



Julia
Normandin

All About Animatronics

*Senior Project
Fall 2024*

DOCUMENTATION

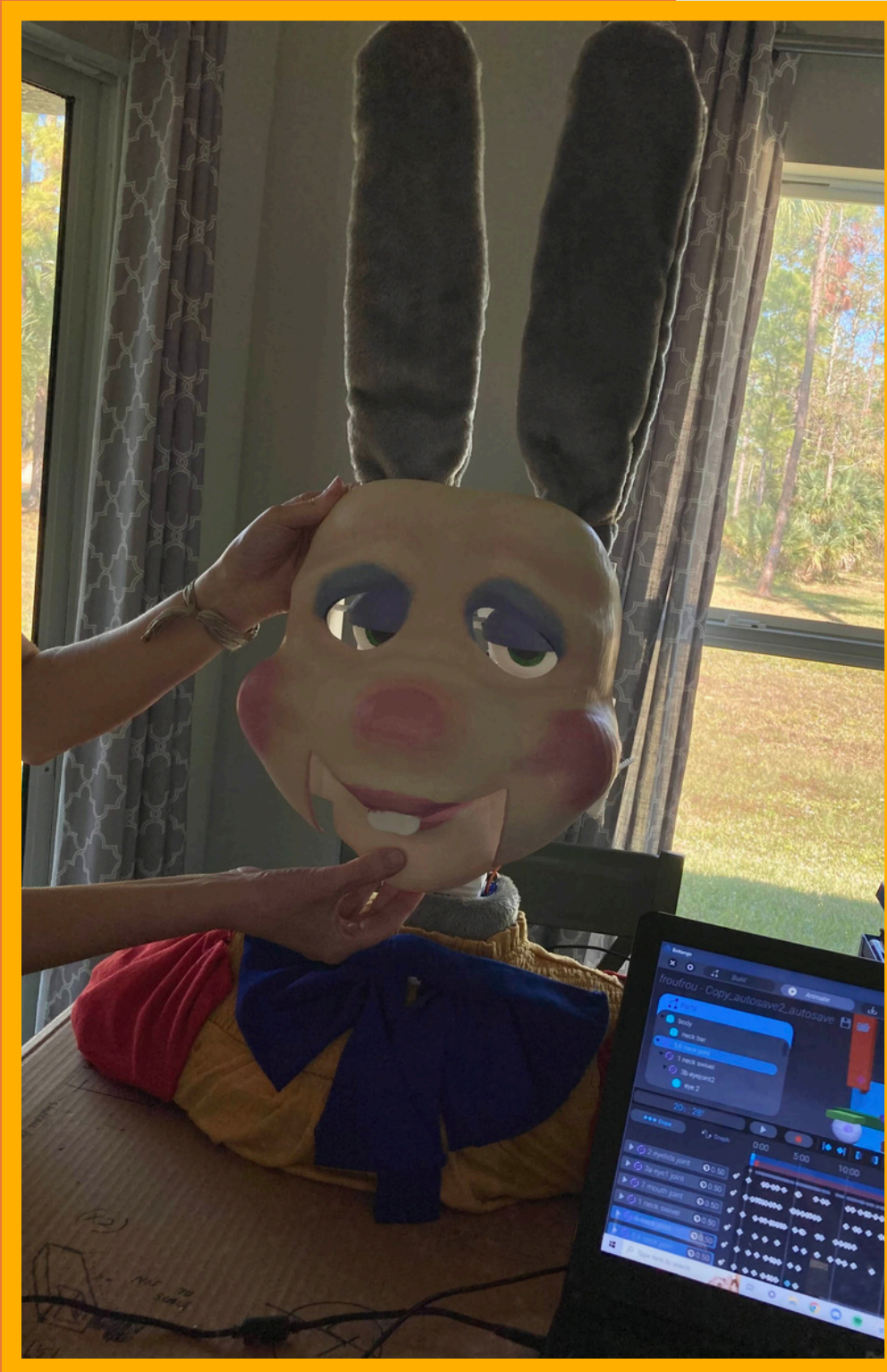
DIG 4972 - CRN 85952

Professor B. Denny

F G C U

Digital Media Design





Project Overview



Centered around the topic & history of audio-animatronics.

Deliverables

- ◆ Branded business cards
- ◆ Functional animatronic figure for display
- ◆ Informational website about animatronic history & my robot
- ◆ Plaque
- ◆ 3 videos for website & display

Theme & Focus

- ◆ History and information on animatronics
- ◆ Emphasis on pneumatic 80's character bots
- ◆ Physical & digital deliverables

Project Inspiration



Potential Problems

& Solutions

1

- Research
- Practice before final draft
- Concept sketches & planning

???

Challenge #1
3D Modeling

2

- Research
- Trial & error
- Tutorials and apps
- Different techniques

???

Challenge #2
Mechanical Engineering

PROJECT Workflow

Building My Own Animatronic Character

- > Concept art, character design, planning
- > Create 3D model
- > 3D print the mech and shell
- > Paint eyes & eyelids
- > General assembly, base, mech, shell, etc.
- > Install electronics and cosmetic details
- > Program running loop for showcase

The rest of the deliverables will be worked on during the construction of my animatronic figure.



FIRST PROGRESS CHECKPOINT

Updated research and project scope:

- *Updates:* adding 3 videos to my website, test print
- *Changes:* Webflow to Wix, redesigning my table/booth at the show, cutout stand
- *Cut:* Trading cards, mini posters

Challenges: multi-tasking (projects within projects), finding time for 3D printing



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PLANNING

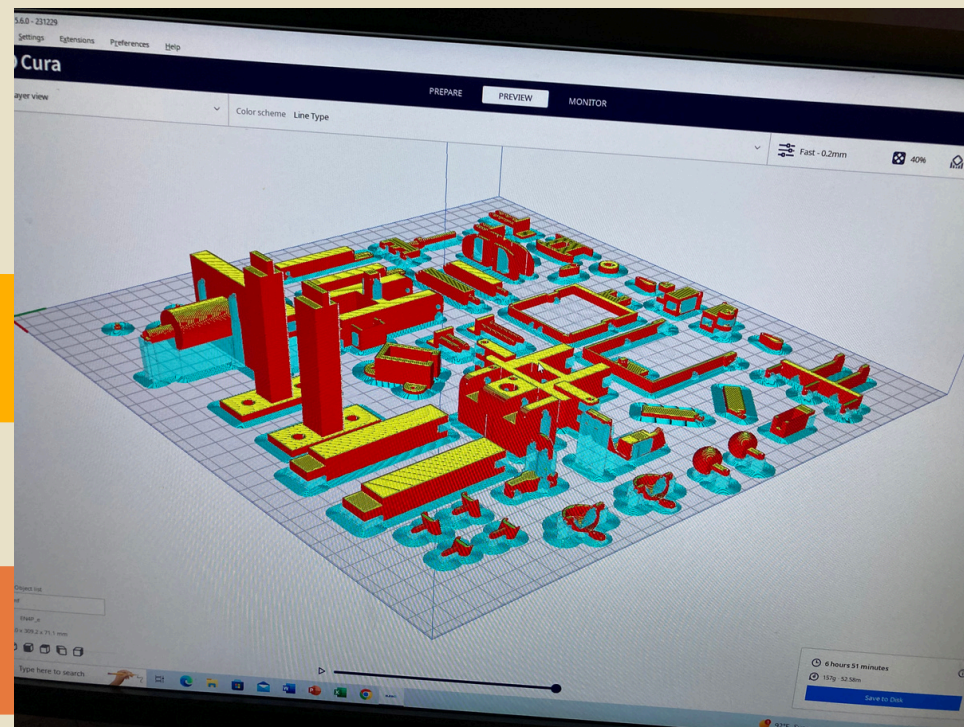
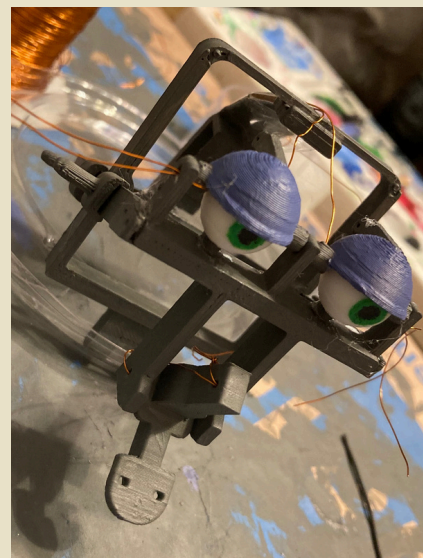
FigJam Board

<https://www.figma.com/board/qnvl58M993mPGlsezM5WTX/Senior-Project-Notes?node-id=32-210&t=PJic1Axicbu81dlZ-1>

Proof of Concept

MINI MODEL

To see if building a 3D printed animatronic was even possible within the 3 month timeframe, I printed a small version of a Showbiz Pizza animatronic called "Mitzi". This file was purchased from "mateocarino".



branding

Senior Project
Fall 2024

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0A090A
Black

125E8A
Lapis Lazuli

D64510
Syracuse Red Orange

E7793D
Orange (Crayola)

EAD2AC
Wheat

1. what you are planning on creating, 2. inspiration, 3. Potential problems and solutions, 4. research, and 5. how you plan on creating your projec

All About
Animatronics

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All About
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Senior Project
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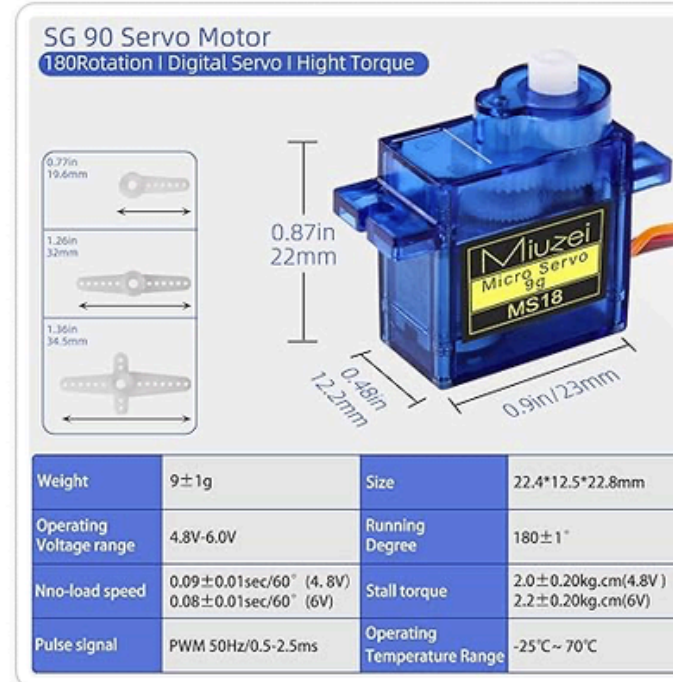
FGCU
Digital Media Design

THEME AND BRANDING
CONCEPTS

0A090A Black	125E8A Lapis Lazuli	D64510 Syracuse Red Orange	E7793D Orange (Crayola)	EAD2AC Wheat
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SUPPLIES, BUDGET, MEASUREMENTS

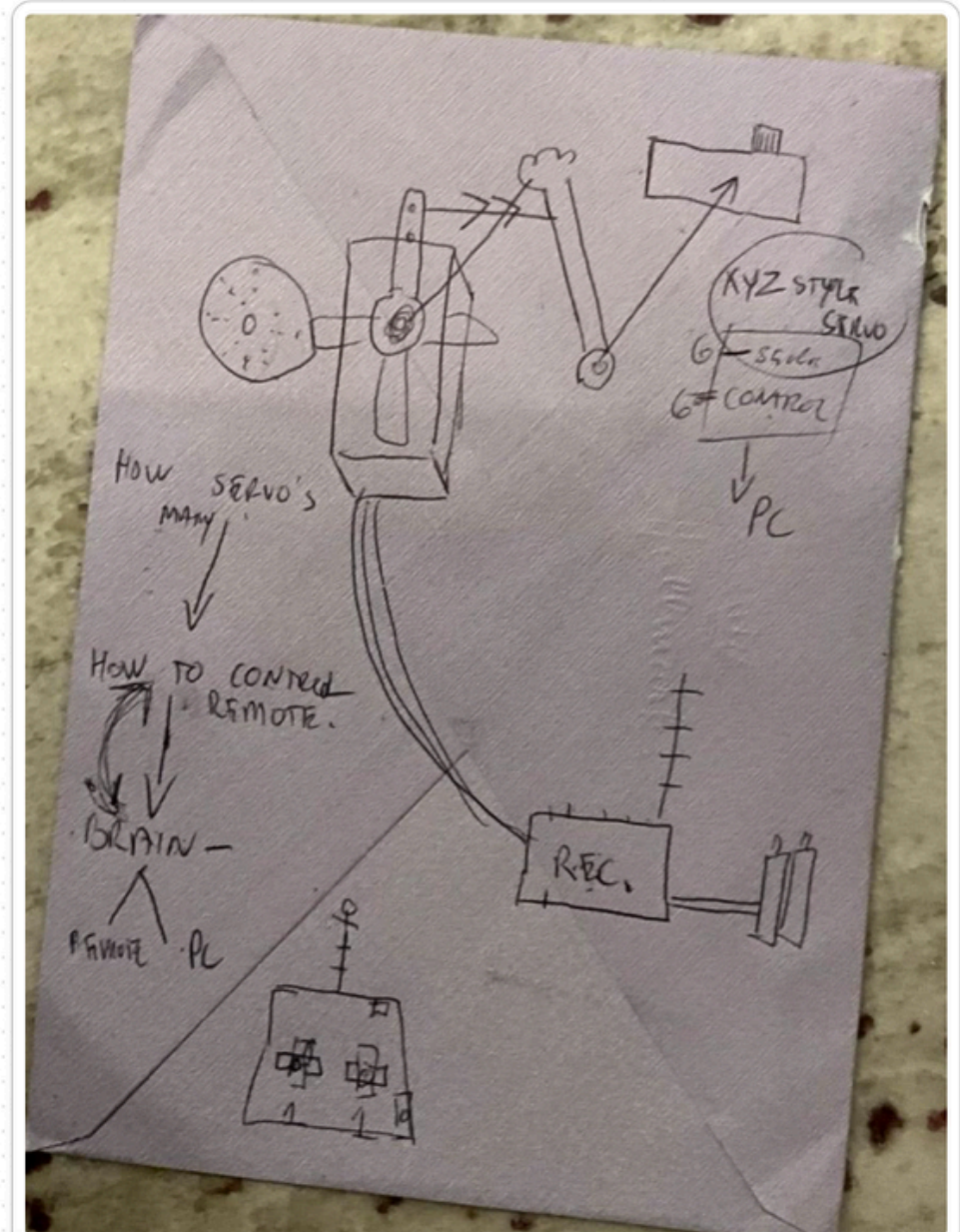
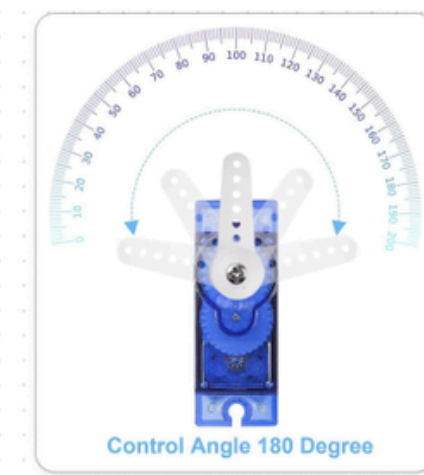
SG 90 Servo Motor
180° Rotation | Digital Servo | High Torque



Dimensions: 0.87in 22mm, 0.48in 12.2mm, 0.91in 23mm

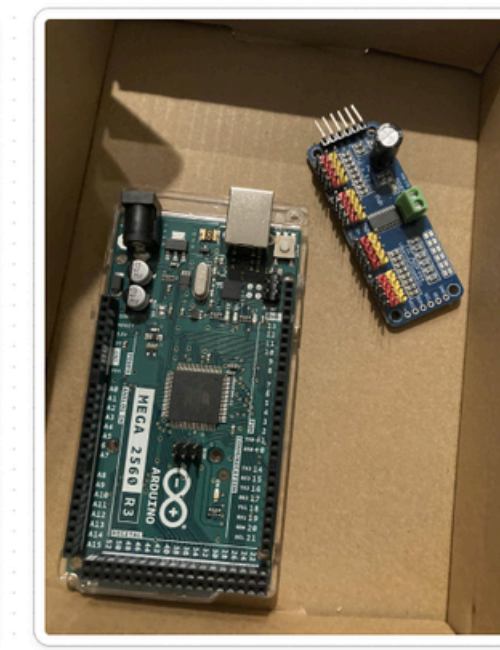
Weight	9±1g	Size	22.4*12.5*22.8mm
Operating Voltage range	4.8V-6.0V	Running Degree	180±1°
No-load speed	0.09±0.01sec/60° (4.8V) 0.08±0.01sec/60° (6V)	Stall torque	2.0±0.20kg.cm(4.8V) 2.2±0.20kg.cm(6V)
Pulse signal	PWM 50Hz/0.5-2.5ms	Operating Temperature Range	-25°C~70°C

- PARTS:
- servos <https://a.co/d/aRetxNy>
 - pca9685 16ch driver board <https://a.co/d/cdVUOs7>
 - extra wires <https://a.co/d/eJ1u0HG>
 - arduino mega board <https://a.co/d/3Uz6kss>
 - usb cord <https://a.co/d/6MRC8Ts>
 - power cord for 16board <https://a.co/d/hlQ4BFG>



