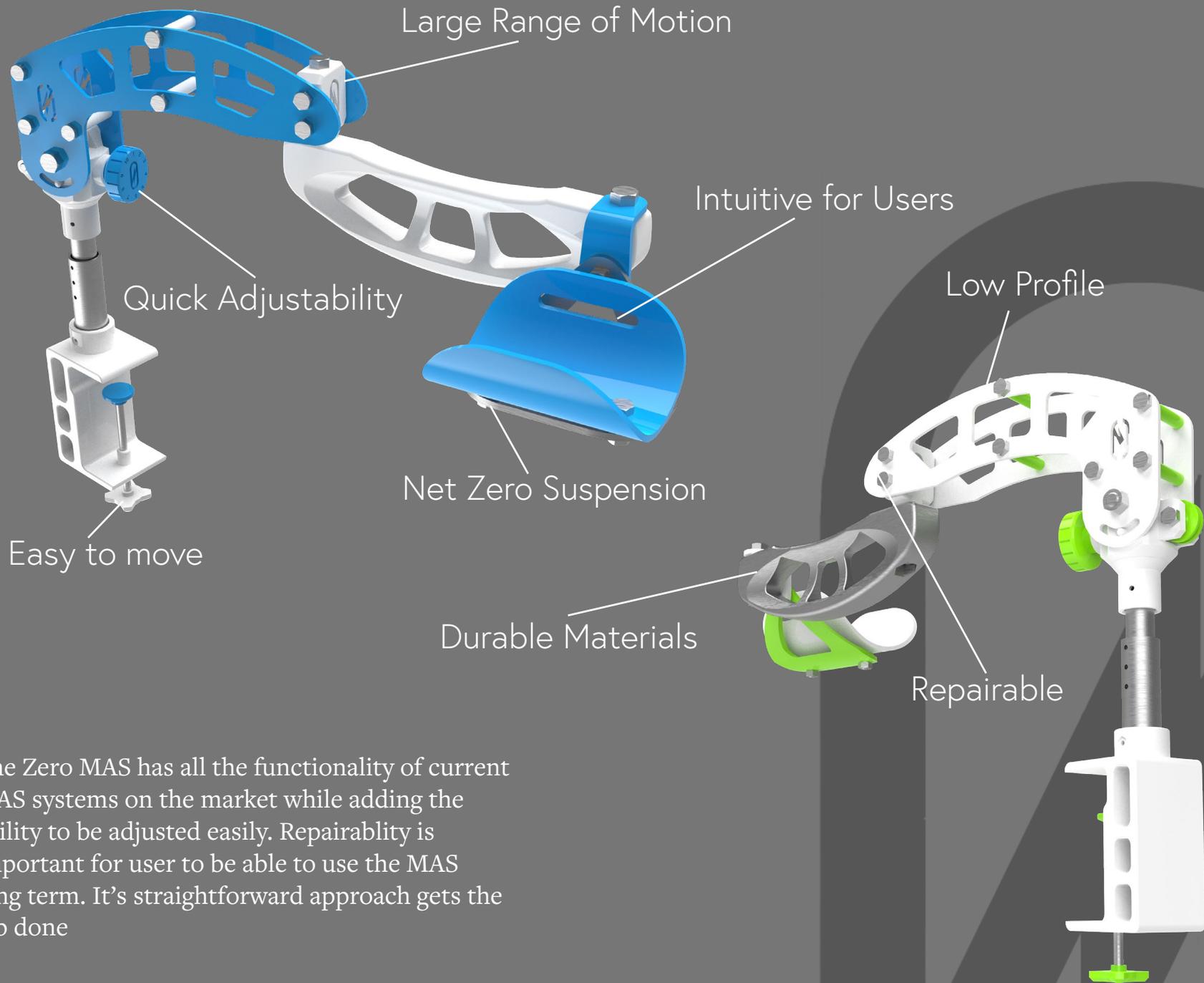
INSPIRATION





IDEATION





The Zero MAS has all the functionality of current MAS systems on the market while adding the ability to be adjusted easily. Repairability is important for user to be able to use the MAS long term. It's straightforward approach gets the job done



The prototype of the Zero MAS was fabricated using rapid prototyping manufacturing techniques. Using a laser cutter to make the cross member and 3D printing for the other cross member.

