

## ***PRINT-A-PUNCH***

Date: October 20, 2024 to October 26, 2024

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

Advisor: Dr. Megan Settell - [settell@wisc.edu](mailto:settell@wisc.edu)

Daniel Pies - [dpies@wisc.edu](mailto:dpies@wisc.edu) - Team Leader

Colin Bailey - [cgbailey@wisc.edu](mailto:cgbailey@wisc.edu) - Communicator

Kendra Ohde - [ohde@wisc.edu](mailto:ohde@wisc.edu) - BPAG

Emmett Jones - [eajones8@wisc.edu](mailto:eajones8@wisc.edu) - BWIG

Cole Miller - [ctmiller8@wisc.edu](mailto: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**

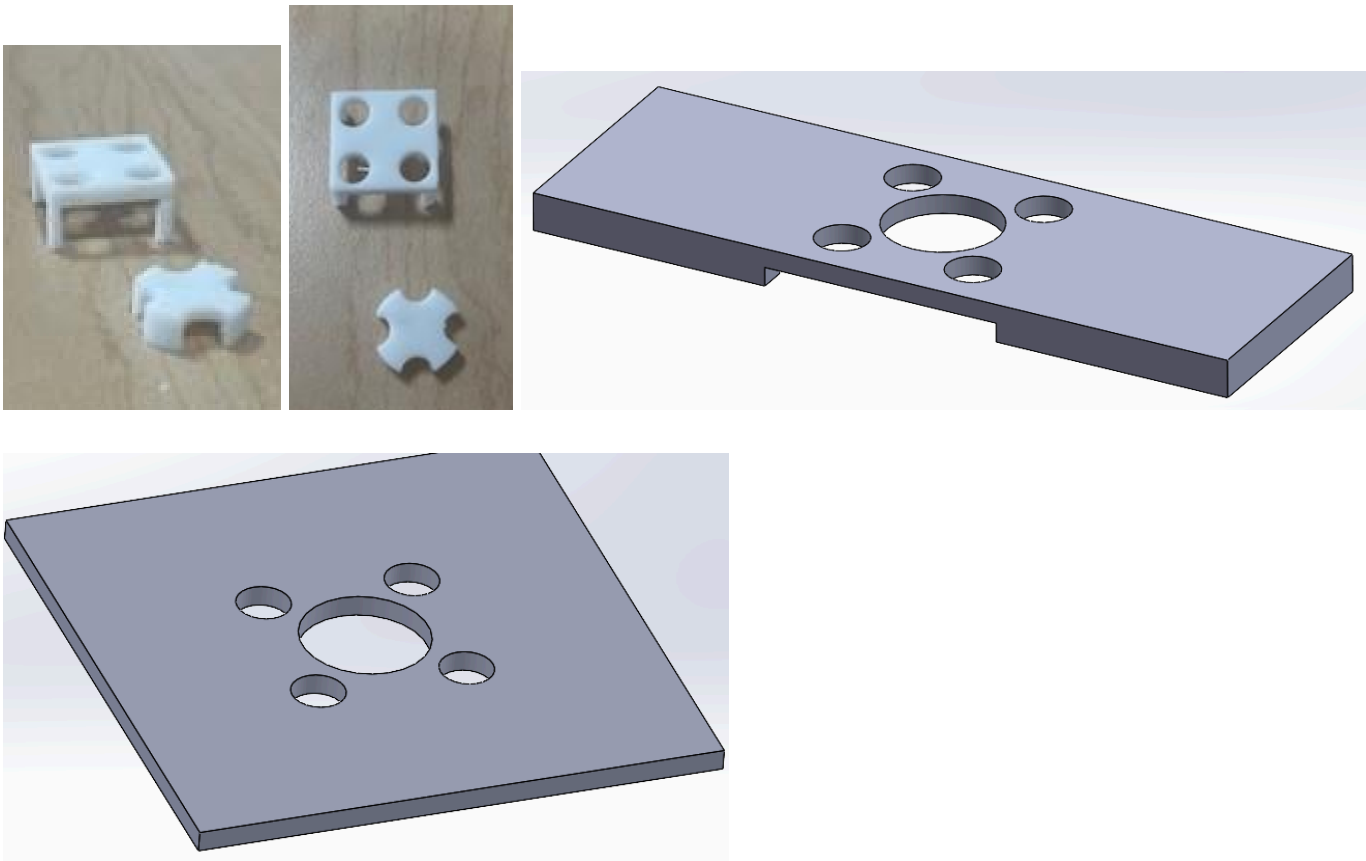
This week, the team continued with prototyping. The team was able to utilize the resin printing software in the previous week in Wendt Commons to create two different models of preliminary prototypes, which were evaluated at a design meeting held with just the team members. From this meeting, the team was able to determine aspects of the prototypes that could be improved. Members then created CAD designs and printed a second round of prototypes, to present to the client for feedback at a later date.

