Title: Gait Trainer with Treadmill (Step Masters) 200/300

Date: 9/26/2025 - 10/02/2025

Client: Amanda Pajerski
Advisor: Dr. Ashton
Team:
Grace Neuville, Leader, geneuville@wisc.edu
Sierra Loosen, BSAC, sloosen@wisc.edu
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Problem statement

A woman with a significant mobility impairment due to a seizure disorder requires support while walking because of seizure risks and poor postural strength. She has a Rifton Pacer Gait Trainer which has allowed her to resume walking outdoors; however, it is unsafe to use in winter. It is crucial for her to be able to use the gait trainer for daily walks in order to maintain her muscular strength and mental health. The solution is to design a transfer device that will allow her to use her gait trainer on a Horizon T101 treadmill to give her the opportunity to maintain her muscle conditioning when weather conditions are not favorable. The transfer device will need to allow the gait trainer to be wheeled onto the treadmill and secure the wheels in position so it cannot fall off the side while she's walking. It will need to hold the weight of the gait trainer, the user, and one caregiver, totaling to 173.6 kg. It will need to be easy for caregiving staff to use, taking no more than 5 minutes to assemble, under 22 kg, and have the ability to fold in order to maintain the functionality of her living environment.

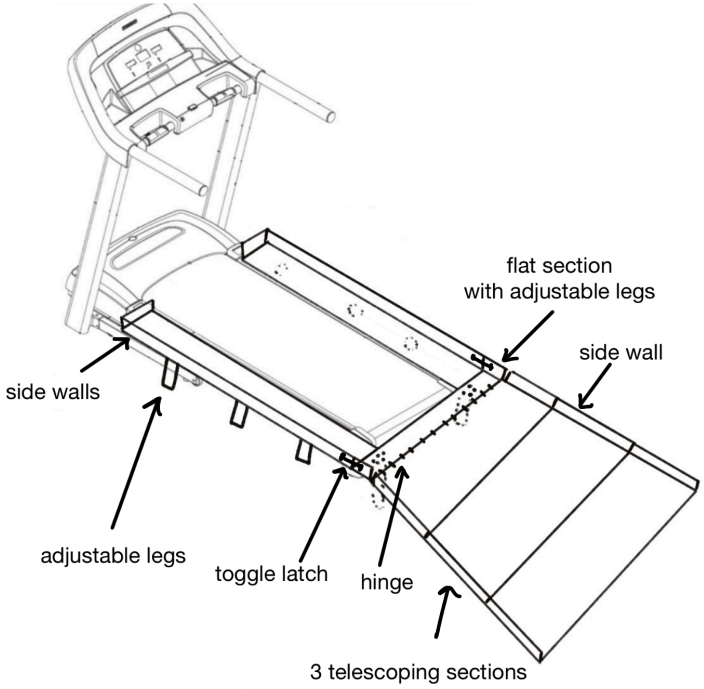
Brief status update

The team created an updated final design after receiving feedback from the client’s family and caregivers. The team finished the preliminary presentation and prepared for the presentation this Friday, October 3rd. Additionally, the team began working on the preliminary report.

Difficulties / advice requests

NA

Current design



This design features adjustable legs that allow the side track's height to be modified, accommodating uneven flooring or different treadmill models. A flat platform section connects to the tracks using toggle latches, securing the assembly in place. This flat section also includes adjustable legs for added stability and adaptability.

A hinged connection links the flat platform to a telescoping ramp, allowing the ramp to fold for compact storage. The ramp is designed to nest upward, with a wider base that gradually narrows toward the top. The wider bottom section provides increased tolerance for wheeling the gait trainer onto the ramp, while the upper section conforms more closely to the gait trainer's dimensions for a snug fit.

For easy storage, the ramp section can be detached from the tracks, collapsed into itself, and placed on top of the treadmill or stored elsewhere when not in use.

Materials and 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**	

Major team goals for the next week

1. Finish preliminary report
2. Begin fabrication plans
3. Meet with design lab staff to discuss fabrication plans
4. Begin ordering materials to ensure they arrive in time

Next week's individual goals

- Grace
    - Finished assigned section of preliminary report
    - Look into fabrication methods
    - Decide on what extra training I want to do
- Sierra
    - Finish assigned section of preliminary report
    - Begin sourcing materials for fabrication
- Julia
    - Work on the preliminary report
    - Look into fabrication methods
- Sara
    - Work on the preliminary report
    - Continue design innovation lab trainings
    - Research telescoping leg brands and specifications
- Katelynn
    - Work on the Preliminary Report
    - Make progress on Wendt and ECB trainings
    - Apply for funding from BME department

Timeline

Task	Sept			Oct						Nov				Dec	
	11	18	25	3	8	10	17	24	31	7	21	20	28	5	10
Project R&D															
Empathize	X	X	X												
Background…	X	X	X												
Prototyping				X											
Testings															
Deliverables															
Progress Reports	X	X	X	X											
PDS		X	X	X											
Design Matrix			X												
Prelim Presentation				X											
Prelim Deliverables				X											
Show and Tell															
Final Poster															
Final Deliverables															

Meetings															
Client	X	X	X												
Advisor	X	X	X	X											
Website															
Update	X	X	X	X											

Filled boxes = projected timeline
X = task was worked on or completed

Previous week's goals and accomplishments

The team met with the client's family and two of their caregivers to present them with 3 preliminary designs. The team used their feedback and the design matrix to choose a "final design"; however, the family will continue to discuss which aspects from each preliminary design they want in the true final design and will contact the team this week with that information. Additionally, the team took measurements of the treadmill and gait trainer.