PROTOTYPE

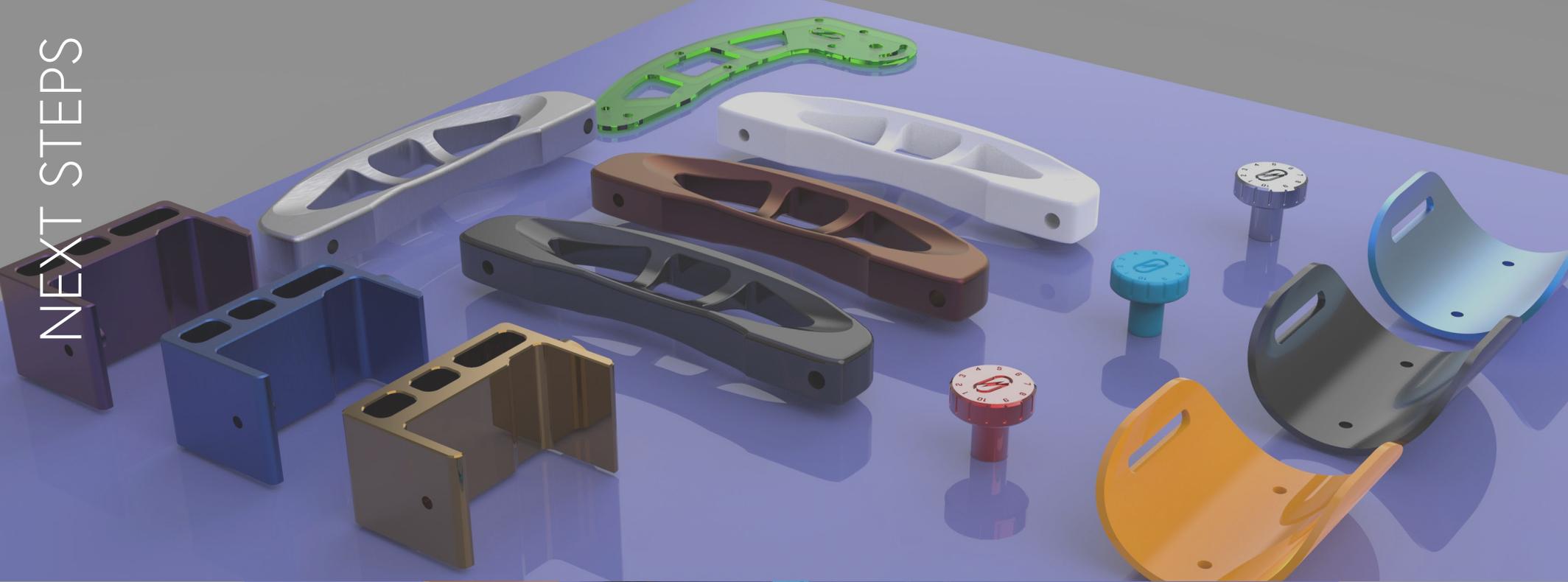


PROTOTYPE

The Zero MAS can be easily clamped on to any table. However, the main mast can be disconnected and placed on a wheelchair adapter if necessary. An ergonomic, Velcro strap keeps the user arm secured through all the motions. Finally the user adjusted to his or hers tension necessary for action.







CUSTOMIZATION

The next step for the Zero MAS is to explore modularity to increase its scalability into other markets. Because it is easy to assemble, the Zero MAS can have other accessories to be able to customize to the users needs while really making it their own.



Zero MAS

Mobile Arm Support System



Thank You

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