

The Knotorious Five

April 17 - April 23

Client: Dr. Margene Anderson, Dr. Sara Colopy, Dr. Paul Merkatoris

Advisor: Professor Wally Block

Team Members:

Madison Michels (mmichels2@wisc.edu), Leader

Lucy Hockerman (lhockerman@wisc.edu), Communicator

Presley Hansen (pmhansen3@wisc.edu), BWIG

Sadie Rowe (skrowe2@wisc.edu), BPAG

Kate Hiller (khiller@wisc.edu), BSAC

Problem Statement:

In veterinary training, mastering the skill of applying appropriate suture tension is essential for successful wound closure and patient recovery. However, novice practitioners often struggle to judge the correct amount of force needed, leading to either insufficient tension or excessive tension, which can cause plastic deformation of the suture material or tissue damage. Currently, the evaluation of suture technique relies heavily upon subjective instructor feedback, lacking objective, real-time metrics to guide learners. This gap hinders consistent skill development and increases the risk of procedural errors. There is a critical need for a real-time suture tension measurement and feedback system to help students learn to apply optimal tension, prevent material or tissue compromise, and improve surgical outcomes through data-driven training.

Brief Status Update:

This week, the team completed workflow testing and prepared the final poster for the poster presentation this Friday, April 24.

Team Goals:

Next week, the team plans to complete the final report.

Individual Accomplishments:

- Lucy: This week, I completed testing with the team and worked on final deliverables.
- Presley: This week, I completed testing with the team and worked on the final poster presentation.
- Maddie: This week, I helped the team prepare our final deliverable materials and completed model and workflow testing.

- Sadie: This week, I completed testing with the team and primarily focused on creating the final deliverables.
- Kate: This week I completed final manual testing for the poster and creating the final deliverables.

Individual Struggles:

- Lucy: No struggles this week.
- Presley: No struggles this week.
- Maddie: No struggles this week.
- Sadie: No struggles this week.
- Kate: No struggles this week.

Individual Goals:

- Lucy: Next week, I plan to finish the final report and complete any miscellaneous tasks needed to wrap up the project.
- Presley: Next week, I will work on my section of the final report.
- Maddie: Next week, I plan to finish the final report and complete project traceability for future continuation.
- Sadie: Next week, we will need to finish up the report and ensure the project is at a good point for new students to pick it up in the fall.
- Kate: Next week, I will work on the final report.

Project Timeline:

Week	Description	Date	Status
1/22 - 1/29 Week 1	Team Meeting 1	1/26	Completed
	Advisor Meeting 1	1/23	Canceled
1/30 - 2/5 Week 1	Team Meeting 2	2/4	Completed
	Advisor Meeting 2	1/30	Completed
2/6 - 2/12 Week 3	Preliminary Presentations	2/6	Completed
	Team Meeting 3	2/9	Completed
	Advisor Meeting 3	2/13	Completed
	Order Raspberry Pi Camera and Board	2/13	Completed

2/13 - 2/19 Week 4	Images Augmented	2/16	Completed
	K-Fold Cross Validation	2/18	Completed
	Receive Materials	2/18	Completed
	Model Trained	2/20	Completed
	Team Meeting 4	2/18	Completed
	Advisor Meeting 4	2/20	Completed
2/20 - 2/26 Week 5	Preliminary Deliverables	2/25	Completed
	Upload Model onto Pi	2/20	Done
	Team Meeting 5	2/23	Completed
	Advisor Meeting 5	2/27	Complete
2/27 - 3/6 Week 6	Submit Patent to WARF or IDR	3/6	TBD
	Team Meeting 6	3/4	Complete
	Advisor Meeting 6	3/6	Complete
3/7 - 3/12 Week 7	Team Meeting 7	3/13	Complete
	Advisor Meeting 7	3/13	Complete
	Get the Pi camera running	3/8	Complete
3/13 - 3/19 Week 8	Team Meeting 8	3/18	Complete
	Advisor Meeting 9	3/13	Complete
	Implement Pi camera and images into user system	3/13	Complete
3/20 - 3/26 Week 9	Show and Tell	3/20	Complete
	Advisor Meeting 10	3/25	Complete

3/27 - 4/9 Week 10	Select Design Award	4/1	Complete
	Executive Summary (Draft)	4/1	Complete
	Advisor Meeting 11	4/8	Complete
4/10 - 4/16 Week 13	Complete project assembly	4/16	Complete
	Complete project testing	4/16	Complete
4/17 - 4/23 Week 14	Executive Summary	4/17	Complete
	Advisor Meeting 12	4/17	Complete
4/24 - 4/30 Week 15	Final Presentation	4/24	Not Started
	Final Journal Due	4/29	Not Started
	Client Evaluation	4/29	Not Started
	Email Report and Notebook to Client	4/29	Not Started
4/31 - 5/6 Week 16	Advisor Meeting 13	5/6	Scheduled
VET CONFERENCE JUNE 4 & 5			

Expenses

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	QTY	Cost Each	Total	Link
Force Sensor Resistor	Force sensor that outputs resistance in a voltage divider circuit (2 in pack)	Haosie	N/A	Amazon Prime	N/A	10/1	1	\$7.59	\$7.59	Link

Raspberry Pi Kit	Contains: Raspberry Pi 5 8GB, 27W power supply, active cooler, 64 GB SD card, card reader, 4K Mico HD out cables, and case	Vemico	B0D2WYFS23			2/8/2026	1	\$173.99	\$173.99	Link
Arducam IMX477 Pi HQ Camera	HQ Camera + CS 6mm lens	Arducam	B024002			2/8/2026	1	\$67.99	\$67.99	Link
TOTAL: \$249.57										