

Amputee Advanced Donning Device

Date: 09/25/2026 - 10/1/2026

Client: Dr. Daniel Kutschera

Advisor: Dr. Justin Williams

Team:

Freyja Heggeland - Team Leader (heggeland@wisc.edu)

Adam Bauer - Communicator (abauer24@wisc.edu)

Megan Pearson - BSAC (mepearson4@wisc.edu)

Carl Assmus - BWIG & BPAG (cassmus@wisc.edu)

Problem statement: During physical rehabilitation, it is critical for amputee patients to wear a specialized compression garment known as a shrinker sock. A shrinker sock aims to shape the residual limb in preparation for prosthetic fitting and prevent post-operative complications like swelling and excess fluid retention. To apply the shrinker, patients currently rely on basic donning tubes, where 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 and mechanical means, simplifying shrinker application and eliminating the need for manual user input to stretch the garment.

Brief status update: The team worked on the preliminary presentation and will be delivering it on this Friday, October 2nd. The team also discussed design logistics and how they were going to continue with design development.

Difficulties / advice requests: None to report

Current design:

No current design to display

Materials and expenses

No current materials or expenses to report.

When materials/expenses are reportable, See table below:

Item	Description	Manufac-turer	Mft Pt#	Vend-or	Vend-or Cat #	Date	#	Cost Each	Total	Link
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Materials									

Major team goals for the next week

1. Construct preliminary report and submit by the earlier-than-anticipated deadline
2. Begin fabrication of preliminary design

Next week's individual goals

- Freyja Heggeland
 - Write presentation with the rest of the group.
 - Spend time with the group discussing testing logistics for our device.
 - Construct rudimentary prototype after presentation.
- Adam Bauer
 - Finish preliminary report
 - Start fabrication and break up some the project
- Megan Pearson
 - Summarize project so far in a preliminary report
 - Plan out fabrication with team
- Carl Assmus
 - Help to write the preliminary report
 - Continue research into the current design
 - Help to begin constructing a first prototype

Timeline

Task	Week				Week					Week				Week	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Project R&D															
Empathize	X	X													
Background	X	X	X	X											
Prototyping					X										
Testings															
Deliverables															
Progress Reports	X	X	X	X	X										
Prelim presentation					X										
Final Poster															
Meetings															
Client	X				X										
Advisor	X	X	X	X	X										
Website															
Update	X	X	X	X	X										

Filled boxes = projected timeline

X = task was worked on or completed

Previous week's goals and accomplishments

- Freyja Heggeland
 - Develop and present preliminary presentation
- Adam Bauer
 - Present preliminary presentation
 - Finish preliminary report
 - Plan fabrication
 - CAD model of one design
- Megan Pearson
 - Contributed to the preliminary presentation
 - Practiced presenting
- Carl Assmus
 - Completed the preliminary presentation
 - Researched the mechanical properties of some materials of interest

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Freyja	9/29/2026	- Developed preliminary presentation, reviewed client requirements and edited PDS slides	2	4	13.5
	9/30/2026	- Practiced presentation delivery	1		
	10/1/2026	- Organized slide order with team and continued practicing	1		
Adam	9/30/2026	- Worked on preliminary presentation	1	3	8.5
	10/1/2026	- Worked on CAD model for design clarity	1		
		- Practiced slide presentation	1		
Megan	9/30/2026	- Created introduction slides including background, problem statement, and competing designs	2	3	13
	10/1/2026	- Reviewed and edited rest of presentation - Practiced presenting	1		

Carl	9/30/2026	- Finished Preliminary Presentation	1	2	12.5
		- Researched aluminum alloys	0.5		
		- Researched Nylons	0.5		