Progress Report #3

Interactive Touchscreen for Rhesus Macaque

BME 200/300

09/19/2025

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. There are multiple CAD designs for the case. Research regarding the touchscreen display is nearly complete. Raspberry pi circuitry, ssh and vnc setup is complete.

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

Current Design: N/A

Materials and Expenses:

Item	Quantity	Cost
Raspberry Pi	1	$42.00
Micro SD	1	$5.00

High Level Team Goals for Next Week: The main goal for the following week is to discuss the three main designs and converge on a final design or take a hybrid approach. That design should then start in the prototyping phase. Documentation for this week includes regular lab archive work, the next progress report, and the Preliminary Presentation.

Individual Progress:

Logan Olivera – This week I completed the general electronic layout of the system as well as began the code and hardware-software interfacing. I also worked with my team to outline a plan for the upcoming week.

Kalob Kimmel – This week I met with the client as well as the advisor. Outside of meetings, for documentation I worked on the design matrix and made the progress report. For project progress I finished working on 3 CAD designs for the casing.

Sameer Bhatt – This week I finalized the touchscreen which we will use for the project along with drawing up a few potential physical designs. I also decided to switch my focus from software/electronics to more mechanical and physical design.

Jackson Stewart - This week I drew multiple ideas for prototyping for my team. I also put in extensive research of touchscreens and how raspberry pis function and can be used. I also collaborated with my team on the design matrix.

Andrew Dirkse – I prototyped a simple match-to-sample task to display on the touchscreen in Python, which I uploaded to GitLab. I met with the client and advisor, took notes at the BSAC meeting, and continued research on a competing design article. I collaborated on the design matrix.

Charlie Fischesser – This week I was able to brainstorm and create some designs on SolidWorks. First, I was unfamiliar with SolidWorks, so I did some tutorials and learned the basics before creating my own design. I also was able to complete my machining training to be able to use the lathe and mill in the prototyping phase.

Individual Goals (next week):

Logan Olivera – My goal for next week is to have a presentable circuit for the presentation as well as work through the prelim presentation with my team. I also plan to check in with everyone in my team to see how progress in other parts of the project are going.

Kalob Kimmel – In the next week I plan to start prototyping the casing. I also plan on helping section off the preliminary presentation and working on my sections I am assigned. I also hope to do at least one more research in lab archives.

Sameer Bhatt – In the next week, I want to make a few potential CAD drawings for the design along with brainstorming how to machine our design. In addition, I will finish up my part of the presentation and practice a ton to make sure it runs smoothly.

Jackson Stewart - In the next week, I plan to look more into Raspberry Pis to better understand how they work. I also want to see if I can get my hands on a raspberry pi to be able to better understand it. I also want to finish my part of the preliminary presentation early so that I have enough time to practice.

Andrew Dirkse - I plan to work on a section of the presentation, which will hopefully be completed by Tuesday. I hope to work on researching competing designs on a more regular schedule and get more involved in programming the Raspberry Pi.

Charlie Fischesser – In the next week, I would like to fix the finance chart. It needs to be expanded upon with more detail. I also am planning on helping create and present our preliminary designs presentation. If I have time, I would like to practice more on SolidWorks or research about the raspberry pi.

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	N/a	N/a
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