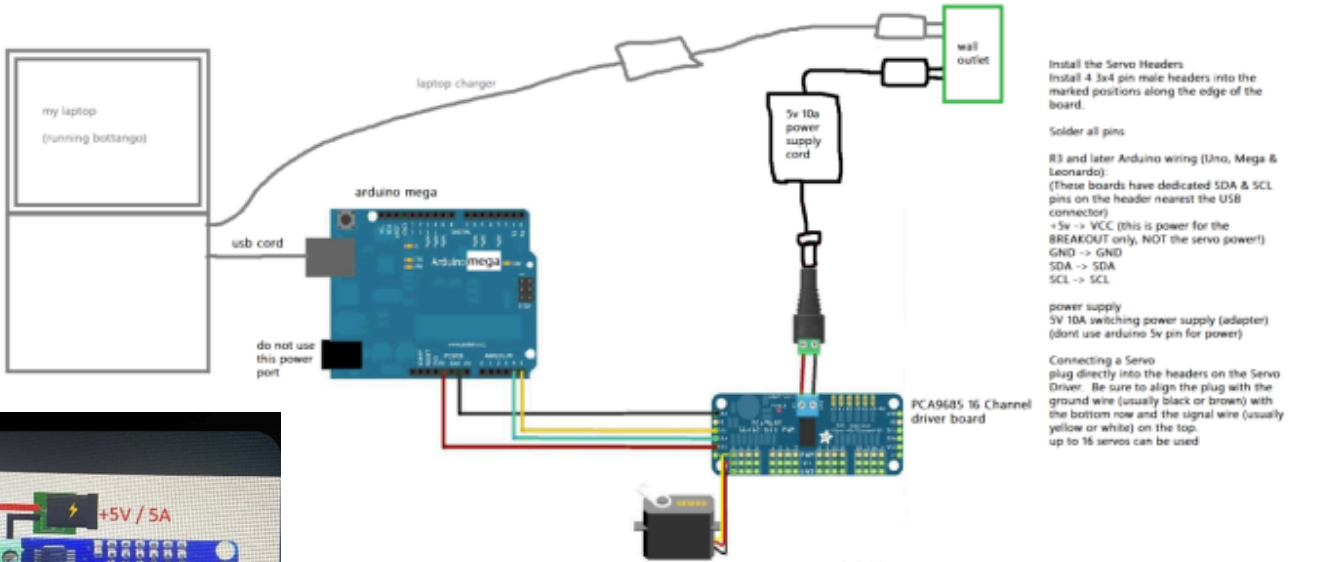
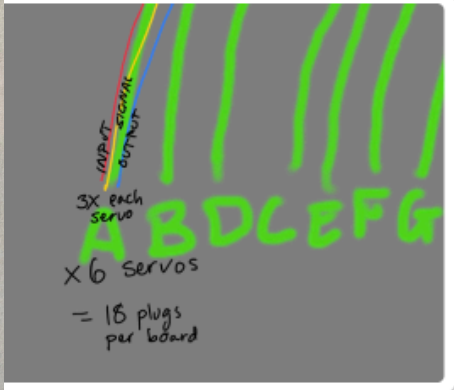
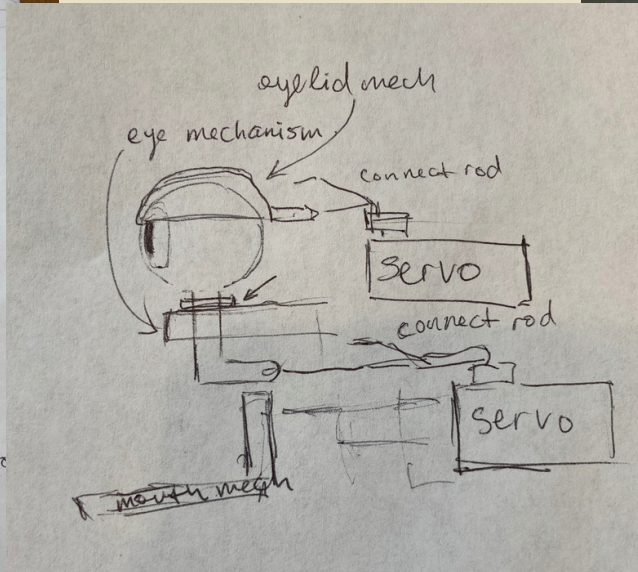
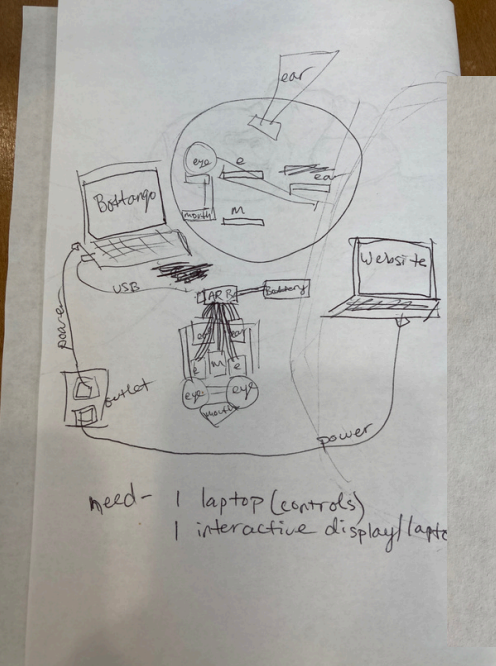
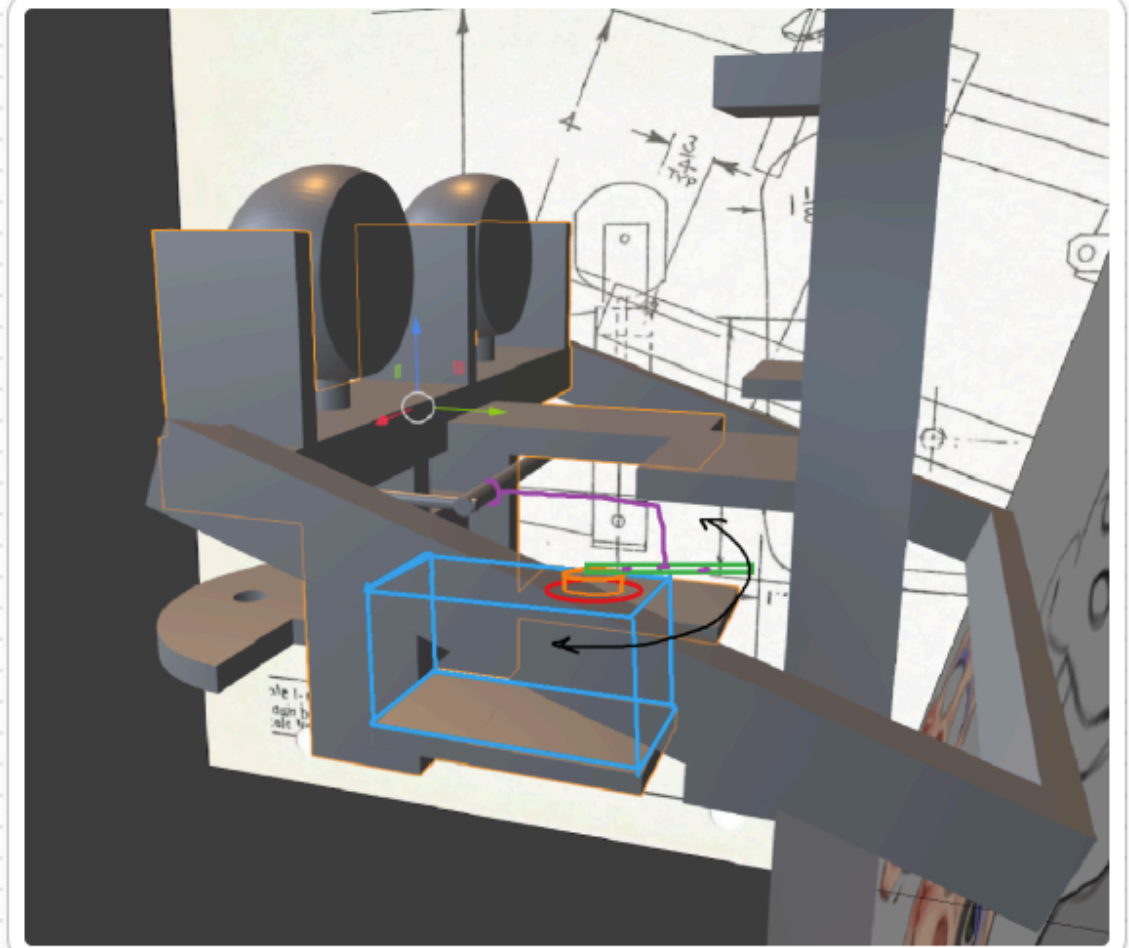
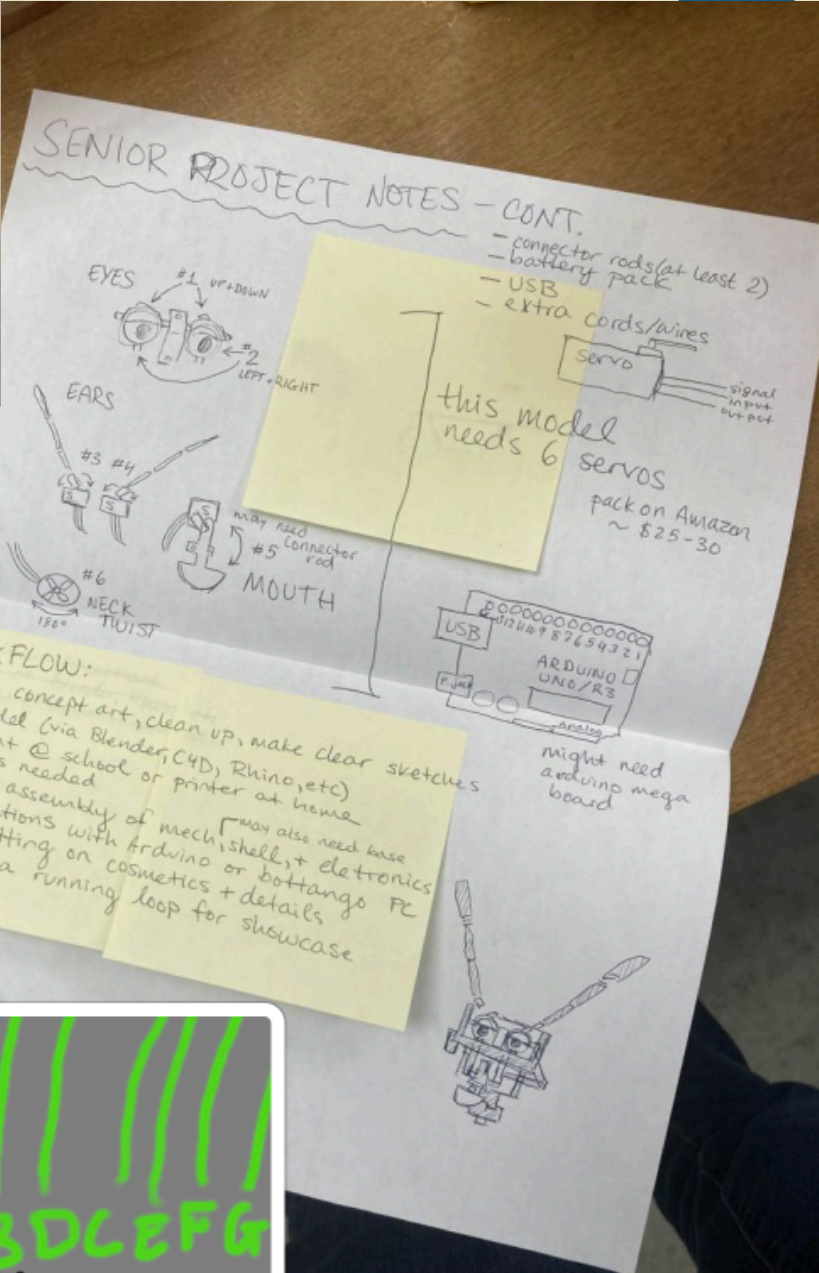
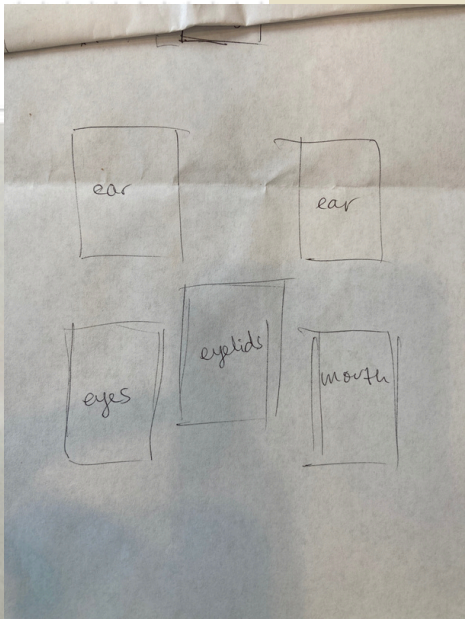
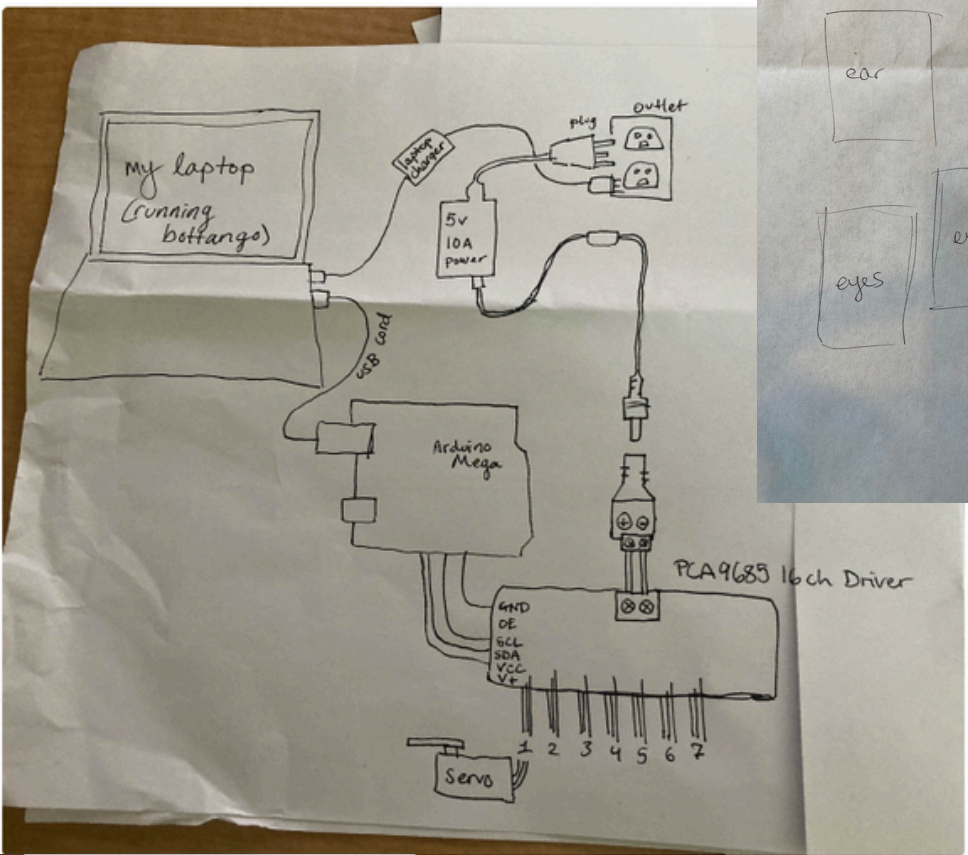
- backup servos w better torque <https://a.co/d/dL4m1U1>

<https://learn.adafruit.com/16-channel-pwm-servo-driver/hooking-it-up>
hooking up the pca driver board

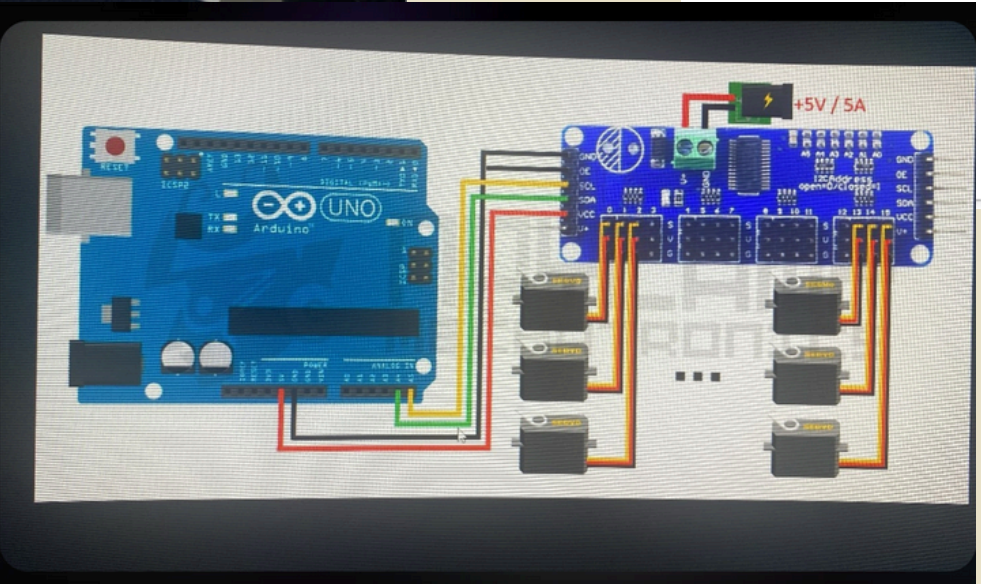


There were a lot more supplies and measurements, but I can't fit them in this presentation, so please check out the Figjam link for more info and a breakdown of the entire project budget.

