Amputee Advanced Donning Device

Client: Mr. Daniel Kutschera

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Date: October 2nd 2025 - October 9th 2025

Problem Statement:

During rehabilitation, it is critical for amputee patients to wear a specialized compression garment known as a shrinker. A shrinker aims to shape the residual limb in preparation for prosthetic fitting and prevent post-operative complications like swelling and excessive fluid retention. For application of the shrinker, patients currently rely on basic donning tubes, in which the shrinker is stretched over a plastic tube and pulled over the residual limb. Because shrinkers are designed to apply strong, consistent compression, they can be very difficult to stretch over donning tubes. This challenge is especially significant for elderly patients, who may have limited strength, dexterity, or mobility. This project aims to create an advanced donning device that stretches the garment to the desired diameter using electronics, simplifying shrinker application and eliminating the need for the user to manually stretch the garment.

Brief Status Update

This week our team delivered the preliminary presentation to classmates and answered questions on the project. The team also completed the preliminary report document. In the process of completing the document, the team made important decisions regarding design details, including dimensions and weight. Additionally, the team met with the client to discuss current progress on Monday 10/06. Finally, the team is finalizing materials research and preparing to order materials in the upcoming week.

Summary of Weekly Team Member Design Accomplishments in

- Team:
    - Completed Preliminary Report
    - Discussed testing plans
    - Started compiling materials list to be ordered
- Carly:

    - Contributed to the preliminary report
    - Built the 3D-printed circuit box on SolidWorks
    - Continued researching motors and necessary gears
    - Researched the tests we will be conducting on our parts
- Eleanor
    - Worked on preliminary report
    - Helped make design decisions (dimensions, etc.)
    - Conducted research on electrical components
- Ava:
    - World on preliminary report
    - Conduct individual research for preliminary report
- Anna:
    - Worked on preliminary report
    - Did individual research
- Sam:
    - Worked on preliminary report
    - Worked on CAD design of battery/circuit box
    - Did individual research

Difficulties / advice requests

N/A

Upcoming Team and Individual Goals

- Team:
    - Order materials
    - Begin fabrication
    - Continue researching as needed
    - Meet as a team to plan fabrication
- Carly:
    - Begin material thickness and gear testing on SolidWorks
    - Order materials once finalized
    - Communicate with design lab or maker space staff for fabrication assistance/ advice
    - 3D print circuit holder
- Eleanor
    - Finalize materials list and submit order
    - Perform solidworks testing simulations
    - Begin 3D printing process
- Ava:
    - Order materials
    - Contact client about purchases

    - Begin testing design
- Anna:
    - Assist with 3D printing process
    - Continue communicating with client
- Sam:
    - Work on prototyping the design
    - Work on testing the design

Expenses

Item	Description	Manufac-turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1										
									$0.00	
									$0.00	
Category 2										
									$0.00	
									$0.00	
								TOTAL:	**$0.00**	

Project Timeline

Task	September			October				November					December			
Project R&D																
Empathize																
Background…																
Prototyping																
Testings																
Deliverables																
Progress Reports																
Prelim presentation						10/3										
Final Poster														12/5		
Meetings																
Client																
Advisor																
Website																

Update																

Dates & Deadlines:

- Product Design Specifications: Friday, September 19th
- Design Matrix Criteria: Friday, September 26th
- Preliminary Presentations: Friday, October 3rd
- Preliminary Report: Wednesday, October 9th
- Show and Tell: Friday, October 31st
- Final Poster Presentations: Friday, December 5th
- Final Deliverables Due: Wednesday, December 10th