Microscope Slide Scanner

Date: 10/31/24

Client: Teri Stewart
Advisor: Dr. James Trevathan
Team: Lia Lejonvarn (Team Leader)
        Amanda Kothe (Communicator and BSAC)
        Hamad AlDhaheri (BPAG)
        Xavier Snider (BWIG)

Problem statement

The team has been tasked with finding a more efficient way to scan microscope slides using digital scanning. The client's department already has a scanner but it takes a while to scan one slide and the images are not of the best quality. Therefore, we must find a way to enhance the user quality of their digital scanner as well as the images themselves. The department has also asked our team to create software capable of housing the images. This project will benefit multiple labs who send in slides for processing including the primate lab and SMPH.
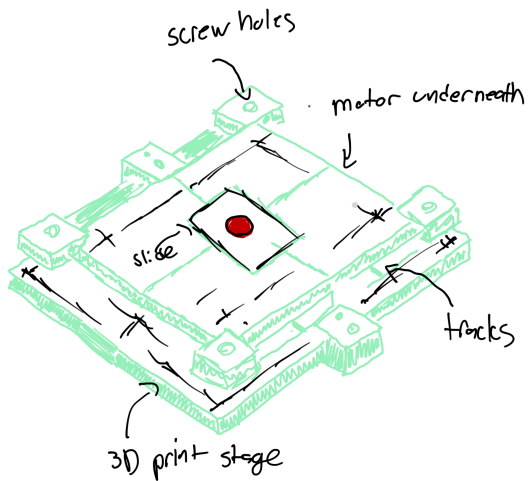
Brief status update

The team has been preparing for show and tell tomorrow and will present their current progress to the other teams. The team has also contacted Olympus about purchasing materials.

Difficulties / advice requests

The team would like help with the electronics setup required for their current design.

Current design: Slide Glider

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	

Major team goals for the next week

1. Start prototyping with stepper motors
2. Continue testing software
3. Create LTSpice model for electronics

Next week's individual goals

- Amanda:
    - Help make LT spice model for electronics
    - Try to find additional stage attachment

- ○ Continue communicating with advisor and client
- ● Lia:
  - ○ Create LTSpice model for electronics
  - ○ Find way to connect hardware to micro-manager
  - ○ Continue testing software
- ● Xavier:
  - ○ Get microscope
  - ○ Engineer current stage to be moved
- ● Hamad:
  - ○ Acquire the motors needed to build a prototype.
  - ○ Create a 3D models for material that is going to be 3D printed.
  - ○ Continue testing phase.

Timeline

Task	Sep			Oct				Nov				Dec		
	13	20	27	4	11	18	25	1	8	15	22	29	6	11
Project R&D														
Empathize														
Background…														
Prototyping														
Testings														
Deliverables														
Progress Reports	X	X	X	X	X	X	X							
Prelim presentation				X										
Final Poster														
Meetings														
Client	X	X		X		X								
Advisor	X	X	X	X	X	X	X							
Website														
Update	X	X	X	X	X	X	X							

Filled boxes = projected timeline
X = task was worked on or completed

Previous week's goals and accomplishments

- ● Amanda:
  - ○ Start solidworks model for tracks
  - ○ Design electronics in LT Spice
  - ○ Examine old scanner for ideas on mechanics and materials for project
- ● Lia:

- ○ Researched electronic ways to connect stage and micro-manager
- ○ Found a way to take pictures/video of slides from computer
- ○ Started researching a way to connect micro-manager with the microscope's camera
- ● Xavier:
  - ○ Take apart old scanner and try to reuse the design for tracks
  - ○ Research motors
- ● Hamad:
  - ○ Determine the material required for prototyping
  - ○ Determine the cost of the materials needed for prototyping
  - ○ Explore the old Microscope slide scanner for usable materials

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Amanda	10/30	Team meeting	1	1	10
Lia	10/30	Team meeting	1	1	10
Xavier	10/30	Team meeting	1	1	10
Hamad	10/30	Team meeting	1	1	9