

Therapeutic Spider Cage for Muscle Development

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)

Sheetal Gowda - sjgowda@wisc.edu (BSAC)

Breanna Hagerty - bhagerty@wisc.edu (BWIG)

Stephen Kindem - kindem@wisc.edu (BPAG)

Date: April 27th - May 4th, 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

- Finish assembly instructions
- Final report and poster
- Test new carabiners

Summary of Team Role Accomplishments

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

- *Communicator* - Set up meeting with Matt to set up the cage, uploaded poster/report to ME website
- *BPAG* - No additional expenses

Summary of Accomplishments:

This week the team presented the spider cage to the ME and the BME department. In presenting the cage the team disassembled and assembled the cage two times, testing the portability of the cage. The team also finished the final report and submitted all evaluations to the respective departments.

Activities

Date	Person	Task	Time (hrs)	Weekly Total	Semester Total
4/28/16	Team	BME Poster Presentation	2		
5/4/16		ME Poster Presentation	2	4	25.5
5/4/17	Kevin	Cage setup	1	1	26.5
4/30/17	Darcy	Report graphics	1	1	27
4/30/17 - 5/1/17	Sheetal	Report	1.5	1.5	27
4/30/17	Breanna	Report	1	1	32.5
5/4/17	Stephen	Cage setup	.5	.5	25.5

Team Goals

- Assemble cage at Continuum Therapy

Individual Goals

- *Kevin*: Help with assembly instructions and set up on May 11th.
- *Darcy*: Complete assembly instructions before May 11th
- *Sheetal*: Set up cage at UCP
- *Breanna*: No goals
- *Stephen*: successfully transfer cage to UCP

Project Timeline

Task	January	February	March	April	May											
	19	26	2	9	16	23	2	9	16	23	30	6	13	20	27	4
Project R&D																
Base Support	X	X														
Harnesses and Bands		X	X	X												
Padding					X	X										
Fabrication																
Order Materials				X	X	X										
Create Fastener Hole		X														
Base Support						X	X	X								
Padding											X	X	X	X		
Testing																
Slip Test							X	X	X	X	X	X	X			
Deflection Calculations									X	X	X	X	X			
Assembly Directions														X	X	
Deliverables																
Progress Report	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
Individual Presentation				X	X											
Preliminary Presentation				X	X											
Preliminary Deliverables				X	X											
Poster														X	X	
Final Deliverables														X	X	
Meetings																
Advisor	X		X					X		X		X			X	
Client			X							X						
Team	X	X	X	X	X	X	X	X		X	X	X	X	X	X	
Website																
Update	X	X	X	X	X	X	X	X		X	X	X	X	X	X	
Colored Cells: Projected Timeline																
X: Completed Tasks																

Expenses

Fall 2016: University Funded Expenses: \$1,702.75

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Description	Supplier	Part/Model #	Link to Part	QTY	Date	Price	Total
Price Engineering Cage Materials & Shipping (Itemized BOM in separate file)	Price Engineering	N/A	N/A	1	1/1/2017	\$1,702.75	\$1,702.75
						Total	\$1,702.75

Spring 2017: University Funded Expenses: \$32.94

Description	Supplier	Part/Model #	Link to Part	QTY	Date	Price	Total
19/32 4'x8' OSB	Home Depot (IN STORE)	0000-339-696 5/8 OSB SQ	N/A	2	2/24/2017	\$14.75	\$29.50
TEE NUT ZINC 5/16-18 x 3/8"	Home Depot (IN STORE)	887480023114 TEE NUT	N/A	2	2/24/2017	\$0.98	\$1.96
HEX BOLT 5/16-18 x 3/4"	Home Depot (IN STORE)	AEE 5/16X3/4HBLT	N/A	8	2/24/2017	\$0.16	\$1.28
HEX BOLT 5/16-18 x 1"	Home Depot (IN STORE)	AFE 5/16X1HXBOLT	N/A	8	2/24/2017	\$0.17	\$1.36
						Total	\$34.10

Spring 2017: Client Funded Expenses: \$159.74

Description	Supplier	Part/Model #	Link to Part	QTY	Date	Price	Total
Harnesses	Zoro	Zoro #: G1320821 Mfr #: 1191209	https://www.zoro.com/protecta-full-body-harness-ml-420-lb-redgray-1191209/i/G1320821/?gclid=CON-5on-NECFR61wAodtbMCKg	1	2/9/2017	\$75.86	\$75.86
Resistance Bands	Fitness Insanity	Unsure	https://www.amazon.com/gp/product/B01GCA4BJC?ref=sr_1_7&qid=1486677502&sr=8-7&keywords=Fitness%20Resistant%20Bands&pldnSite=1	4	2/9/2017	\$20.97	\$83.88
						Total	\$159.74

Total UW - Expenses: \$1735.69

Total Client Expenses: \$159.74

Total Expenses: \$1895.43