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Grace Neuville	9/7/2025	Wrote problem statement	0.5	2	8.5
	9/7/2025	Researched ramp standards	0.5		
	9/7/2025	Worked on timeline in progress report	0.5		
	9/8/2025	Researched portable ramp designs	0.5		
	9/16/2025	Worked on my section of the PDS	1.5	1.5	
	9/24/2025	Refined the suitcase ramp design	0.5	1.5	
	9/24/2025	Researched importance of gait trainers	0.5		
	9/25/2025	Worked on the design matrix	0.5		
	9/29/2025	Worked on my section of the preliminary presentation	0.5	3.5	
	9/29/2025	Created a treadmill part in solidworks	2		
	10/2/2025	Created final design drawing	0.5		
	10/2/2025	Worked on final design section of preliminary presentation	0.5		

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Sierra Loosen	9/8/2025	Brainstormed questions for client meeting	0.5	1	9.5
	9/8/2025	Researched ADA compliant ramp dimensions	0.5		
	9/14/25	Research relating to the importance of physical activity and current designs of portable ramps	1.5	5	
	9/14/25	Completed assigned sections of PDS	1.5		
	9/18/25	Proof read and formatted PDS	0.5		
	9/18/25	Individual preliminary design brainstorming	0.5		
	9/20/25	Refined individual preliminary design idea	0.5	2	
	9/21/25	Wrote descriptions for design matrix criteria	0.5		
	9/24/25	Helped finish design matrix	1		
	10/1/25	Brainstorming for final design	0.5	1.5	
	10/2/25	Preliminary presentation prep	1		

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Julia Shefchik	9/8/2025	Wrote questions for client meeting	0.5	1.5	10
	9/8/2025	Reviewed given information on pacer gait trainer and treadmill to answer client questions	0.5		
	9/11/2025	Researched material options	0.5		
	9/14/2025	Further research on aluminum as a potential material	0.5	3	
	9/17/2025	Formatted and contributed to the team PDS document	1.5		
	9/17/2025	Researched the treadmill and gait trainer the client uses	0.5		
	9/17/2025	Edited the problem statement	0.5		
	9/19/2025	Individual preliminary design and research to inform design	1	4	

	9/21/2025	Help format preliminary design presentation	0.5		
	9/22/2025	Refined preliminary design	0.5		
	9/24/2025	Refined preliminary design using client feedback	0.5		
	9/24/2025	Wrote design matrix discussion and contributed information for design 1	1.5		
	9/26/2025	Begin brainstorm for preliminary design presentation	0.5	1.5	
	10/2/2025	Prepare for preliminary design presentation	1		

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Sara Mlodik	9/9/2025	Brainstormed/looked over client meeting questions and progress report	.5	1.5	9.5
	9/11/2025	Analyzed the 2024 project process in the team notebook and found areas for improvement	1		
	9/14/2025	Finished analyzing the 2024 project process and notes and wrote questions for the upcoming client meeting	1	4	
	9/14/2025	Completed assigned sections of PDS	1.5		
	9/18/2025	Made a design sketch, a ramp model, and brainstormed specific questions for the design team	1.5		
	9/19/2025	Researched the background information on gait trainers	1	2.5	
	9/23/2025	Refined preliminary design #1 into preliminary design #2	.5		
	9/24/2025	Worked on slides and notes for the Preliminary Presentation	.5		
	9/24/2025	Helped finish design matrix	.5		
	9/26/2025	Brainstormed design ideas and telescoping legs	.5	1.5	
	10/2/2025	Worked on slides and notes for the Preliminary Presentation	1		

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Katelynn Johnson	9/9/2025	Brainstormed questions for client meetings.	0.5	1.5	9.5
	9/9/2025	Reviewed previous group's final report and client comments.	0.5		
	9/10/2025	Reviewed BPAG resources and funding options.	0.5		
	9/16/2025	Reviewed NIOSH lifting guidelines and other safety research relating to caregiver safety.	1	3.5	
	9/17/2025	Completed assigned sections of the PDS and Progress Report #2	1		
	9/18/2025	Used information gained from client meetings to brainstorm designs.	1.5		
	9/21/2025	Researched how the gait trainer wheel locks operate, and brainstormed how to allow the best access to these locks while the gait trainer is elevated with wheel tracks.	0.5	2.5	
	9/21/2025	Updated my preliminary design to account to reduce design weight, and to make the folding process easier.	1.5		
	9/22/2025	Researched pre-existing aluminum ramps that could be modified for the design.	0.5		
	9/26/2025	Set-up budgeting and materials tracking system after reviewing additional BPAG resources and guidelines at BPAG meeting.	1	2	
	9/30/2025	Edited slides for our preliminary presentation.	0.5		
	10/2/2025	Practiced for preliminary presentation.	0.5		