

PRINT-A-PUNCH

Date: October 12, 2024 to October 19, 2024

Client: Prof. Colleen Witzenburg (witzenburg@wisc.edu) and Mr. Daniel Pearce (dppearce@wisc.edu)

Advisor: Dr. Megan Settell - settell@wisc.edu

Daniel Pies - dpies@wisc.edu - Team Leader

Colin Bailey - cgbailey@wisc.edu - Communicator

Kendra Ohde - ohde@wisc.edu - BPAG

Emmett Jones - eajones8@wisc.edu - BWIG

Cole Miller - ctmiller8@wisc.edu - BSAC

Problem Statement

In order to carry out effective biaxial testing of tissue, a precise, symmetric sample must be cut. A cruciform shaped sample allows this testing to be performed however there are not currently any products that can uniformly cut this type of sample. The goal of this project is to generate a method to use factory produced razor blades to cut small samples of tissue so biaxial tensile testing is effective while keeping the product simple and inexpensive.

Brief Status Update

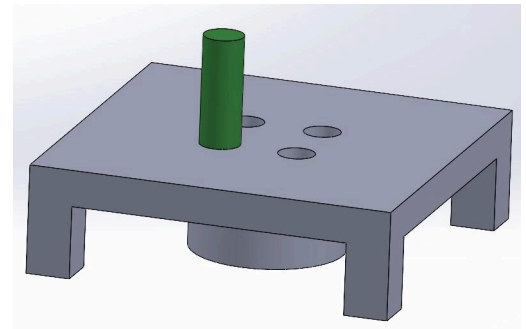
This week, the team focused their efforts on prototyping. The team was able to utilize the resin printing software in Wendt Commons to create two different models of preliminary prototypes, which will soon be evaluated for their accuracy and feasibility.

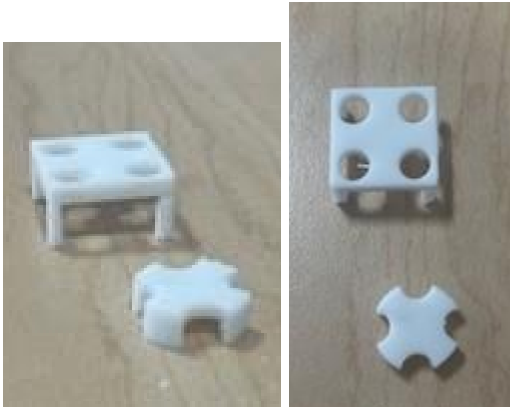
Difficulties / Advice Requests

- The team would like to gain feedback from Prof. Witzenburg and Daniel Pearce regarding the two prototypes that were created this week.

Current Design

The team currently has two prototypes, both of different shapes but utilize the same principle of a biopsy jig. The first of these prototypes resembles the biopsy jig originally presented in the preliminary presentation, and the CAD design to the right, while the second prototype acts more as a reference outline for where to cut with the biopsy punch.





Materials and expenses

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1										
3D printed material	Resin prototypes	Makerspace				10/15/2024	2	\$0.76	\$1.51	
									\$0.00	
Category 2										
									\$0.00	
									\$0.00	
								TOTAL:	\$0.00	

Major Team Goals For The Next Week

- Continue preliminary prototyping
- Make minor changes and gain client feedback on prototypes
- Begin considering the Show and Tell session.

Next Week's Individual Goals

- Daniel Pies
 - Print 2-3 new iterations of the preliminary prototypes from TeamLab using inexpensive materials
 - Work to develop testing plan and protocols
 - Continue research as needed
- Colin Bailey
 - Develop preliminary testing protocol
 - Develop standard operating procedures for each method of cutting
 - Continue tweaking prototypes
- Cole Miller

- Test printed prototypes
- Create new prototypes to improve on past iterations
- Continue research as necessary
- Emmett Jones
 - Continue developing biopsy punch jig design
 - Begin testing of printed prototypes
 - Continue research where necessary
- Kendra Ohde
 - Print 2-3 new different versions of our prototype
 - Work on testing methods, and compare accuracy of prototypes.

Timeline

Task	September				October				November					December	
	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13
Project R&D															
Empathize	X	X	X												
Background...		X	X	X	X	X									
Prototyping						X	X								
Testings															
Deliverables															
Progress Reports		X	X	X	X	X	X								
Prelim Presentation					X										
Final Poster															
Meetings															
Client		X		X											
Advisor	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

Major Team Goals For The Previous Week

- Use Wendt Common Lab to print several different preliminary prototypes
- Complete progress report
- Meet as a team to discuss fabrication plan

Previous Week's Goals and Accomplishments

- Daniel Pies
 - Created progress report
 - Finish CAD models for preliminary prototypes
 - Orchestrate team meeting
 - Attend fabrication session at Wendt Common for resin printing
- Colin Bailey
 - Team meeting to discuss fabrication and testing
 - Begin to determine best method to test prototypes
 - Begin writing SOP for cutting free hand and with guide
- Cole Miller
 - Discussed fabrication of prototypes with group
 - Brainstormed design ideas
 - Brainstormed methods for testing prototypes
- Emmett Jones
 - Complete preliminary report
 - Prototype designs into CAD
 - Update Website
 - Print Prototypes
- Kendra Ohde
 - Team meeting to discuss fabrication and testing
 - Print and pick up prototypes at the Makerspace.

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Team	10/12-10/19	Team fabrication meeting Advisor meeting Print prototypes	.5 .5 .5	1.5	7.5
Daniel Pies	10/12-10/19	Create final CAD designs for prototypes Attend team meeting Fabrication session	1 .5 .5	2	20.5
Colin Bailey	10/12-10/19	Team meeting Testing work SOP	.5 .5 .5	1.5	16.5
Emmett Jones	10/12-10/19	Attend Team Meeting Develop teeth design into CAD	.5 1	1.5	15.5
Cole Miller	10/12-10/19	Attend Team Meeting BSAC Executive Meeting	.5 1	1.5	16.5

Kendra Ohde	10/12-10/19	Team meeting Print and Pick up prototypes from Makerspace Record cost	.5 .25	1	14
			Total		90.5