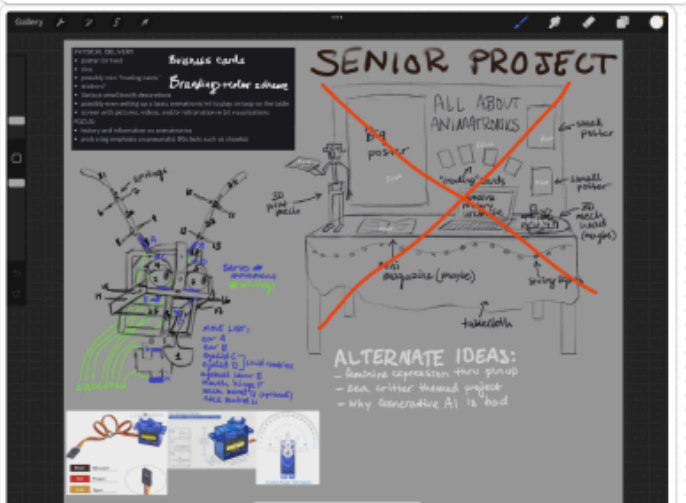
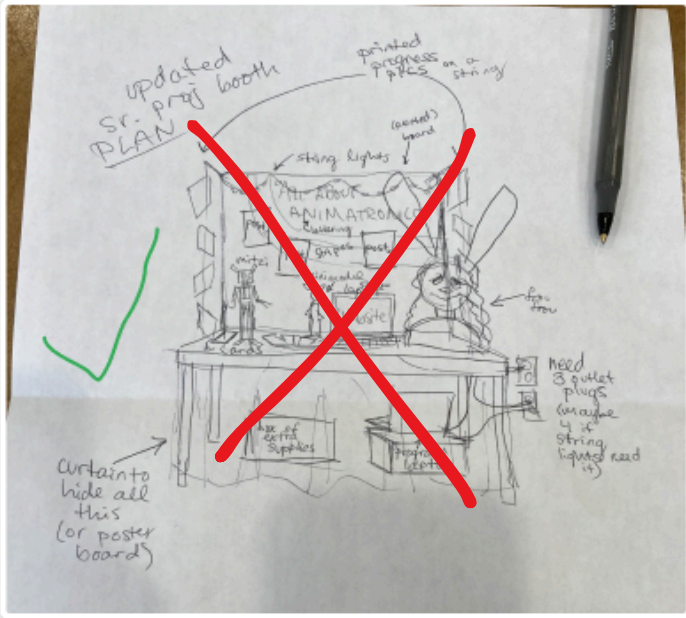
electronics setup



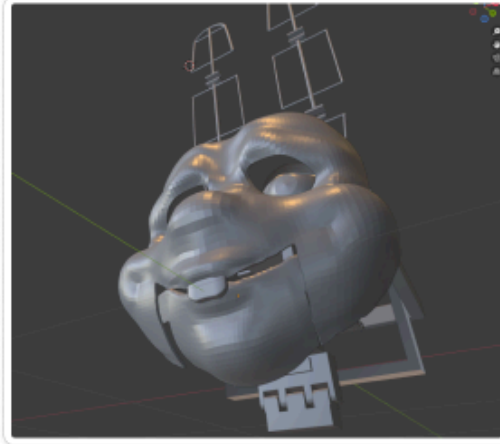
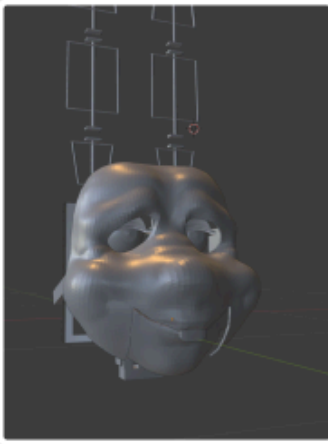
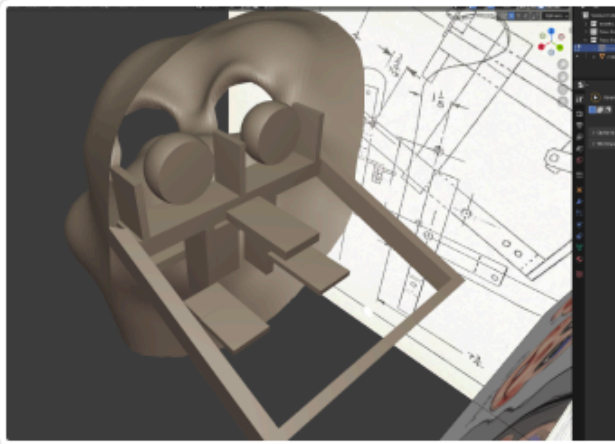
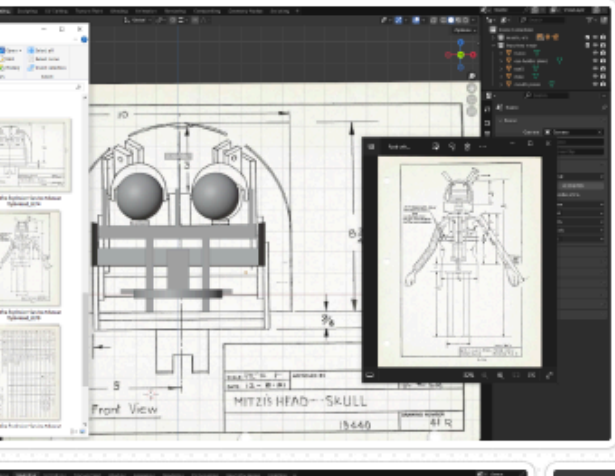
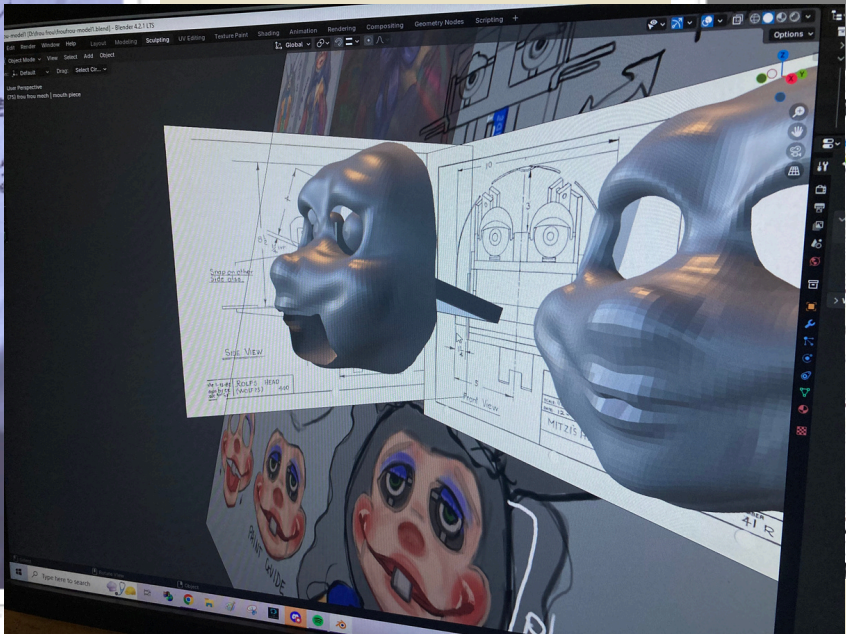
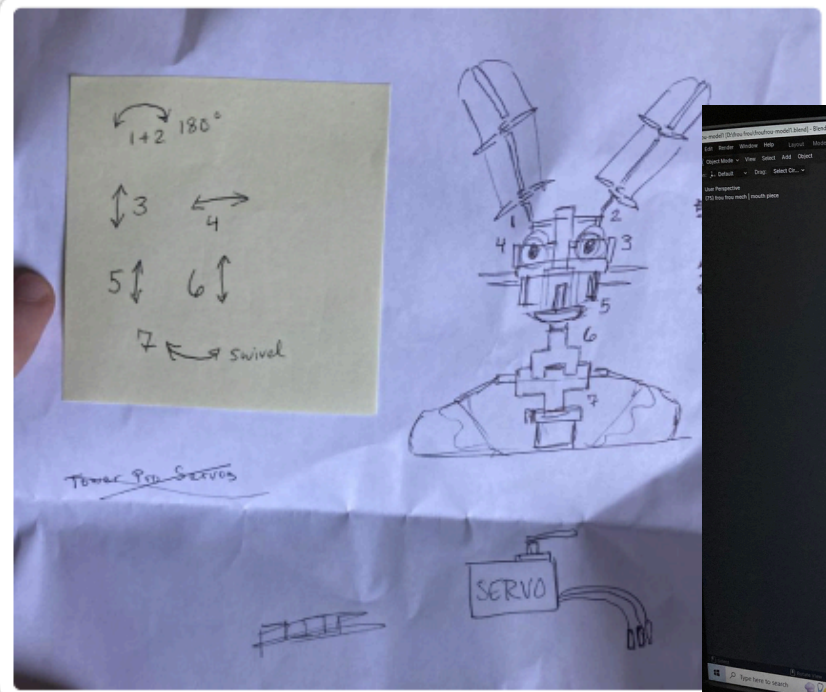
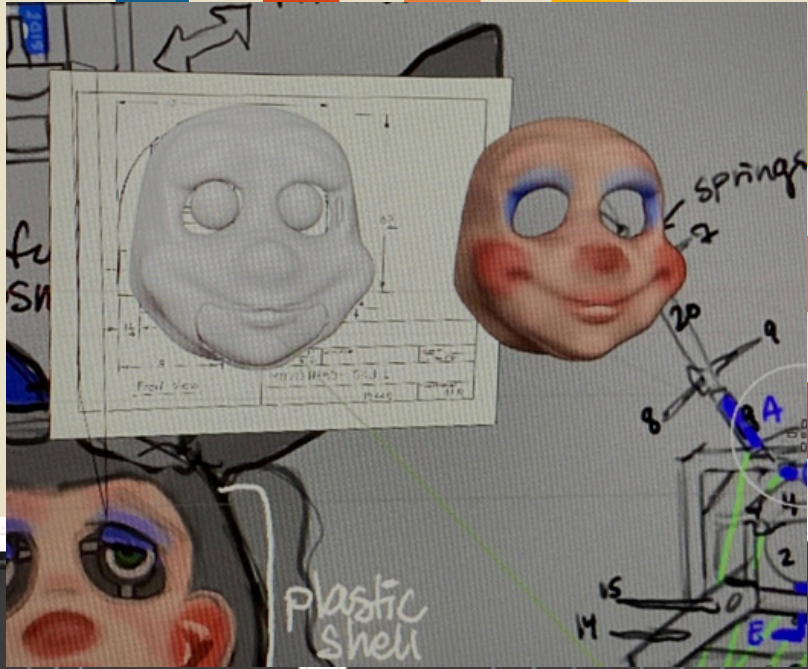
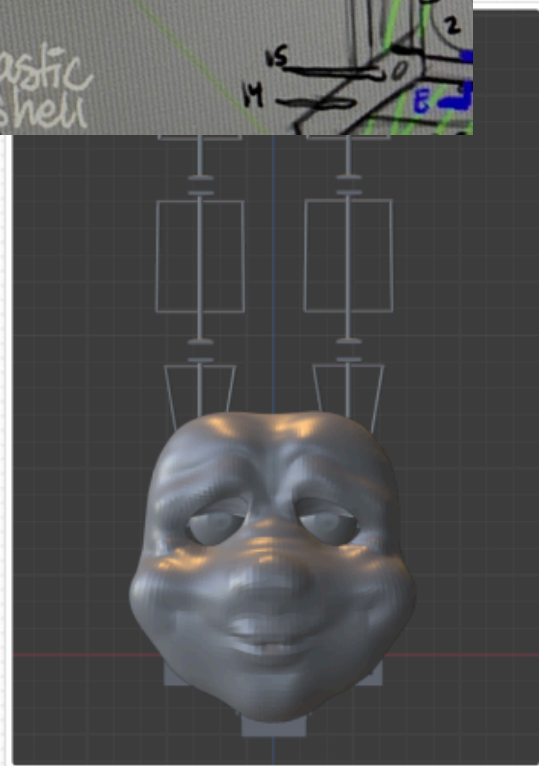
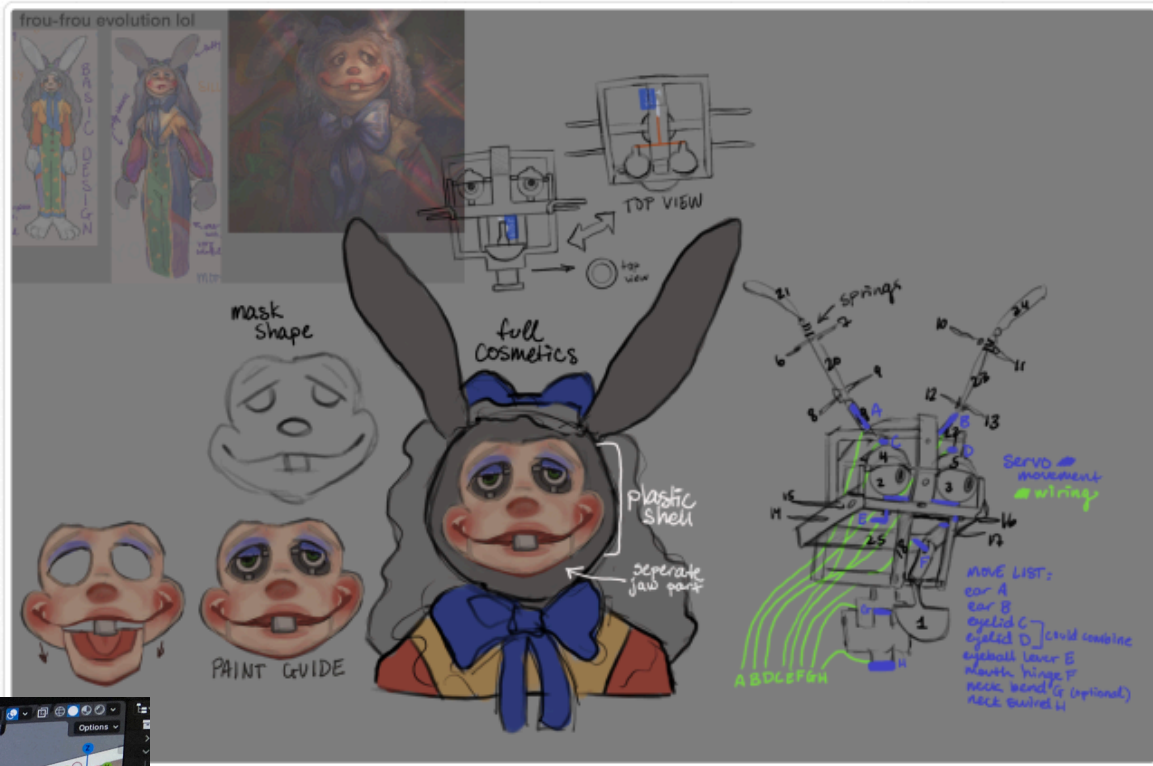
PLAN FOR ELECTRONICS SETUP



