

Title: Adaptive overhead tether system for freely moving swine

Team: Porcine Innovations Group (P.I.G), BME 200/300

Date: 9/4/2026 - 9/10/2026

Client: Dr. Marco Failla Mulone

Advisor: Dr. Jonathan Soucy

P.I.G

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Problem statement

The UW-Madison Department of Neurosurgery is developing a chronic large-animal neuromonitoring platform using multiple intracranial catheters for continuous or repeated brain interstitial fluid sampling. A cranial fixation device that organizes and protects these catheters has already been developed; however, the lab requires the development of a complementary overhead system that manages tubing and cables extending from the cranial device, while simultaneously allowing the animal to move naturally within a stationary enclosure. The developed system needs to be able to dynamically follow the animal, maintain appropriate tubing length, minimize tensile and rotational forces, prevent entanglement or kinking, and allow normal behaviors.

Brief status update

Our team reviewed the project details and provided materials, and familiarized ourselves with the course setup. Team roles were established, and the team confirmed an initial client meeting time. Team members began coming up with questions for the client meeting and also researched background information on the project.

Difficulties/advice requests

N/A

Current design

N/A

Materials and expenses

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1										
									\$0.00	
									\$0.00	
Category 2										
									\$0.00	
									\$0.00	
								TOTAL:	\$0.00	

Goals

Major team goals for the next week

1. As a team, discuss what was found during individual research
2. Use information from the first client meeting to begin working on PDS

Next week's individual goals

- Alisha Schaeffer
 - Prepare questions for the client meeting
 - Research background information and design impact
- Katelynn Johnson
 - Prepare questions for the client meeting
 - Research similar designs and background information
- Gabriela Medina Medina
 - Prepare questions for the client meeting
 - Research similar designs
- Evan Hoffman
 - Prepare for client meeting and become familiar with current designs

- Better understand BPAG roles and responsibilities
- Catherine Sit
 - Prepare questions for the client meeting
 - Research current devices for similar problems and background information
- Joshua Grauman
 - Research similar tethered devices on other animals.
 - Prep questions for the client meeting

Timeline

Task	September				October					November				December	
	10	16	18	25	2	7	16	23	30	6	20	26	30	4	9
Project R&D															
Empathize	X														
Background	X														
Prototyping															
Testings															
Deliverables															
Progress Reports	X														
PDS															
Design Matrix															
Prelim Presentation															
Prelim Deliverables															
Show and Tell															
Final Poster															
Final Deliverables															
Meetings															
Client															
Advisor	X														
Website															
Update	X														

Filled boxes = projected timeline

X = task was worked on or completed

Detailed accomplishments

Previous week's goals and accomplishments

N/A

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Alisha Schaeffer	9/9/2026	Brainstormed questions for client meeting to be used for PDS	0.5	1	1
	9/4/2026	Created a calendar for the team to keep the team organized on deadlines and upcoming events to prepare for	0.5		
Katelynn Johnson	9/8/2026	Brainstormed questions for client meeting	0.5	1.5	1.5
	9/9/2026	Worked on timeline	0.5		
	9/10/2026	Wrote Problem Statement	0.5		
Gabriela Medina Medina	9/10/2026	Brainstormed questions for client	0.5	1	1
	09/10/26	Got started on researching current devices	0.5		
Evan Hoffman	9/10/2026	Brainstorm client questions for meeting	0.5	1	1
	9/102026	Research current devices and solutions	0.5		
Catherine Sit	9/10/2026	Research current devices and similar problems and solutions	0.5	1	1
	9/10/2026	Brainstormed questions for client	0.5		
Joshua Grauman	9/10/26	Research the catheter device used on pigs	.75	1	1
	9/9/26	Communicated with the client about meeting times	.25		