

Bed-mounted Modular Procedural Training Surface

Date: 10/22/2026

Client: Shannon DiMarco

Advisor: Darilis Suarez-Gonzalez

Team:

Nathan Knight – Team Leader and BSAC (nknight3@wisc.edu)

Evan Koelemay – Communicator (ekoelemay@wisc.edu)

Tess Fitzgerald – BWIG (tkfitzgerald@wisc.edu)

Andrew McLaughlin – BPAG and BSAC (asmclaughlin@wisc.edu)

Problem Statement:

A secure, lightweight, procedural workstation is crucial for clinical simulation centers to conduct procedural training. Current solutions leave much to be desired as they lack stability, take up excessive floor space, or exhibit tipping hazards. To resolve this, the team is being tasked with designing a modular workstation attachment to existing bed architecture. The workstation must be compact for storage, quickly attachable, and meet desired constraints for sanitation and safety.

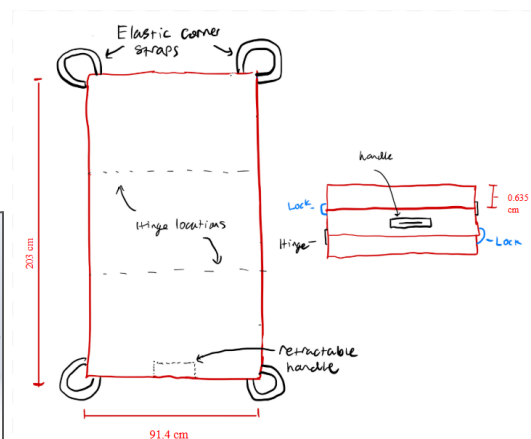
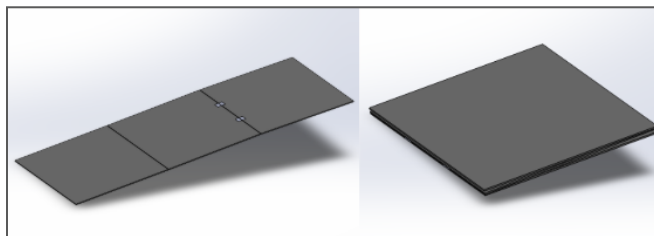
Brief Status Update:

- This week, the team met in the makerspace to begin the fabrication process of the mini prototype. The team also placed an order for piano hinges through the client.

Project Difficulties/Advice Requests:

- None to report

Current Design



The current design features three equal-sized panels, attached by piano joints in alternating directions to fold into one neat stack. In order to prevent fluid leakage, a thin silicone sheet will

be placed over the entire surface, which will easily fold and stretch with the panels. The method of securing the surface to the mattress will be done with 4 elastic straps, one on each corner. These straps will easily slip under the corners of the mattress, preventing movement in all directions. This design will also feature a compact, retractable handle, allowing for briefcase-like carrying when in its folded state. Dimensions will be 36" (91.4cm) width, 80" (203cm) length, and 1/4" (0.635cm) thickness.

Materials and Expenses:

- None to report, see table below:

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Acrylic	Base for mini prototype	Makerspace	n/a	UW-Madison	n/a	10/19	1	10.75	\$10.75	
Piano Hinges									\$0.00	
								TOTAL:	\$0.00	

Team Goals for Upcoming Week:

1. Continue to build mini prototype for show and tell
2. Meet with client to touch base on timelines and progress
3. Continue brainstorming adhesive mechanisms for straps

Individual Goals for Upcoming Week:

- Nathan Knight
 - Obtain and continue fabrication with new parts
 - Meet with the client alongside the team
- Evan Koelemay
 - Meet with client to discuss further design considerations and ordering
 - Continue fabrication of prototype
- Tess Fitzgerald
 - Continue fabrication of mini prototype
 - Meet with client to discuss timelines and material ordering
 - Order strap and chemical resistance components of prototype
- Andrew McLaughlin
 - Continue to fabricate prototype

- Meet with client to discuss timeline and material ordering
- Continue to work on BPAG spreadsheet and collect necessary material

Timeline

Task	September				October					November				December		
	4	11	18	25	2	9	16	23	30	6	13	20	27	4	9	11
Deliverables																
Progress Reports		X	X	X	X	X	X	X								
PDS Draft			X													
Design Matrix				X												
Preliminary Presentations					X											
Preliminary Report						X										
Preliminary Evaluations						X										
Show and Tell																
Final Poster Presentation																
Final Lab Notebook																
Final Report																
Final Evaluations																
Meetings																
Team	X	X	X	X		X	X	X								
Client	X		X		X		X	X								
Advisor	X		X		X	X	X									
Website																
Update	X	X	X	X	X	X	X	X								

Previous week's goals and accomplishments:

- Nathan Knight
 - Begin fabrication with the team
 - Meet client with the team
- Evan Koelemay
 - Acquire materials from makerspace for prototyping
 - Organize client meeting
- Tess Fitzgerald
 - Fabricate small prototype in makerspace
 - Meet with client to discuss rest of semester agenda
 - Order materials given prototype is successful

- Andrew McLaughlin
 - Begin Fabrication of prototype
 - Order materials and record them within the material expenses
 - Meet with client to discuss timelines further

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Nathan Knight	10/21/2026	Began brainstorming different ideas possible for the electrical plugin component	1.5	1.5	16
Evan Koelemay	10/15/2026	Researched possible materials for thin cover and strap mechanisms	1.5	1.5	17
Andrew McLaughlin	10/22/2026	Researched BPAG necessary materials and collected info about ordering materials	1	1	19
Tess Fitzgerald	10/22/2026	Researched adhesive mechanisms for attaching the elastic fabric straps to polypropylene	1.5	1.5	19.5
Team	10/20/2026	Team meeting in the makerspace to determine materials available to purchase Communicated with client to order materials not available on campus	1.5	1.5	4.5