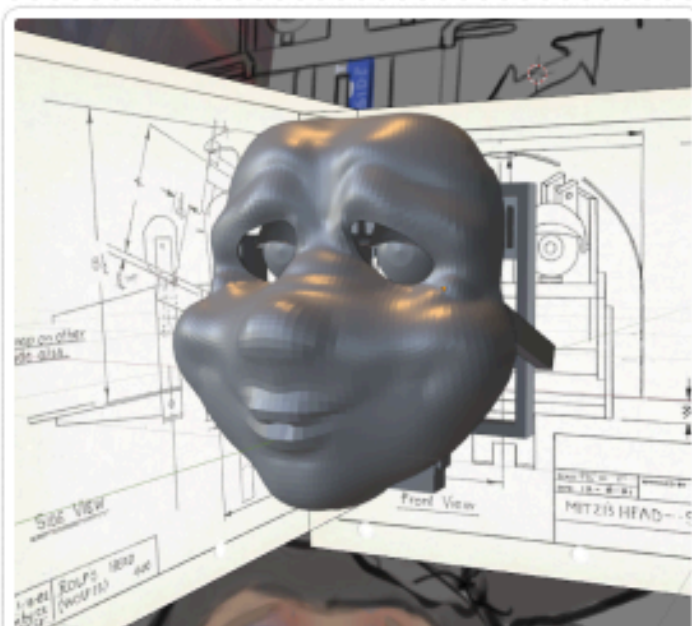
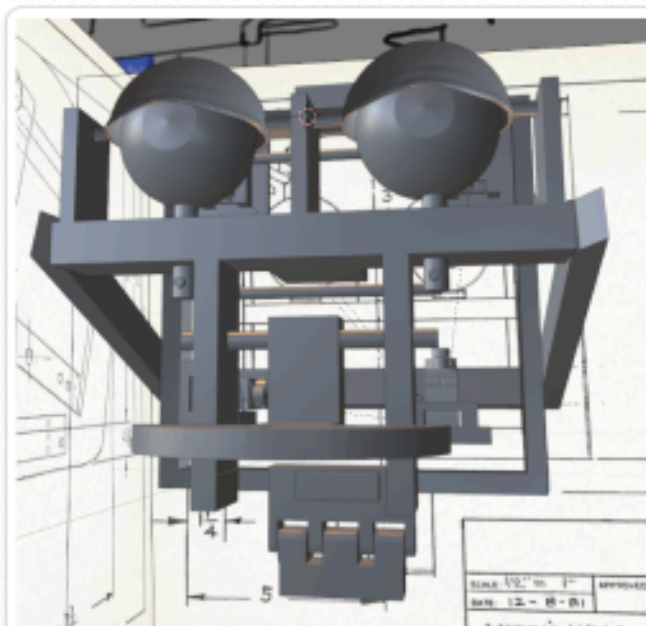
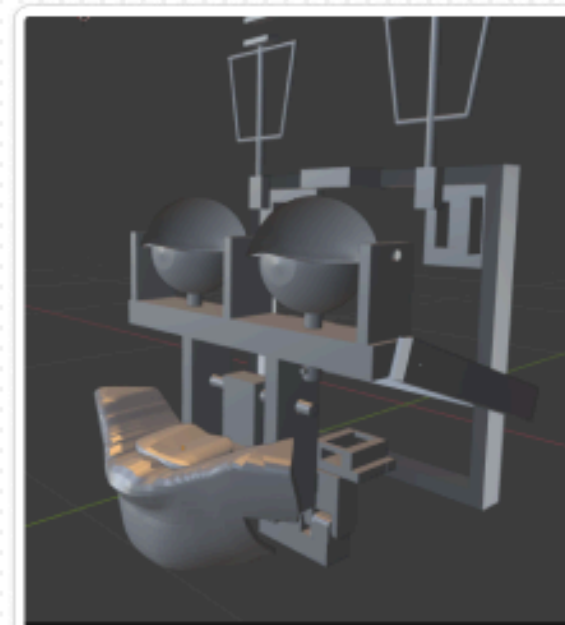
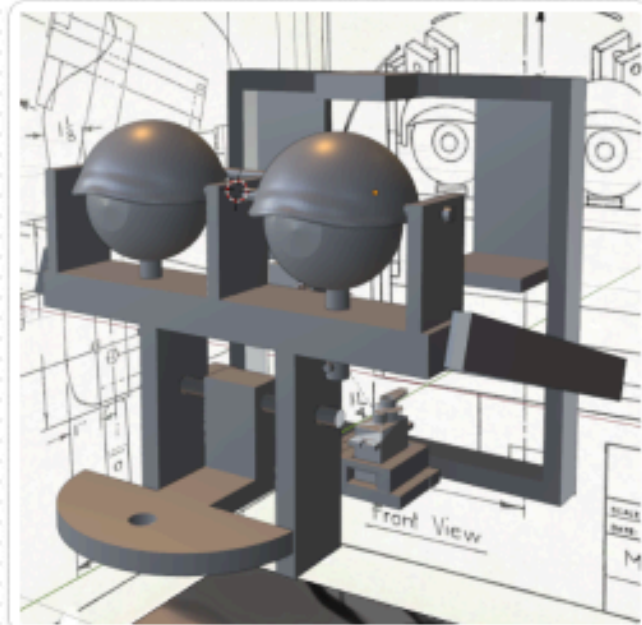
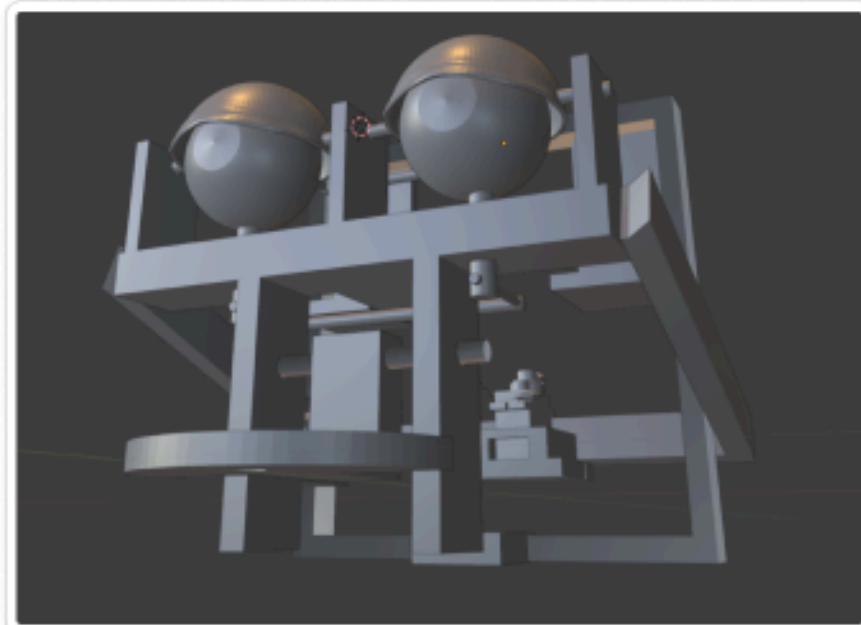
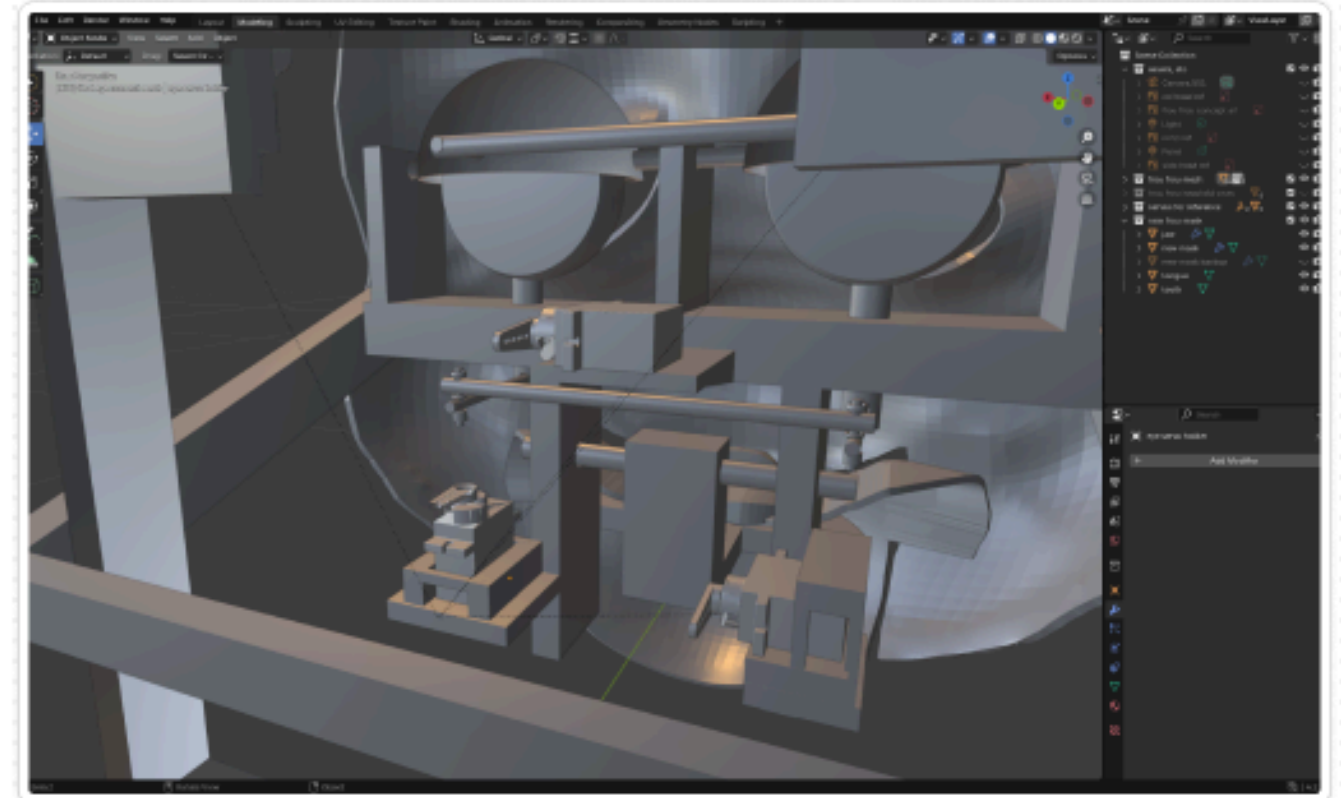
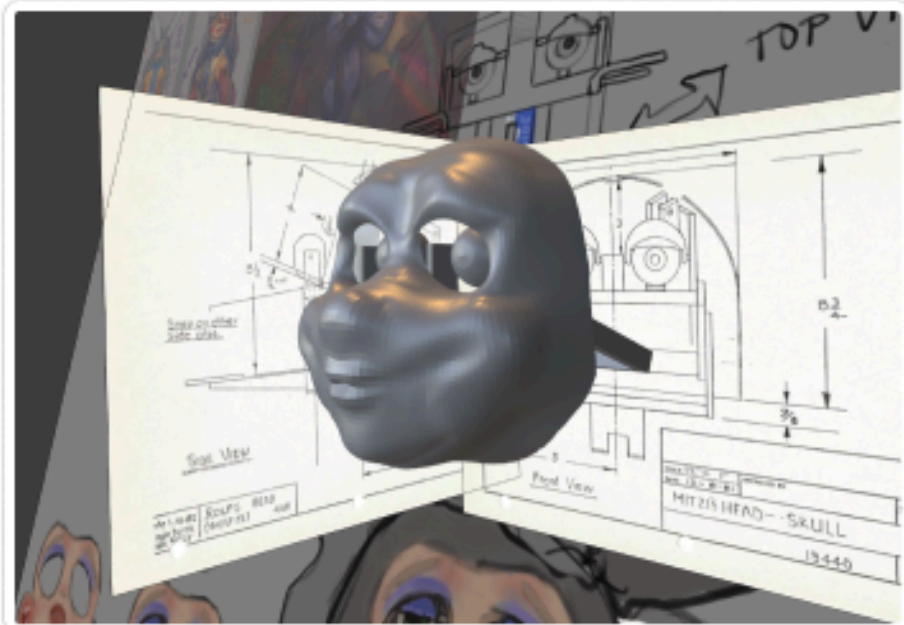
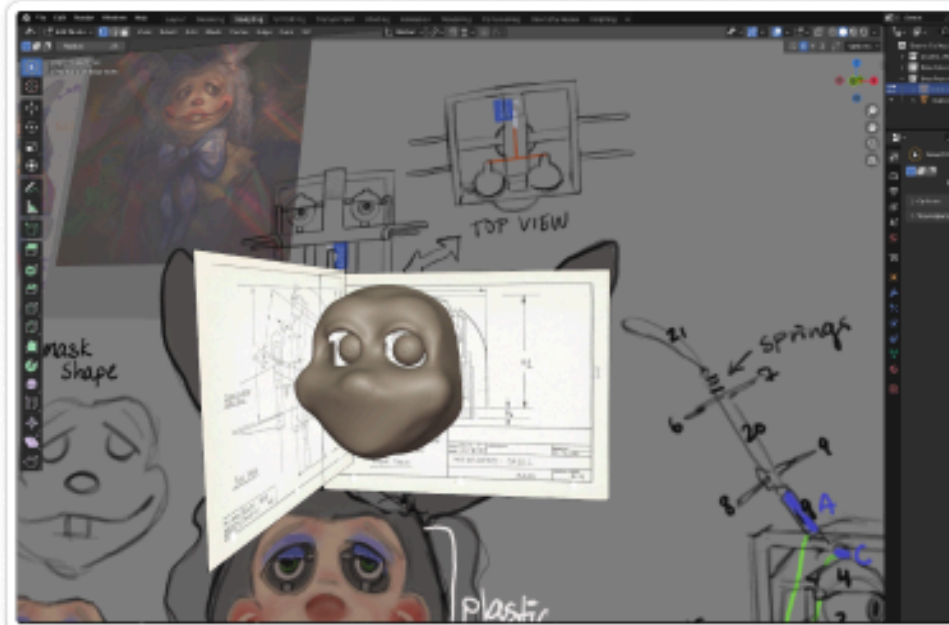
PLANNING, CONCEPT ART, CHARACTER DESIGN AND MODELING PROGRESS



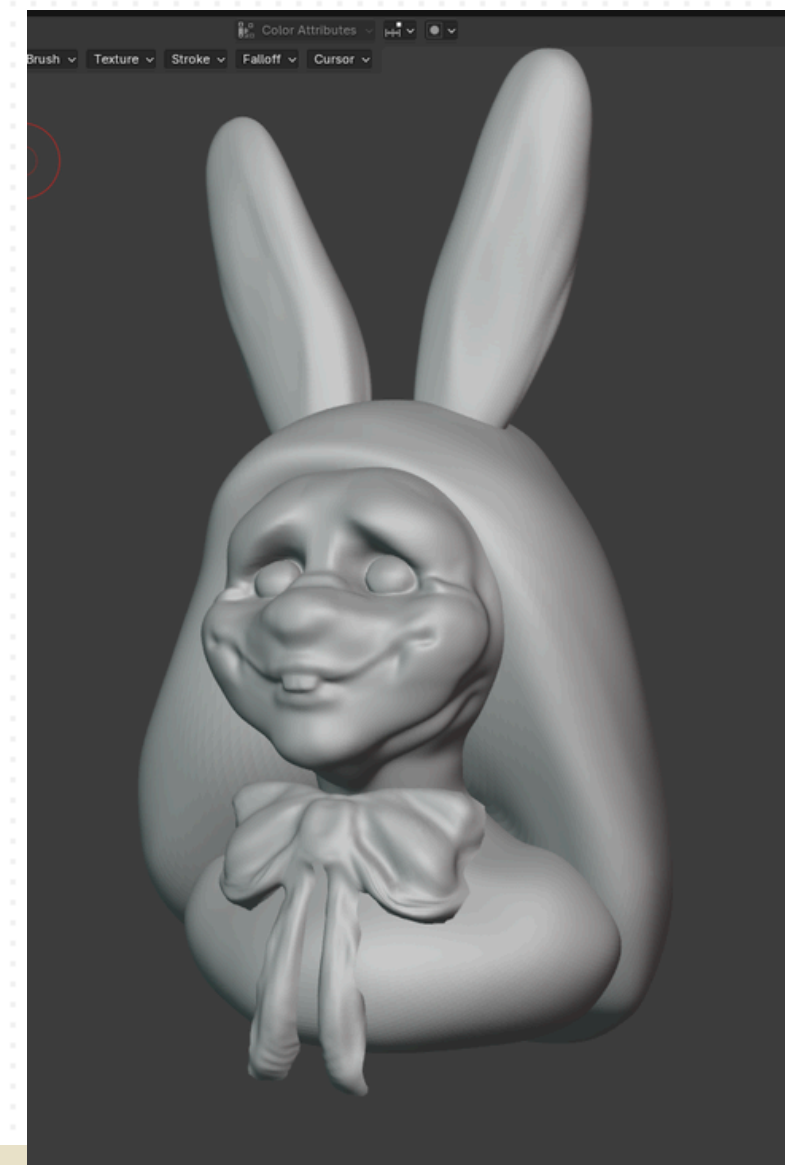
preparing for 3d print <https://cgcookie.com/posts/how-to-prepare-objects-for-3d-printing-in-blender>



creation process



MODELING
PROGRESS



WEBSITE

website (wix)

[EDITOR LINK](#)

<https://editor.wix.com/html/editor/web/renderer/edit/903952fb-fd22-47c8-930b-730c60a678fb?metaSiteId=c8c30687-7083-439b-b2f4-f3b2abccba05>

Julia N.

published link (still wip)

TIMELINE | My Site 1

www.froufroubiz.wixsite.com

Julia N.

video 1:
add in 1964 abraham lincoln (find fr
add 1964 carousel of progress GE (1
1971 country bear jamboree footage
include audio of walt talking ab AA:

video 2:
add music/sound where needed
add studio c reveal 1998 video

define for website tab:

electromechanical	humanoid
animatronics	android
audio-animatronics	cyborg
stuntronics	gynoid
autonomatronics	internal mechanism
pneumatic actuators	servo motors
hydraulic cylinders	absorbers
servanoid valves	flexion actuators
puppets	robotics

<https://all-about-animatronics.design.webflow.com>

WEBFLOW SITE

(scrapped)

Julio N.

work in progress site - before embedding the 4 videos

[TIMELINE](#) [OVERVIEW](#) [DEFINITIONS](#) [MAKING FROU FROU](#) [RESOURCES](#) [CONTACT](#)

ALL ABOUT ANIMATRONICS

Julia Normandin - FGCU DMD - Senior Project

- Welcome
-
-
-
-
-
-

A History, Summarized

A History, Summarized

The World's First
Animatronics

The pioneers of animatronic inventions and their significance in the context of American history. It all started at the 1939 World's Fair.

- The World's First Animatronics



CONTACT

Questions?

SEND

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RESOURCES, RESEARCH, TOOLS, & CITATIONS

VIDEO EDITING

Making 3 videos for my site to display.
Each contains archival footage from the
eras below.

1928-1974

1975-1999

2000-2024

WORK IN PROGRESS OF VIDEO 1



WORK IN PROGRESS OF VIDEO 2



GENERAL RESEARCH:

Nineteenth Century Videos. Back To Life “1939 Word’s Fair Footage Restored” <https://youtu.be/GxEhy8hU3LI?feature=shared>
Inspired by “Abraham Lincoln Animatronic” <https://youtu.be/EhcDTV28BT8?feature=shared>
Blue Light Technology “Evolution of Disney Animatronics” <https://youtu.be/dnfjBJ0Q0Yw?feature=shared>
Rare Old Footage of ELEKTRO and Sparko <https://youtu.be/6HiRz-c3vBE?feature=shared>
1939 Robot Band <https://youtu.be/W-eDtJWsMJM?feature=shared>
Early Humanoid Robots & more <https://cyberneticzoo.com/>
Early Robots Exhibit Science Museum Pictures <https://www.flickr.com/photos/11561957@N06/albums/72157673167447724/with/38645135435>
Wikipedia Animatronics Overview <https://en.wikipedia.org/wiki/Animatronics>
Early Disney Bots <https://www.saturdayeveningpost.com/2024/05/animatronics-how-worlds-fairs-tiki-birds-and-abe-lincoln-shaped-a-robotic-revolution/>
Cygan auction <https://www.bbc.com/news/technology-23976725>
Circus Playhouse info https://fictional-family-entertainment-centers.fandom.com/wiki/Circus_Playhouse_%26_Food_Emporium
CEC wiki page https://en.wikipedia.org/wiki/Chuck_E._Cheese
Uncle Klunk info <https://www.showbizpizza.com/rae/characters/klunk.html>
Mac Tonight info https://en.wikipedia.org/wiki/Mac_Tonight#Animatronics
About Wilbur/Gigglebees <https://www.argusleader.com/story/news/2019/07/18/sioux-falls-solved-wheres-wilbur-the-coyote-gigglebees/1573523001/>
Electric Mouse Orchestra advertising pamphlet scan <https://archive.org/details/emo-pamphlet/mode/2up>
(Incomplete) Animatronic archive <https://animatronic-archive.tumblr.com/post/735905645911506944/this-is-the-pantoneswoof-radio-show-a-6-character>
Tex Critters info <https://tedshideler.com/2024/04/06/tex-critters-pizza-jamboree/>
Tex Critters overview <http://wastelnd.blogspot.com/2017/03/countryfied-electrified-genuine-country.html>
Showbiz research <https://showbizpizza.com/>
CEC research <https://cheeseepedia.org/>
Robot sensation 1952 British Pathè https://youtu.be/t1_6Qiv7_0s?feature=shared
Rise of the robot exhibition https://youtu.be/UE_13ZPUdCY?feature=shared
Wp5 info https://showbizpizza.fandom.com/wiki/The_Wolf_Pack_5
RAE overview text <http://www.showbizpizza.com/rae/history/index.html>
Friendly freddy info https://showbizpizza.fandom.com/wiki/Friendly_Freddy

PROP MITZI FILES (used for decoration at booth only)
MateoCarino Cults3d <https://cults3d.com/en/3d-model/various/rockafire-explosion-mitzi-motzarella-full-mech-with-body-shells>

Cei demo w moonrockers <https://youtu.be/5bXxbHiRX4o?feature=shared>
Mac tonight animatronic <https://youtu.be/kRuQufNQ4fA?feature=shared>

ADDITIONAL REFERENCES:

1990 CEC bridgeville, PA <https://youtu.be/Nikx7zFrczY?feature=shared>
The official Rock-afire explosion documentary <https://youtu.be/gTmhS6hcY-A?feature=shared>
Physical media releases overview for the Rock-afire explosion <https://youtu.be/ooetqLjPZVk?feature=shared>
1998 CEC <https://youtu.be/6yADkAE0GDI?feature=shared>
1991 rocker stage CEC <https://youtu.be/etx4EqvOlyM?feature=shared>
Official Uncle klunk installation tape <https://youtu.be/LuVkdX92UEM?feature=shared>
Official ad for Uncle klunk showbiz <https://youtu.be/mJ43oCnPbSk?feature=shared>
Talking chimps band <https://youtu.be/W0RwlmDnLOQ?feature=shared>
1992 CEC Lakewood, CA tour <https://youtu.be/Rcxap3lGlt4?feature=shared>
Awesome Adventure Machine installation footage, TX 1996 <https://youtu.be/A-2F0C37JHY?feature=shared>
Advanced animations in Vermont tour 1989 <https://youtu.be/Gfxmbph5C0U?feature=shared>
A brief history of animatronic restaurants https://youtu.be/od0_tG-ViWM?feature=shared
Showbiz pizza Greg’s birthday <https://youtu.be/kW0mSwSPMLU?feature=shared>
Rare Springfield MA showbiz footage <https://youtu.be/dh4KpVsFD7o?feature=shared>
1982 Showbiz pizza footage <https://youtu.be/0omhXaysknk?feature=shared>
Johns birthday 1988 at showbiz <https://youtu.be/bFK6kS2DDnY?feature=shared>
PTT Chuck E Cheese Half-Cyberamic 30 year comparison <https://youtu.be/A-2F0C37JHY?feature=shared>
Animatronic Abraham Lincoln head disney100 exhibit <https://youtu.be/EhcDTV28BT8?feature=shared>
Daft punk technologic (electro exhibition - Paris) <https://youtu.be/iqmTWg0z9v0?feature=shared>
Homemade pneumatic animatronic prototype <https://youtu.be/u53UOvCWnH8?feature=shared>
The official concept unification installation tape <https://youtu.be/fZdmbzc9GLo?feature=shared>
Cei Wolfpack 5 news <https://youtu.be/jXDiR2U09Zk?feature=shared>
Rock-afire explosion live https://youtu.be/QNEc5Kq_ybY?feature=shared
Video essay about the Rock-afire <https://youtu.be/VvE4jNhJTIA?feature=shared>

resources for website info:

<https://en.wikipedia.org/wiki/Animatronics>
<https://cyberneticzoo.com/robots/1940-sparko-the-robot-dog-american/>
<https://www.saturdayeveningpost.com/2024/05/animatronics-how-worlds-fairs-tiki-birds-and-abe-lincoln-shaped-a-robotic-revolution/>
<https://archive.org/details/9.-disneylands-10th-anniversary-disney-1965>

[https://en.wikipedia.org/wiki/ElektroBibMe%20-%20The%20Online%20Writing%20Center.%20BibMe,%20a%20Chegg%20service.%20\(n.d.\).%20https://www.bibme.org/https://www.merriam-webster.com/dictionary/animatronic](https://en.wikipedia.org/wiki/ElektroBibMe%20-%20The%20Online%20Writing%20Center.%20BibMe,%20a%20Chegg%20service.%20(n.d.).%20https://www.bibme.org/https://www.merriam-webster.com/dictionary/animatronic)

RESEARCH (SO FAR)

FROU FROU 3D MODELING RESEARCH:

Preparing for print in blender <https://cgcookie.com/posts/how-to-prepare-objects-for-3d-printing-in-blender>

FROU FROU PARTS AND ASSEMBLY RESEARCH:

PCA 16ch board hookup guide <https://learn.adafruit.com/16-channel-pwm-servo-driver/hooking-it-up>
Servos <https://a.co/d/ePDjziD>
- pca9685 16ch driver board <https://a.co/d/cdVUOs7>
- extra wires <https://a.co/d/eJ1u0HG>
- arduino mega board <https://a.co/d/3Uz6kss>
- usb cord <https://a.co/d/6MRC8Ts>
- power cord for 16board <https://a.co/d/hlQ4BFG>
- backup servos w better torque <https://a.co/d/dL4m1U1>

Arduino overview <https://learn.sparkfun.com/tutorials/what-is-an-arduino>

Head mech Setup research <https://www.thingiverse.com/thing:2857377>

FROU FROU PROGRAMMING RESOURCES:

BMonster Labratory Bottango tutorial <https://youtu.be/DWvVfzULI6U?feature=shared>

Animatronic eyes with bottango <https://youtu.be/fy5oUidy4F0?feature=shared>

VIDEO 1: 1928-1974

Matt Novak “Alpha The Robot 1934” https://youtu.be/a9l9pt_Jzn8?feature=shared

British Pathè “Robot (1950)” <https://youtu.be/Fj0Mr3mLujE?feature=shared>

You Asked For It “The Original Al Elektro the Robot” <https://youtu.be/a3o6JJTpTzk?feature=shared>

Kinolibrary “Trio Fantastique” https://youtu.be/SzBvnYB_qo4?feature=shared

British Movietime “Eric the robot” <https://youtu.be/hwnfVRT7ljl?feature=shared>

Internet archive footage for the 10 year anniversary of Disneyland (tiki room)

<https://archive.org/details/9.-disneylands-10th-anniversary-disney-1965>

Mary Poppins clip https://youtu.be/_L4qauTiCY4?feature=shared

Cygan British Pathè <https://youtu.be/8qy6T1BA-Oc?feature=shared>

VIDEO 2: 1975-1999

1991 CEC Irving <https://youtu.be/ma7Y3xUDSes?feature=shared>

1986 Rockafire birthday song <https://youtu.be/0MGocbtIxWo?feature=shared>

1986 showbiz rockafire medley <https://youtu.be/iqx-PTth0TXQ?feature=shared>

uncle klunk footage <https://youtu.be/j7yMgXYUufM?feature=shared>

Cec mobile, AL Playroom footage <https://youtu.be/ho-zMfBCH0k?feature=shared>

1993 cec animatronics https://youtu.be/WY_ZMwqL99c?feature=shared

official Gigglebees ad https://youtu.be/t_QxRBxf36l?feature=shared

circus playhouse band clips <https://youtu.be/HxovYCU6ezi?feature=shared>

Major Magic’s 1996 <https://youtu.be/Vf361YJTUso?feature=shared>

official bullwinkles commercial <https://youtu.be/7P3KA7Mm4NY?feature=shared>

1988 joeys 6 birthday at showbiz <https://youtu.be/F1ueTKvWAlI?feature=shared>

Arthur birthday at showbiz 1990 <https://youtu.be/VrZhMBq47kw?feature=shared>

Showbiz Dallas 1982 tour <https://youtu.be/HEb4YQbBnyg?feature=shared>

Official Showbiz pizza place ad <https://youtu.be/1OIUH0mSFQU?feature=shared>

Restored 4k footage of CEC PTT San Jose 1979 <https://youtu.be/ucg8MujPDQA?feature=shared>

CEC PTT official promo <https://youtu.be/MYIUxp9TTuw?feature=shared>

1978 IAAPA wp5 <https://youtu.be/lvMtt4EQJnc?feature=shared>

1998 CEC studio c reveal <https://youtu.be/7kC1qclicAM?feature=shared>

Friendly freddy 1976 <https://youtu.be/DT3NRkuHUzQ?feature=shared>

Wp5 footage italtpark https://youtu.be/q6-1fY_pM4I?feature=shared

Showbiz Rockafire cyberstar tape tv themes <https://youtu.be/1mEfyEWRRaA?feature=shared>

Tex critters https://youtu.be/s3fw3iYJ_TY?feature=shared



CREDITS

MORE INFO

For more research, references, and credits please see either the FigJam board or the website.

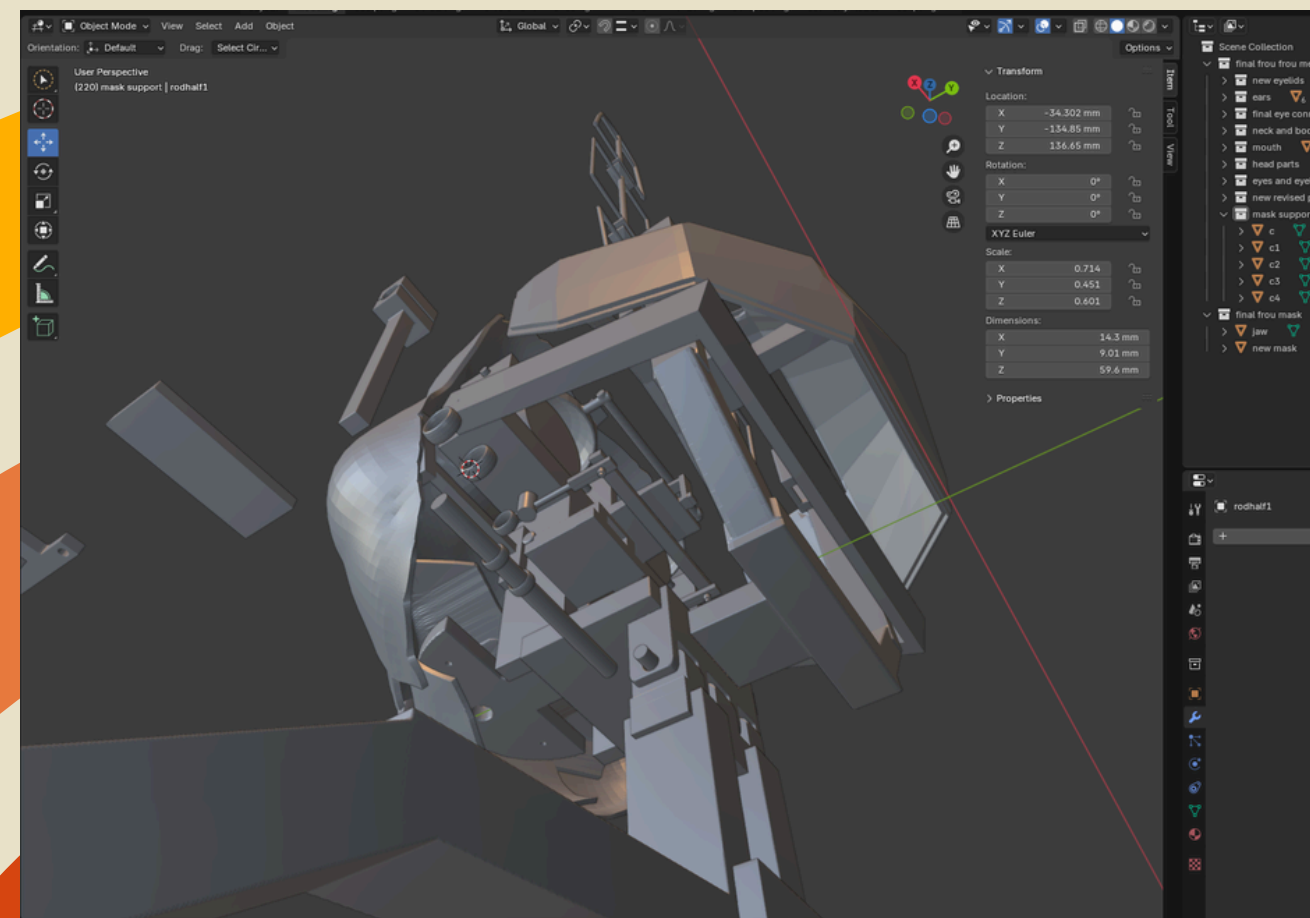
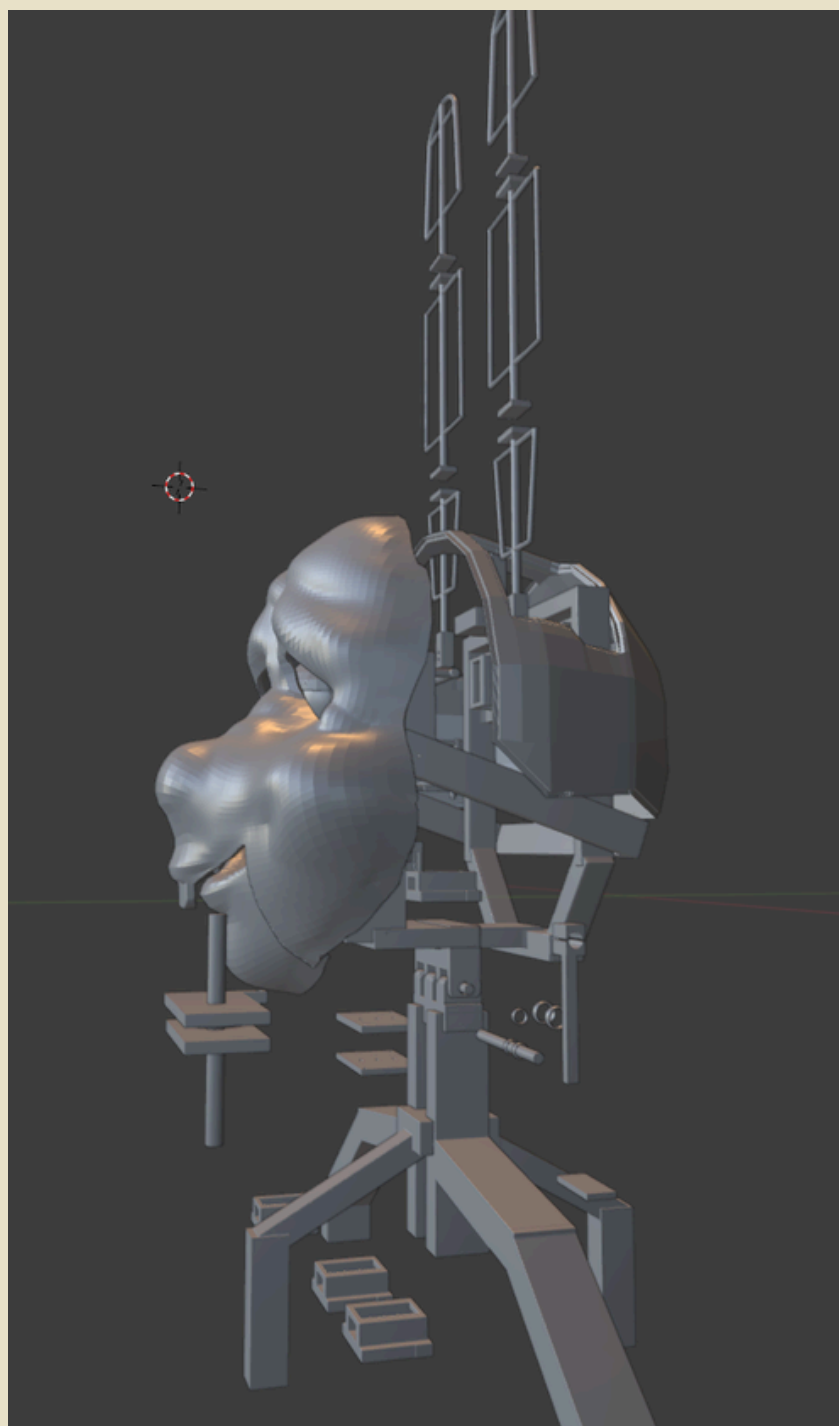
Website:

<https://froufroubiz.wixsite.com/wrartdesign/resources>

NEW CONCEPT ART



FINALIZING MODELING

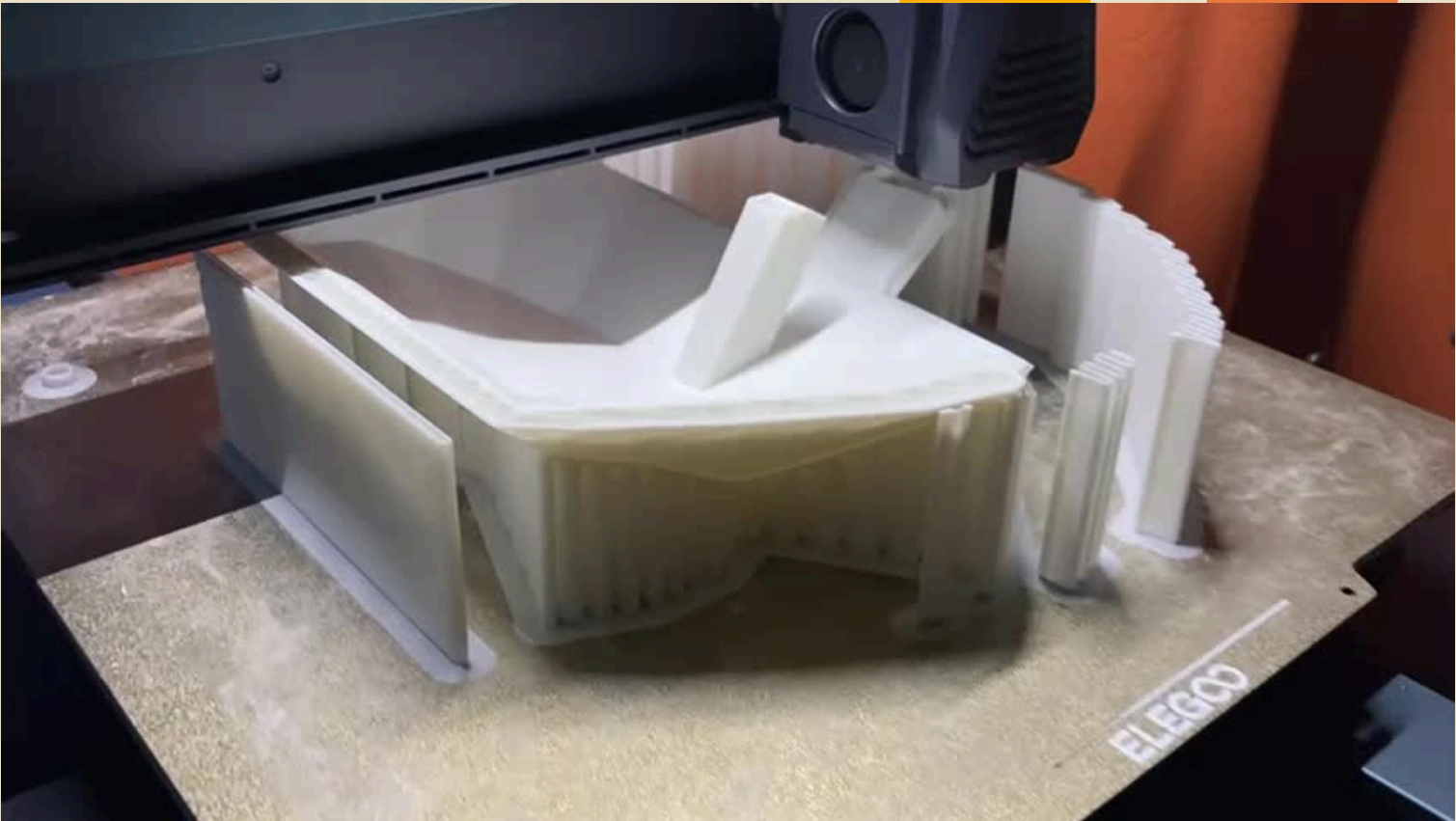
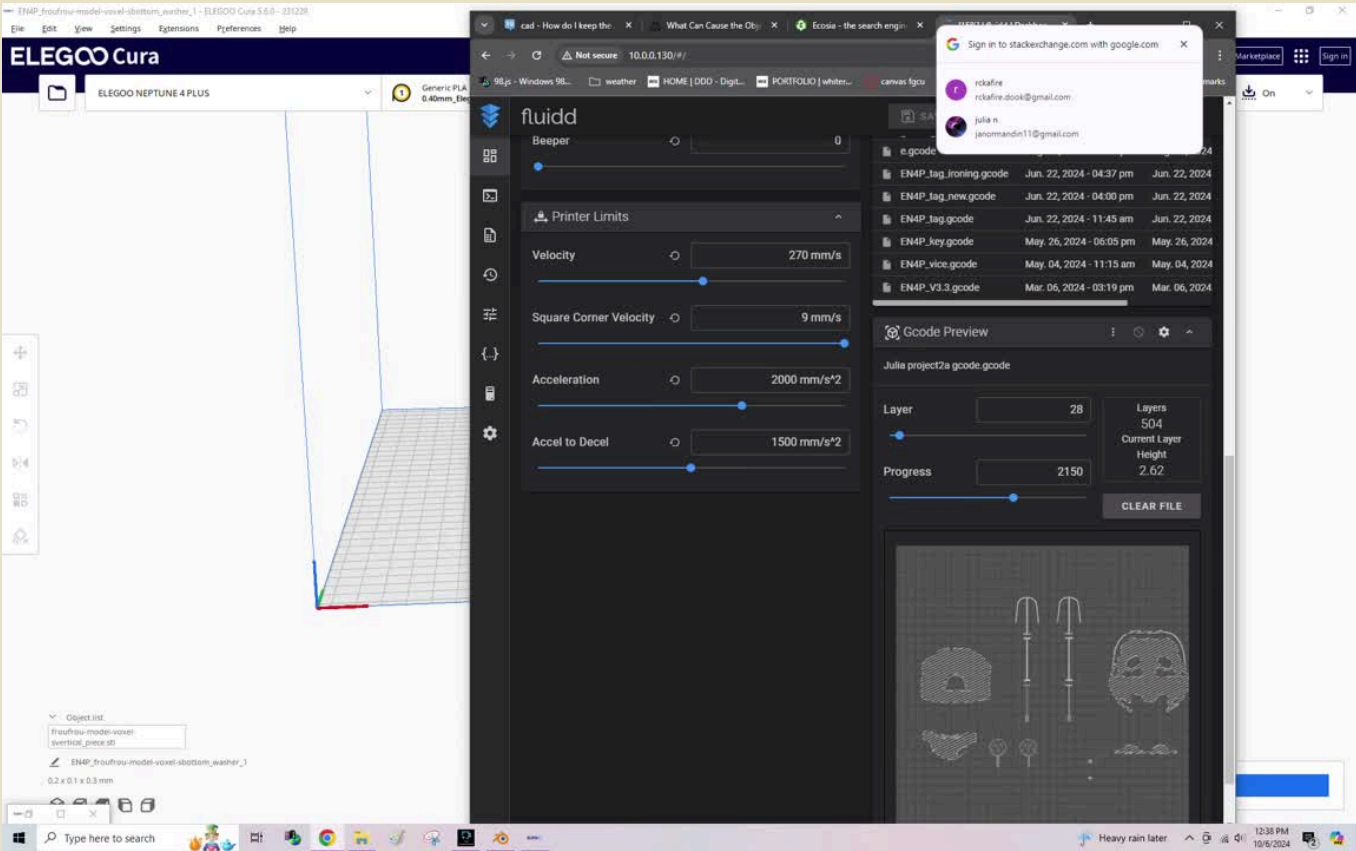