### **Difficulties / Advice Requests**

- The team would like to gain feedback from Prof. Witzenburg and Daniel Pearce regarding the two prototypes that were created last week, as well as the three new ones created this week.

### **Current Design**

The team currently has 5 prototypes different shapes that utilize the same principle of a biopsy jig. The first of these prototypes resembles the biopsy jig originally presented in the preliminary presentation, while the second prototype acts more as a reference outline for where to cut with the biopsy punch. The new prototypes are still in the CAD phase, as pictured below. These will be updated as soon as prints are complete.



**Materials and expenses**

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

**Major Team Goals For The Next Week**

- Continue preliminary prototyping
- Make minor changes at design meeting
- Meet with client to gather feedback
- Begin considering the Show and Tell session.

## Next Week's Individual Goals

- Daniel Pies
  - Evaluate current prototypes for possible improvements
  - Work to develop testing plan and protocols
  - Continue research as needed
- Colin Bailey
  - Improve current prototypes after receiving feedback from client
  - Develop SOP's for each method of cutting
  - Continue to develop testing analysis program
- Cole Miller
  - Evaluate current prototypes with client input
  - Use client feedback to advise new design changes
  - Develop consistent method to test prototypes
- Emmett Jones
  - Meet with client to test prototypes
  - Continue editing and revising possible prototypes
  - Began quantitatively testing samples using software
- Kendra Ohde
  - Print and pick up current prototypes
  - Work on testing plan and protocols
  - Evaluate current prototypes and develop new design variations

## Timeline

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

<b>Website</b>																
Update	X	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**

- Complete progress report
- Meet as a team to discuss current designs and future fabrication plans
- Use CAD software to develop new and improved models

**Previous Week’s Goals and Accomplishments**

- Daniel Pies
  - Created progress report
  - CAD model for second round of preliminary prototypes
  - Orchestrate team meeting
  - Attend team meeting for evaluation of the created prototypes
- Colin Bailey
  - Contact client to plan meeting
  - Attend team meeting
  - Develop program to screen images for symmetry
  - Compile questions to improve prototypes
- Cole Miller
  - Attended team meeting to evaluate prototypes
  - Discussed new possibilities for designs
  - Planned with team for continued fabrication of prototypes
- Emmett Jones
  - Attend team meeting to evaluate prototypes
  - CAD model or prototype
  - Continue revising and brainstorming alterations to design
  - Update Team Website
- Kendra Ohde
  - Print and pickup preliminary prototypes
  - Attend team meeting to evaluate current prototypes and design new ones

**Activities**

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Team	10/20-10/26	Team fabrication meeting Advisor meeting Print second round of prototypes	1 .5	1.5	9

Daniel Pies	10/20-10/26	Create two CAD designs for prototypes Attend team meeting Create progress report	.5 1 .5	2	22.5
Colin Bailey	10/20-10/26	Contact client to plan meeting Attend team meeting Develop program to screen images for symmetry Compile questions to ask client	0.5 1 1 0.5	3	19.5
Emmett Jones	10/20-10/26	Attend Team meeting Develop prototype and CAD Update Website	-1 -1 -.5	2.5	18
Cole Miller	10/20-10/26	Attend Team Meeting Attend BSAC Meeting	-1 -1	2	18.5
Kendra Ohde	10/20-10/26	Print and pick up prototypes Attend team meeting	.5 1	1.5	14
			<b>Total</b>	12.5	101.5