

Spider Cage to Support Cerebral Palsy Patient

Client: Mr. Matt Jahnke - mattjahnke@ucpdane.org

Advisor: Joseph Towles - towles@wisc.edu

Team: Kevin Collins - kdcollins2@wisc.edu (Team Leader)

Darcy Davis - darcy.davis@wisc.edu (Communicator)

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Stephen Kindem - kindem@wisc.edu (BPAG)

Date: February 15th - February 21th, 2017

Problem Statement:

A spider cage is a device used by therapists to work with individuals (usually children) who have cerebral palsy. The cage supports the patient's weight with the use of bungee cords that are connected to a custom suit that allows the patient to work on building leg and arm strength. This product is available commercially but it is quite expensive. The client is looking for a design that is relatively inexpensive, transportable via trailer, able to fit through a standard doorway, and customized to meet the needs of one particular person.

Last Week's Goals

- Buy base and rubber flooring.
- Attach base.
- Do deflection testing for hypothesis.

Summary of Team Role Accomplishments

- *Leader* - Sent progress report to client, TA, and adviser
- *BWIG* - Uploaded progress report and preliminary journal
- *BSAC* - No meetings attended.

- *Communicator* - Arranged drop off of harness and bungee cords
- *BPAG* - No purchases this week. Will be purchasing materials Friday.

Summary of Accomplishments:

This week the team was able to take a trip to Home depot to inspect and determine what materials can be used for the base of the cage. Inspection of materials has lead the group to think about new design considerations in regards to the base setup, specifically, its finish. Testing on options for the base material finish will likely be establish. The group also completed and presented their preliminary presentation. A journal style preliminary report has been completed and submitted to our advisor as well as peer/self evaluations.

Activities

Date	Person	Task	Time (hrs)	Weekly Total	Semester Total
	Team				5
	Kevin	Worked on Journal	1		
		Traveled to Home Depot to inspect potential base materials	1.5		
		Researched T-nuts and installation	.5	3	9
2/17/17	Darcy	Traveled to Home Depot to inspect potential base materials	1.5		
2/20/17		Worked on ME individual presentation	1.5	3	9

2/18/17 - 2/20/17	Sheetal	ME Individual presentation	1.5		
2/21/17		Preliminary report	1.5	3	9
2/17/17 - 2/20/17	Breanna	Worked on ME individual presentation	1.5		
2/20/17		Price estimate for flooring	0.5		
2/21/17		Preliminary report	1.5	3.5	12
2/17/17	Stephen	Traveled to Home Depot to inspect potential base materials	1.5	2.5	10.5
2/21/17		Worked on OSB testing options & mesh reinforcement options	1		

Team Goals

- Test OSB with resin coating
- Buy and coat base board
- Buy and attach T-nuts to base board

Individual Goals

- *Kevin*: Buy base materials, coat them and install T-nuts
- *Darcy*: Coat test piece of OSB in epoxy resin to test water-resistant properties
- *Sheetal*: Install base for the cage and further develop testing procedures
- *Breanna*: Further develop testing procedures and attachment points
- *Stephen*: Buy base materials and look at options for sealing and visually refining base OSB.

Project Timeline

Task	January	February	March	April	May							
	19	26	2	9	16	23	30	6	13	20	27	4
Project R&D												
Base Support	X	X										
Padding												
Assembly Tools												
Fabrication												
Order Materials												
Create Fastener Hole		X										
Trim Mesh												
Base Support												
Padding												
Assembly Tools												
Testing												
Exercise Simulation												
Force/Stiffness Calculations												
Assembly Directions												
Redesign												
Deliverables												
Progress Report	X	X	X	X	X							
Individual Presentation				X	X							
Preliminary Presentation				X	X							
Preliminary Deliverables				X	X							
Poster												
Final Deliverables												
Meetings												
Advisor	X		X									
Client			X									
Team	X	X	X	X	X							
Website												
Update	X	X	X	X	X							
Colored Cells: Projected Timeline												
X: Completed Tasks												

Expenses

- Fall 2016: Total cost of materials: \$1,702.75
- Spring 2017: No expenses at this time