OVER 110 HOURS
OF PRINTING

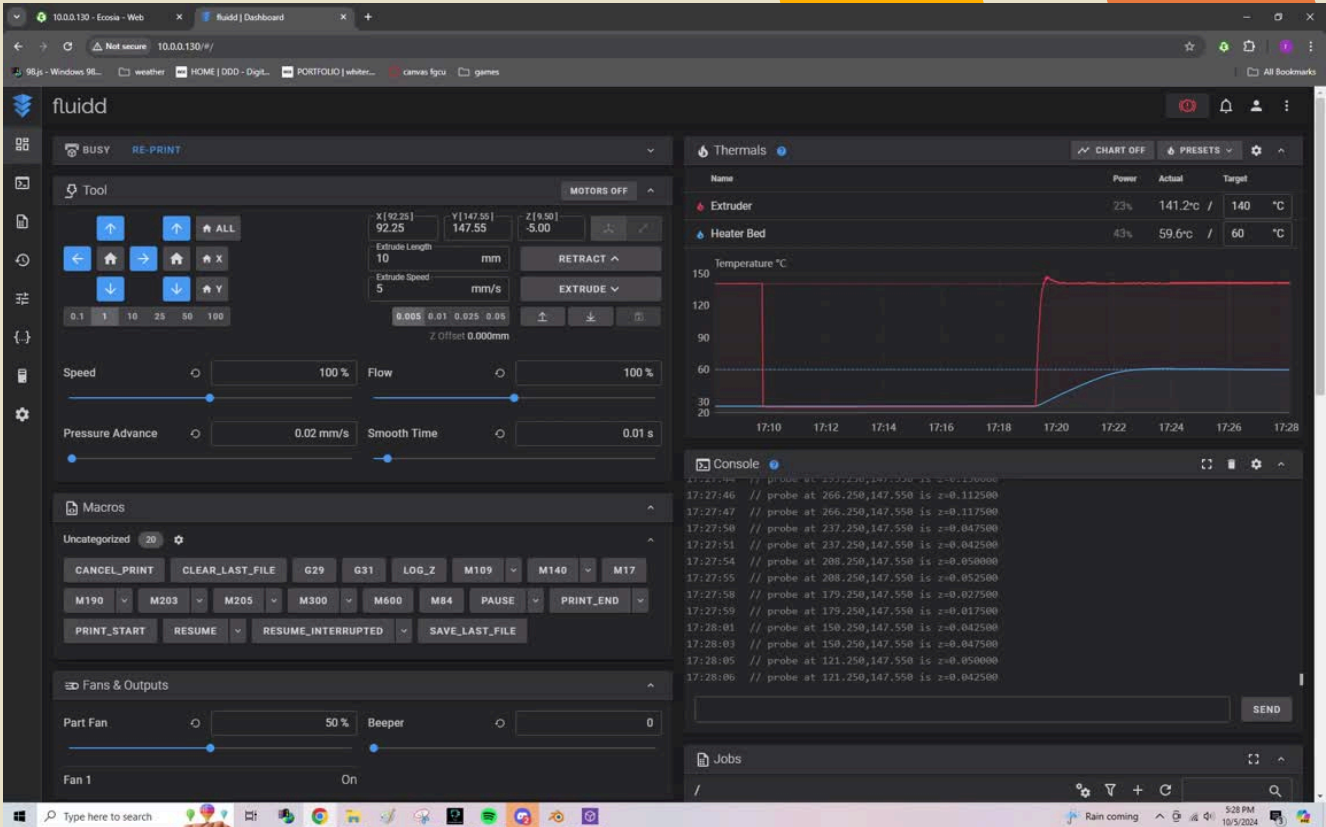
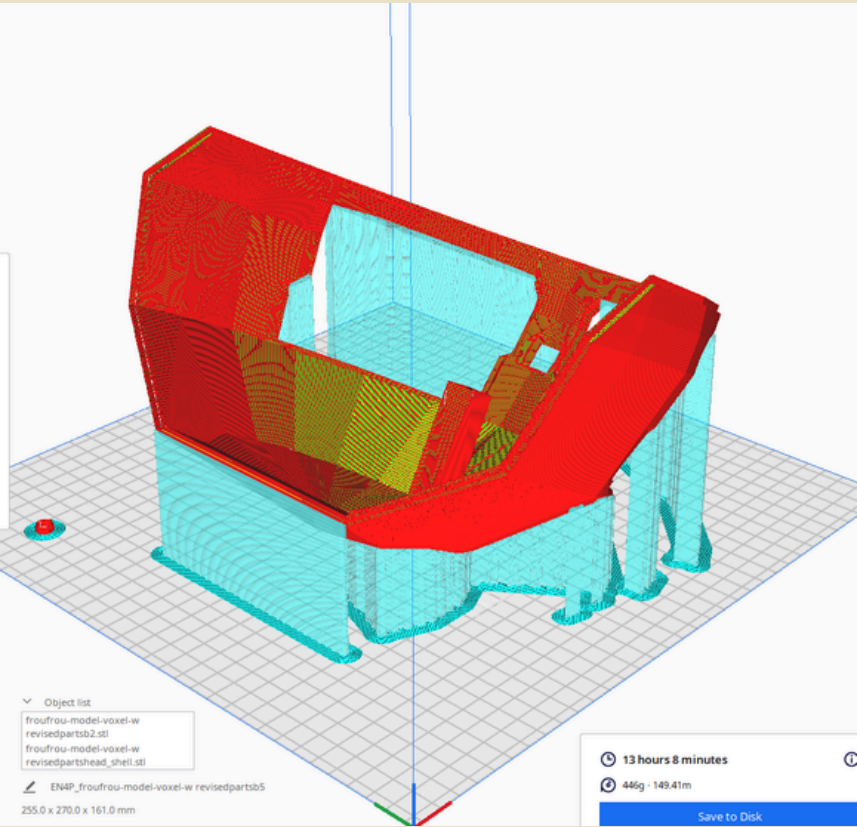


