

Amputee Advanced Donning Device

Date: 10/9/2026 - 10/15/2026

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: This week, the team worked on gathering more information from the previous group that worked on this project. They received a few files and emailed back and forth with the previous group and their advisor, allowing them to gain further insight and general information about the project and where the last team left off.

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	Manufacturer	Mft Pt#	Vend-or	Vend-or Cat #	Date	#	Cost Each	Total	Link
Materials										

Major team goals for the next week

1. Begin physical fabrication
2. Reprint final 3D prints from previous team's emails.

Next week's individual goals

- Freyja Heggeland
 - Begin physical fabrication with team
 - Print last groups' final models at Makerspace
- Adam Bauer
 - Begin physical fabrication
 - Adjust Previous groups CAD accordingly
- Megan Pearson
 - Begin fabrication
- Carl Assmus
 - Finalize circuit diagram
 - Begin physical prototyping
 - Obtain necessary electrical components

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	X	X								
Testings															
Deliverables															
Progress Reports	X	X	X	X	X	X	X								
Prelim presentation					X										
Final Poster															
Meetings															
Client	X				X										
Advisor	X	X	X	X	X	X	X								
Website															
Update	X	X	X	X	X	X	X								

Filled boxes = projected timeline

X = task was worked on or completed

Previous week's goals and accomplishments

- Freyja Heggeland
 - Begin prototyping and distribute work among team members
- Adam Bauer
 - Begin prototypes
 - Break up project and decide what to work on
- Megan Pearson
 - Researched 3D printing with nylon
- Carl Assmus
 - Researched different electronic components
 - Began constructing a circuit diagram

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Freyja	10/11/2026 10/12/2026 10/13/2026 10/15/2026	- Nylon 3D printer research - PLA-tough material research - Looking into potential other 3D printing filaments - Reviewed past work done by previous group, filed a print order with the UW Makerspace	1 1 0.5 0.5	3	22
Adam	10/15/2026	- Researched CNC mills and waterjets	0.5	0.5	11.5
Megan	10/13/2026	- Researched 3D printing with nylon	1	1	16.5
Carl	10/15/2026	- Research into electric motors and force sensors - Circuit diagram	1 1	2	17.5