Progress Report #4

Interactive Touchscreen for Rhesus Macaque

BME 200/300

10/03/2025

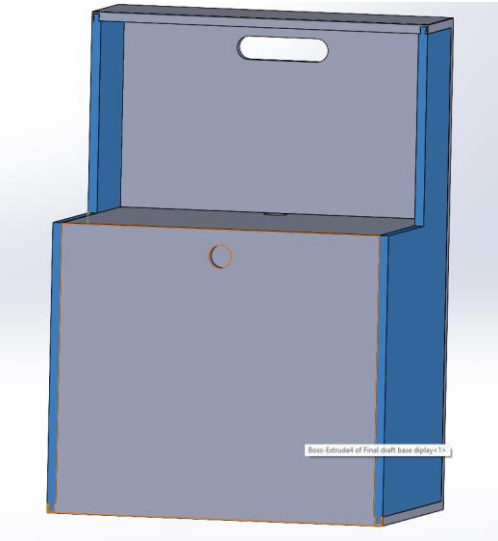
Team Members: Logan Olivera (co-leader), Kalob Kimmel (co-leader), Jackson Stewart (communicator), Andrew Dirkse (BSAC), Sameer Bhatt (BWIG), Charlie Fischesser (BPAG)

Project Statement: To design a modular, raspberry pi based interactive touchscreen, with a corresponding liquid dispensing to observe and understand the cognitive function of complex neural systems.

Current Project Status: Currently the project is in the development/research/prototyping phase. The electronics/software components are completed for the prototype. The first final CAD design for the case is finished. Research regarding the touchscreen display is complete. Raspberry pi circuitry, ssh and vnc setup is complete.

Difficulties/Questions: No overarching difficulties in the present state of the project.

Current Design:



Materials and Expenses:

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	QTY	Cost Each	Total	Link
Electronics										
Raspberry Pi Model 3 B+	Advanced Raspberry Pi used to send out signals for motor controller	N/A	SC0073	UW Makerspace	SC0073	9/15/2025	1	$45.00	$45.00	https://www.raspberrypi.com/products/raspberry-pi-3-model-b-plus/
Wiring	Wiring to connect Raspberry Pi	N/A	N/A	UW Makerspace	N/A	9/22/2025	1	$1.00	$1.00	
Micro SD	Store Research data for researchers	N/A	N/A	UW Makerspace	N/A	9/15/2025	1	$4.00	$4.00	
Motor Controller	Connects to Raspberry Pi to initiate pump	Hiletgo	3-01-833	Amazon	3-01-833	9/22/2025	1	$10.99	$10.99	https://www.amazon.com/dp/B00WSN98DC?ref=ppx_yo2ov_dt_b_fed_asin_title_
Mechanical										
A300BXS- Pump	Pump to push fluids	Anko	A302BX-300-S	Anko	A302BX-300-S	9/15/2025	1	Gifted	$0.00	ANKO A300BX-S	OEM Peristaltic Pump	Serial Control	Brushless DC	Models to 1700 mL/min
								TOTAL:	**$60.99**	

High Level Team Goals for Next Week: The main goal for the following week is to start working on the preliminary report and the bulk of the mechanical prototyping. Other documentation for this week includes regular lab archive work and the next progress report.

Individual Progress:

Logan Olivera – This week I continued setup of the hardware through its software to hardware connections. I wrote a package to control the pins which control the motor controller. I also spent quite a bit of time working on the presentation.

Kalob Kimmel – This week I made the final cad design with correct dimensions to fit the touchscreen we chose. It has working doors in the assembly and more details such as door locks. I also worked on the preliminary presentation and created the progress report.

Sameer Bhatt – The week I looked into the latching mechanism to help keep the entire design secure to the cage. It required learning about a couple new joints that I had not learned previously. I also worked on the Preliminary Presentation.

Jackson Stewart – This week I looked into how to set up a raspberry p and some of the best ways to code one. I also looked into several different ways that a raspberry pi can be used. Finally, I collaborated with the team on the Preliminary Presentation.

Andrew Dirkse – This week I collaborated on the preliminary presentation, did research on other in-cage training designs, and attended and took notes at the weekly BSAC meeting.

Charlie Fischesser – This week I was able to correctly create and update the expenses sheet with serial numbers. I also was able to work on the preliminary presentation and practice presenting.

Individual Goals (next week):

Logan Olivera – In th next week I plan to have the general hardware complete if time allows. I also plan on spending quite a bit of time working on the report.

Kalob Kimmel – In the next week I plan to do my section in the preliminary report, as well as proofread it. I also plan to print out the mechanical cad design to see if it is physically practical. I may also investigate locking mechanisms!

Sameer Bhatt – Next week I want to have a finalized CAD model of the latching mechanism we will use for the final design along with help finishing the report.

Jackson Stewart - Next week I plan to continue my research into raspberry pis and potentially get one to tinker with on my own.

Andrew Dirkse – I plan to do a section of the preliminary report, do further research, and work to integrate the hardware with the software to ensure that a signal is being sent to the pump to deliver the reward at the appropriate times.

Charlie Fischesser – I plan to continue to update the expenses sheet with any materials purchased in the next week. I also plan to complete part of the preliminary report and complete my feedback for my fellow teammates. I also hope to begin prototyping if we get to that point.

Timeline:

Project Goal	Deadline	Progress	Date Completed
Contact Client and Meet	9/13/25	100%	9/8/25
Research	N/a	N/a	N/a
Order Material	N/a	N/a	N/a
Product Design Specification	9/18/25	100%	9/18/25
Design Matrix	9/26/25	100%	9/26/25
Preliminary Presentations	10/5/25	100%	10/3/25
Preliminary Deliverables	10/8/25	N/a	N/a
Show And Tell	10/31/25	N/a	N/a
Final Poster Presentation	12/5/25	N/a	N/a
Project Fabrication	12/10/25	N/a	N/a
Final Deliverables	12/10/25	N/a	N/a