ASSEMBLING





A WHOLE LOT OF
REMODELING,
RESIZING,
RESLICING, AND
REPRINTING

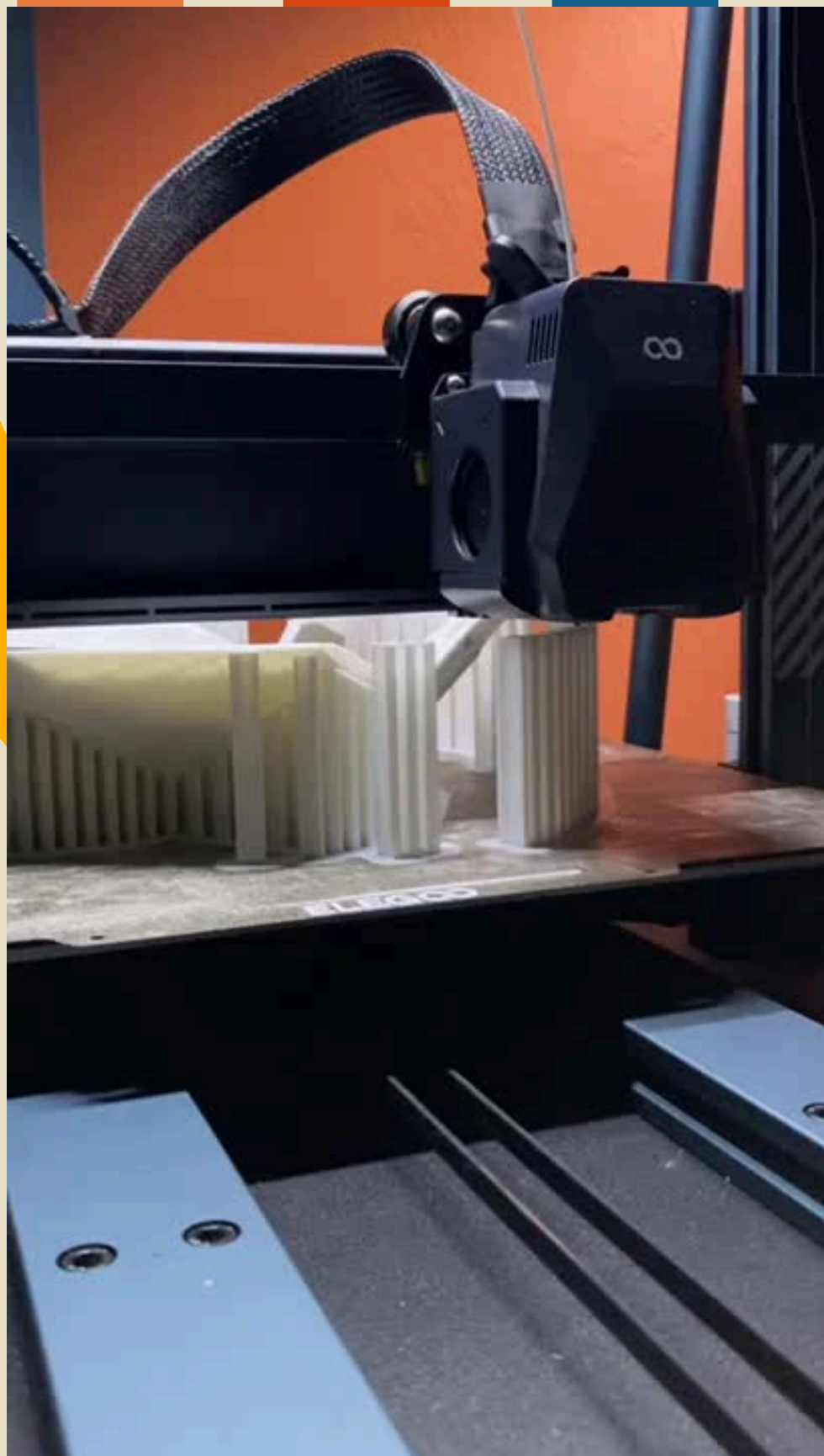




CHECKING MOVEMENTS

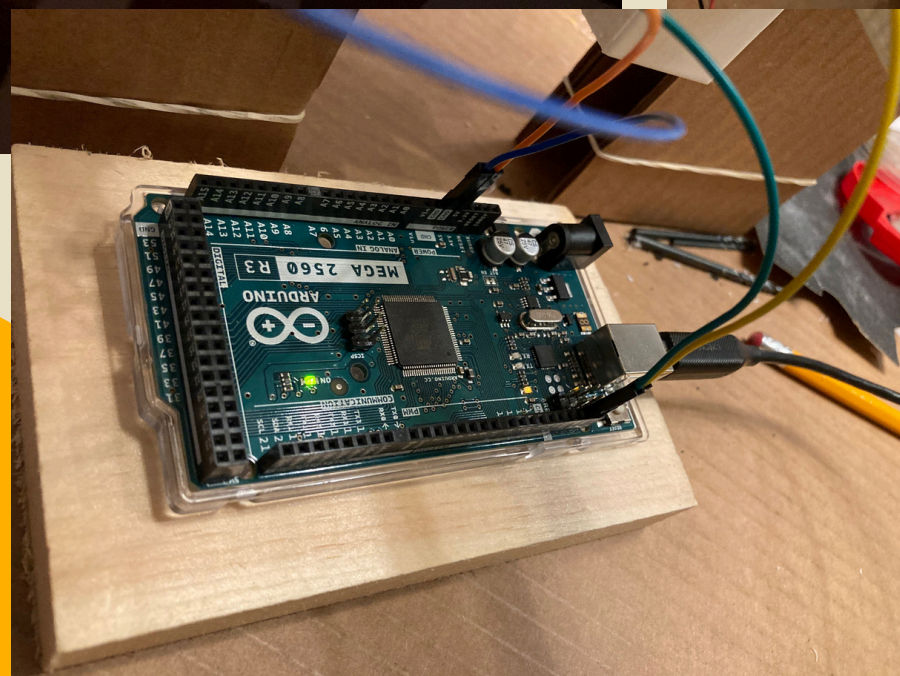
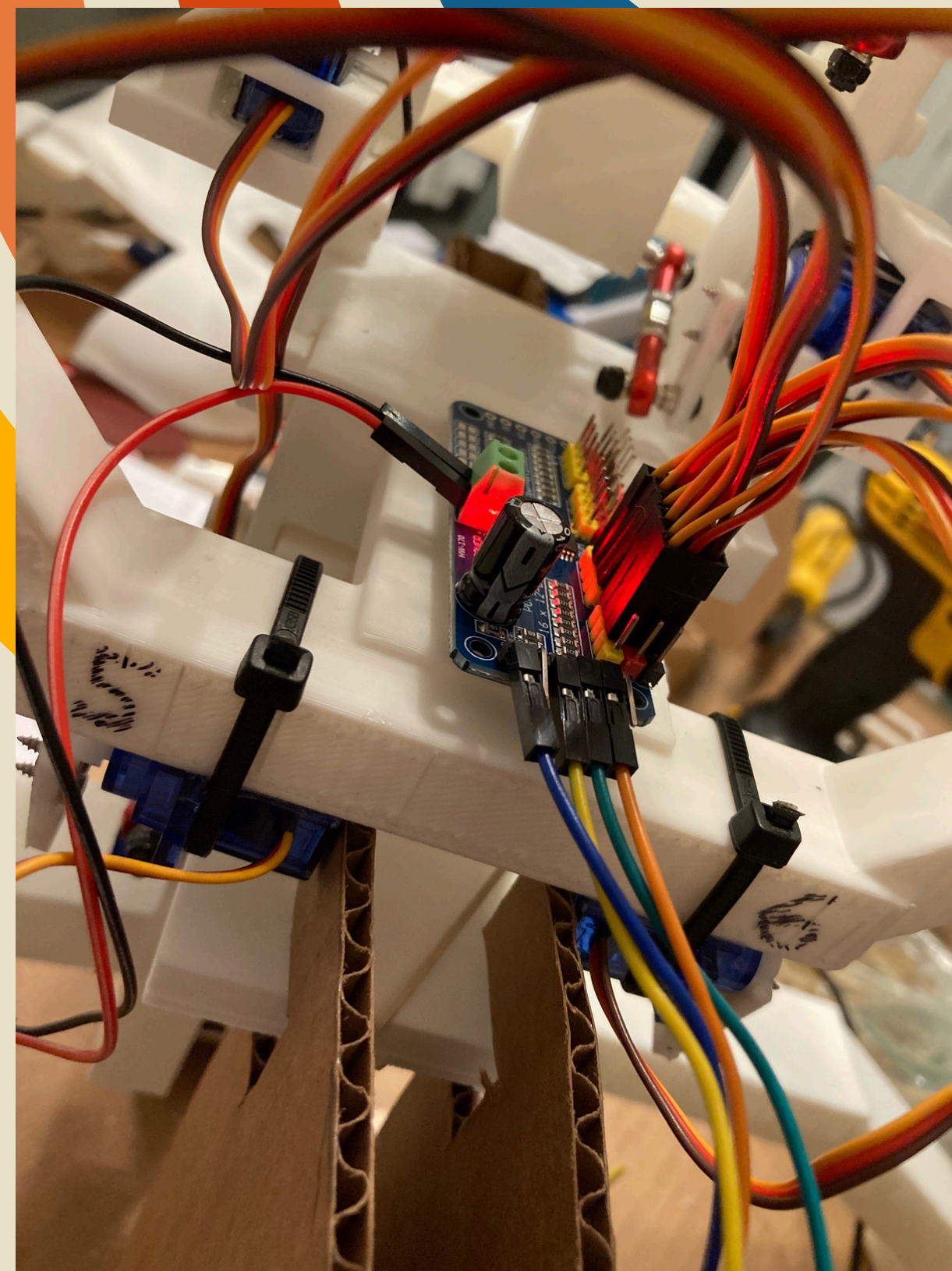
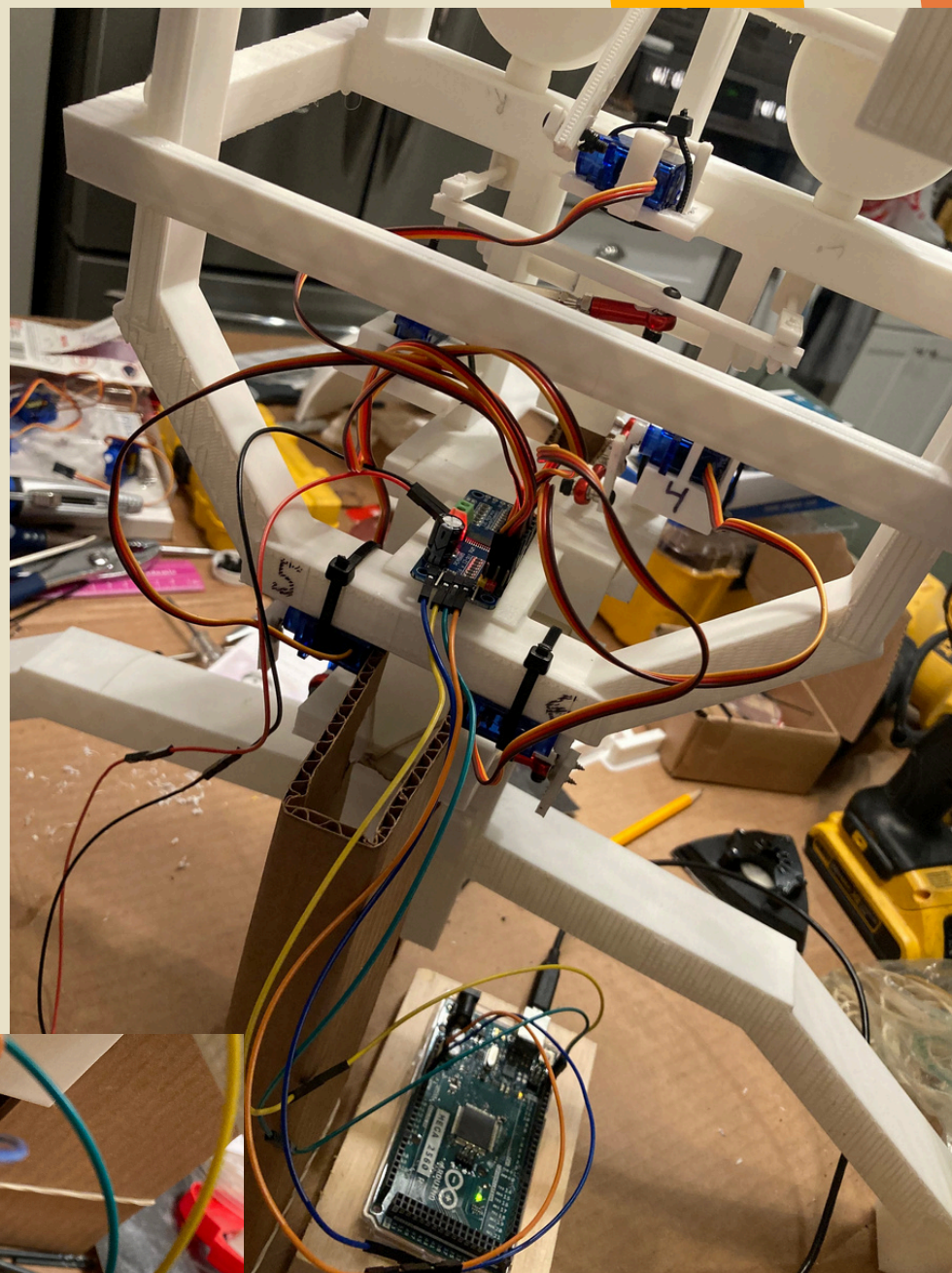
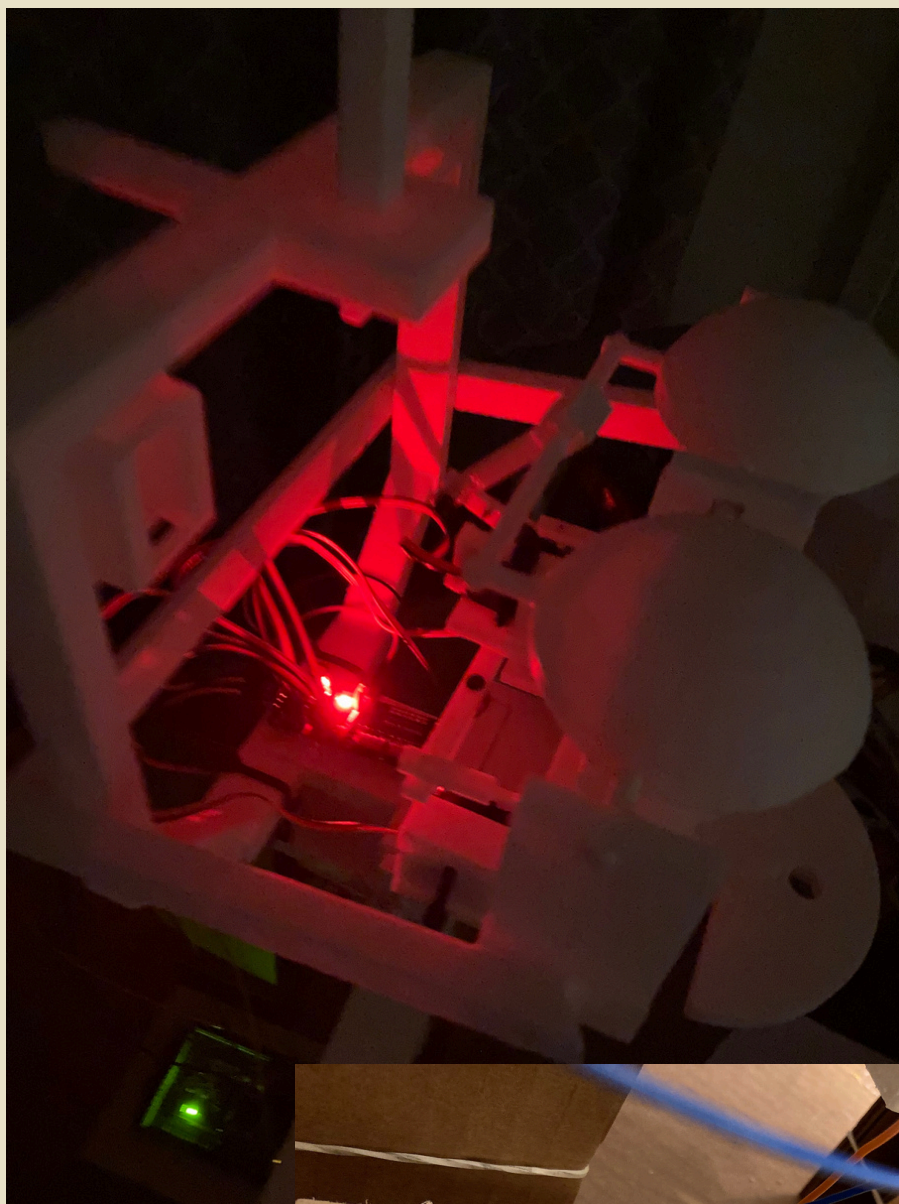


INSTALLING SERVOS

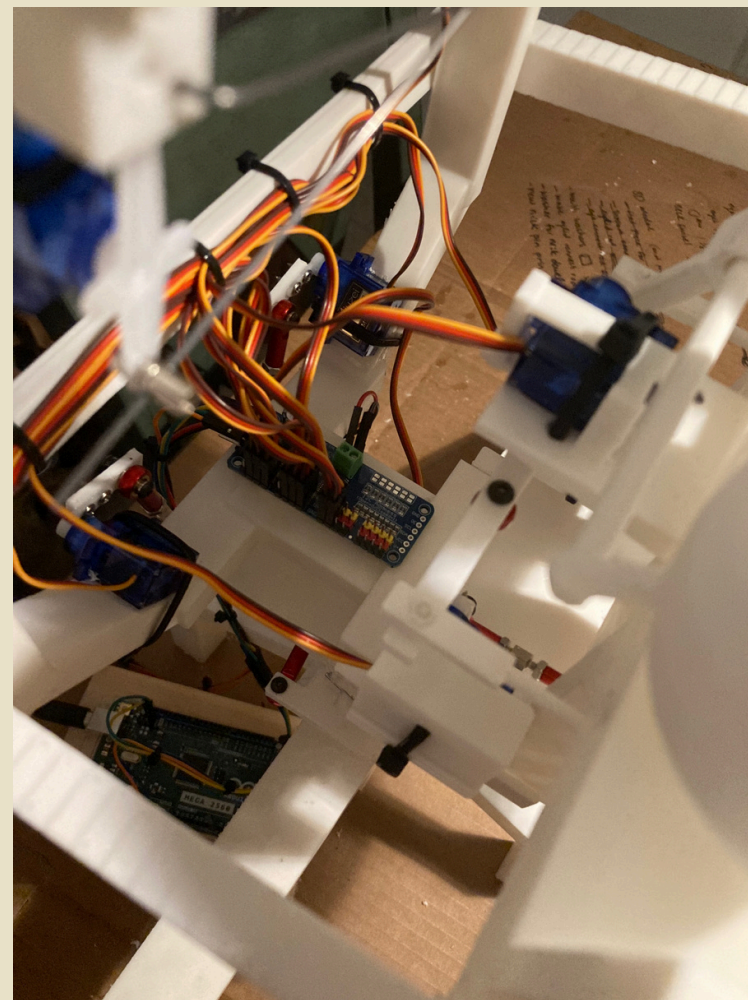
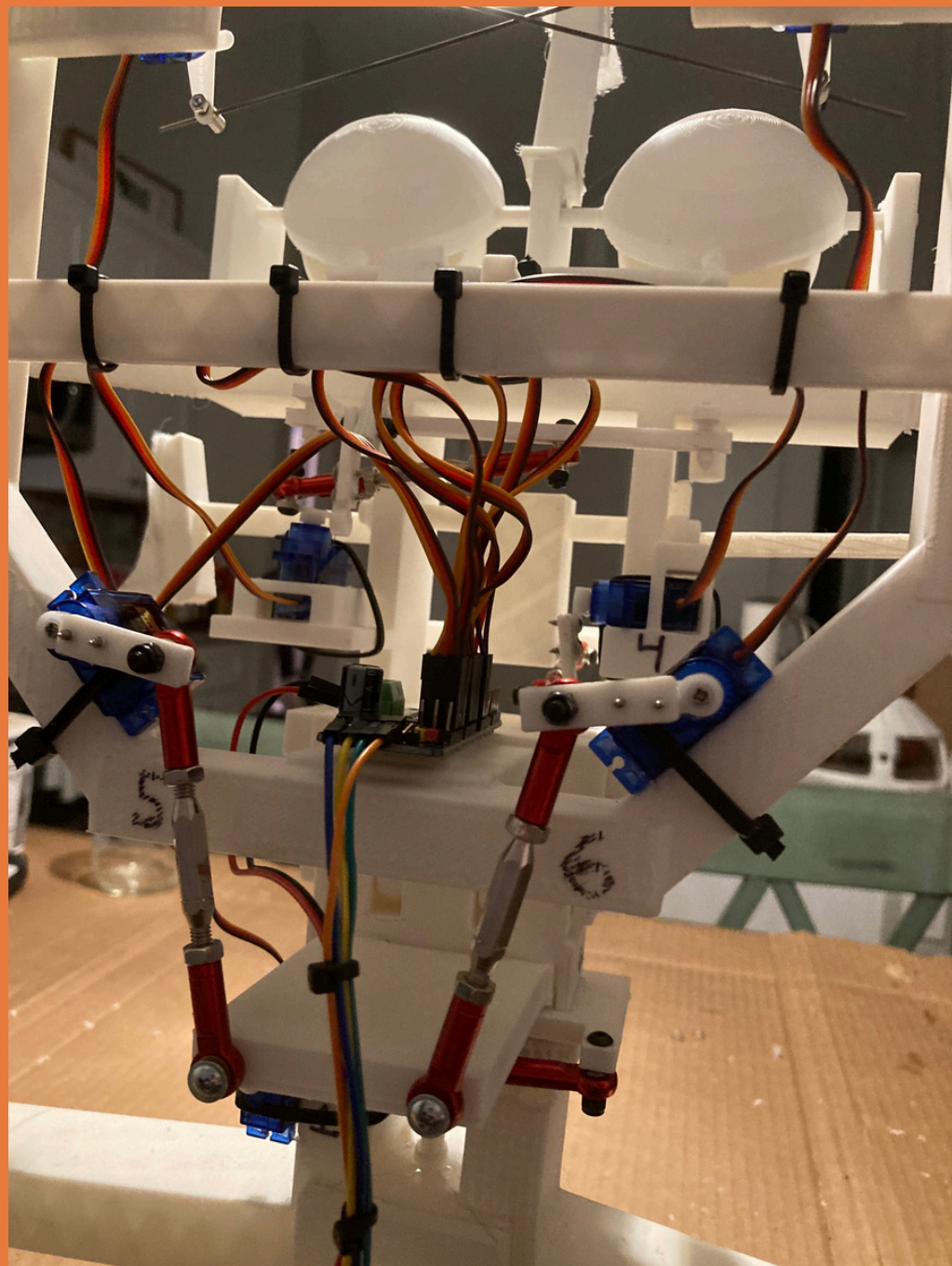


MORE REPRINTING





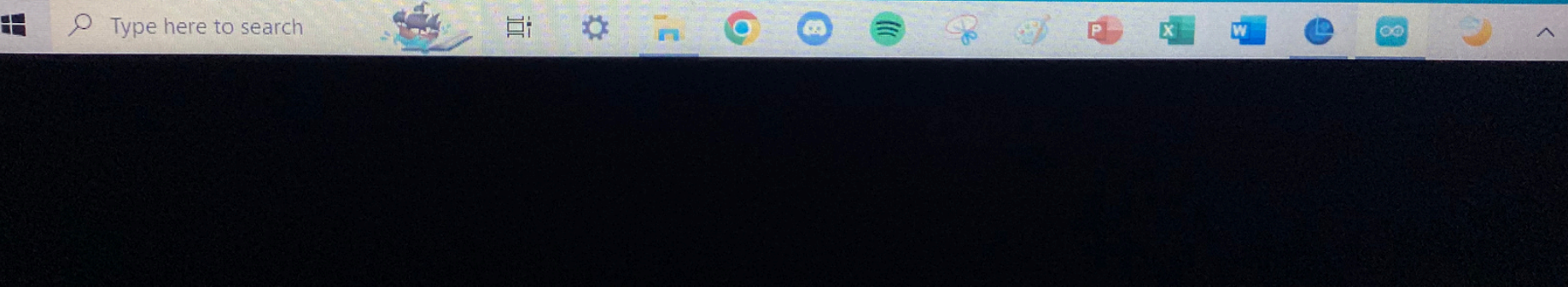
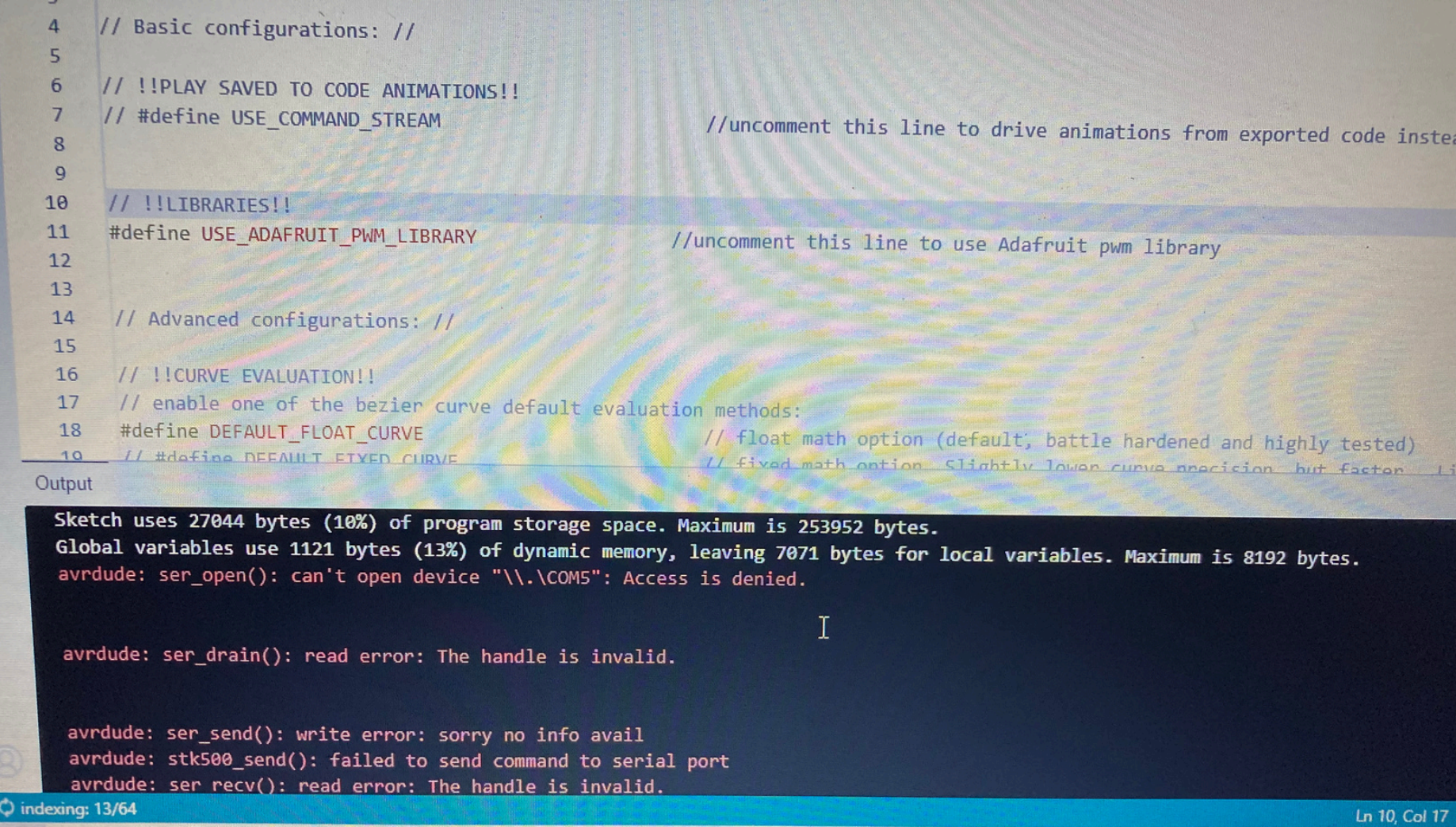
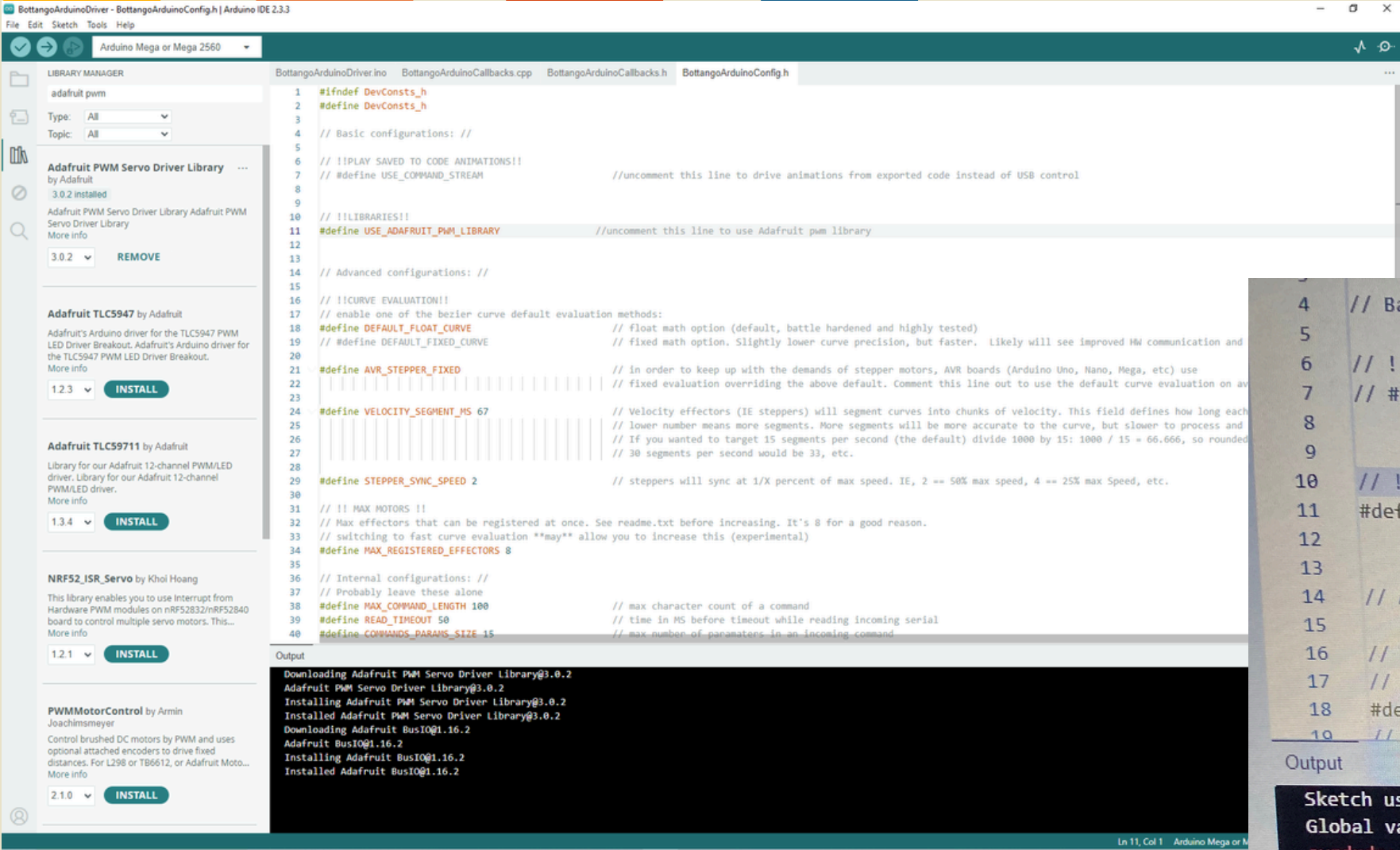
ELECTRONICS

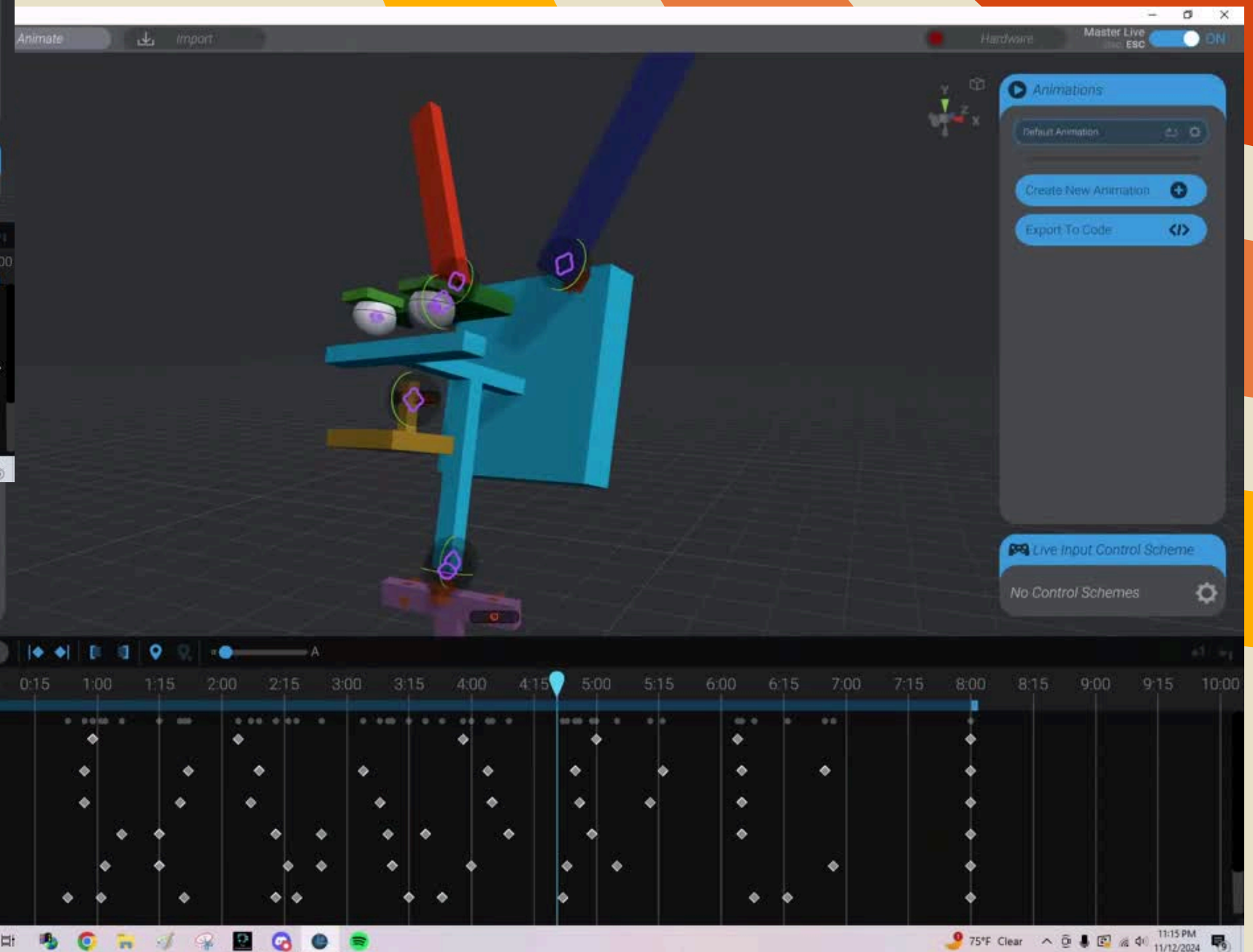
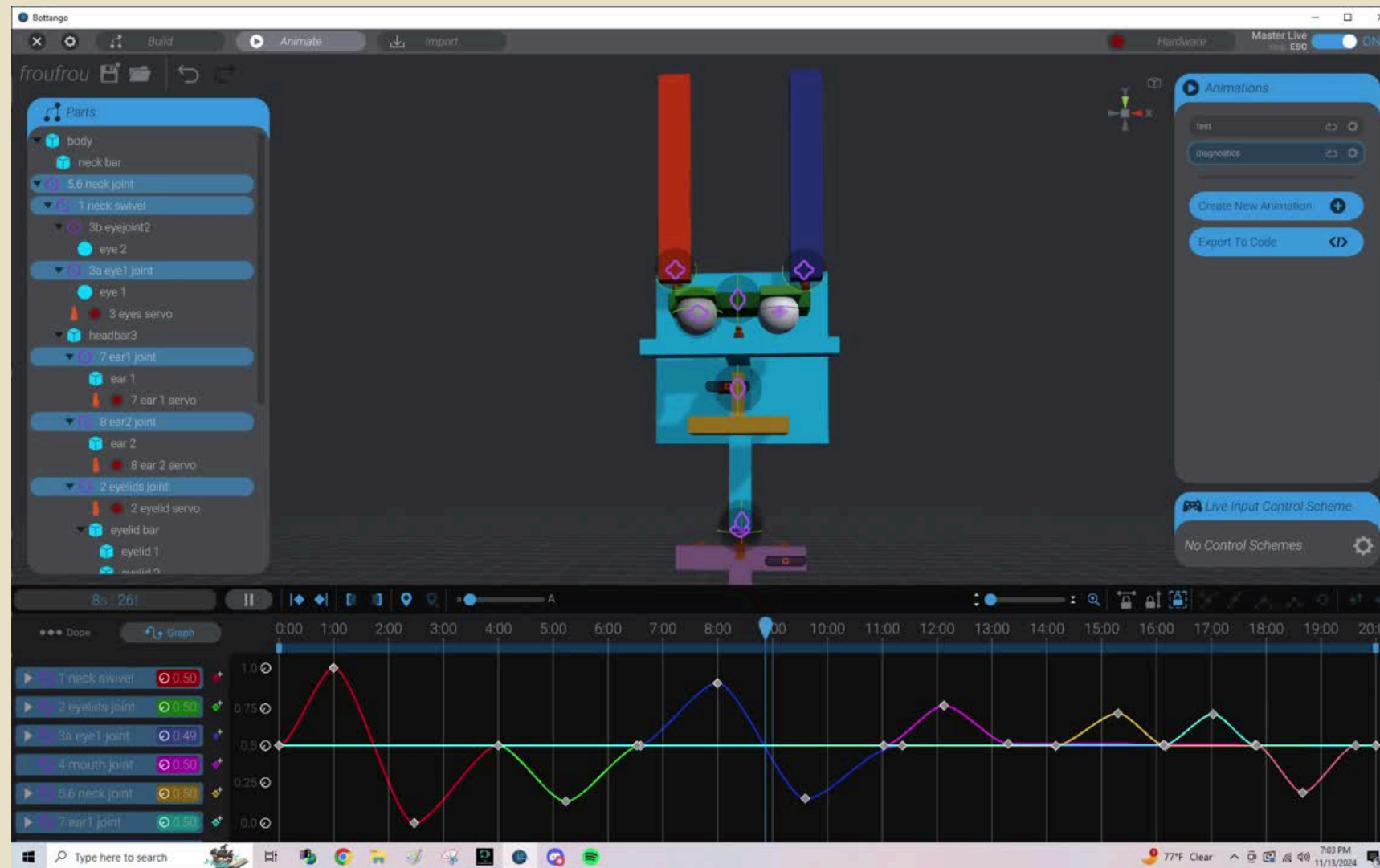
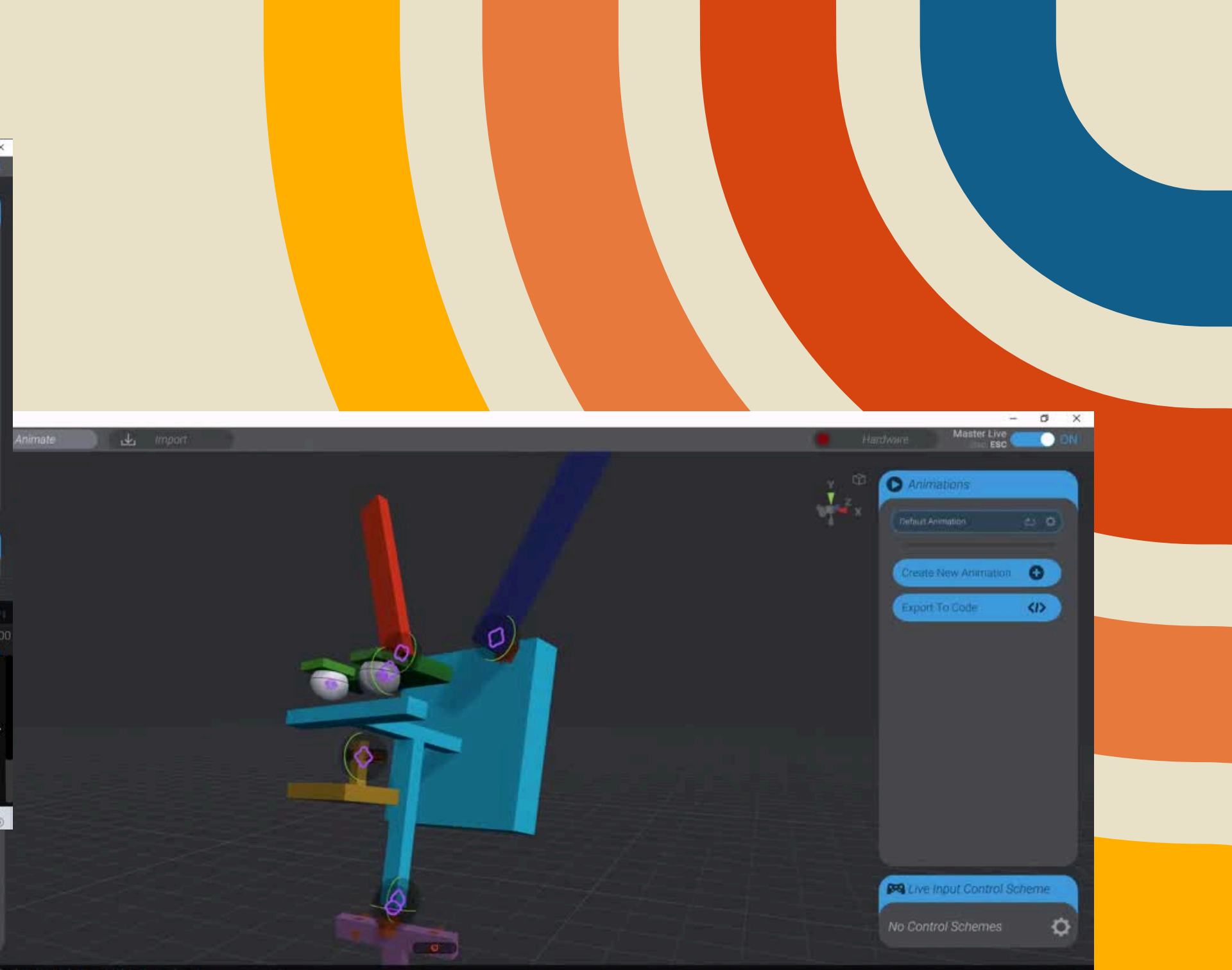


ELECTRONICS



PROGRAMMING SOFTWARE

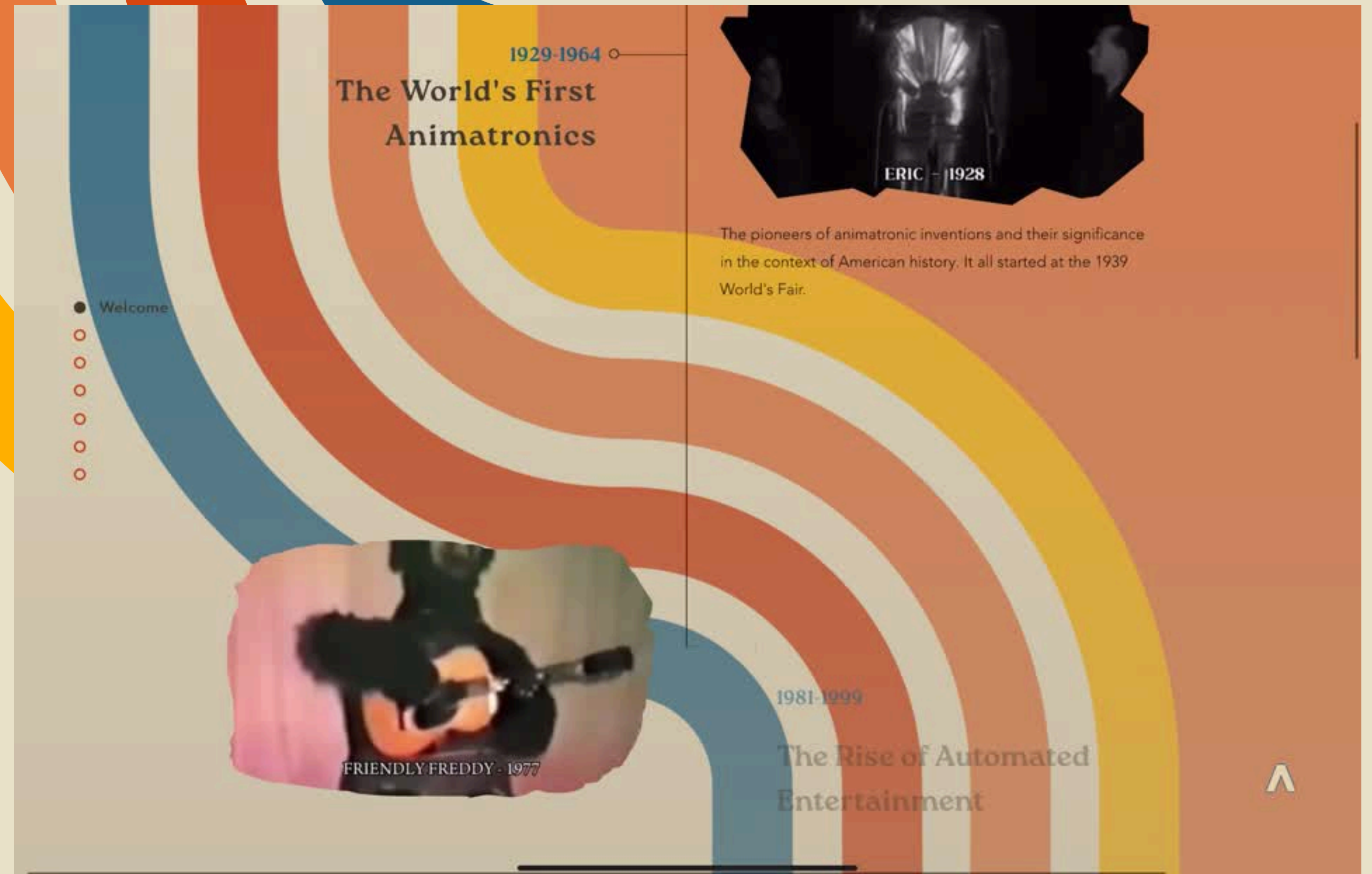




PROGRAMMING TEST MOVEMENTS

WEBSITE

(WORK IN PROGRESS)



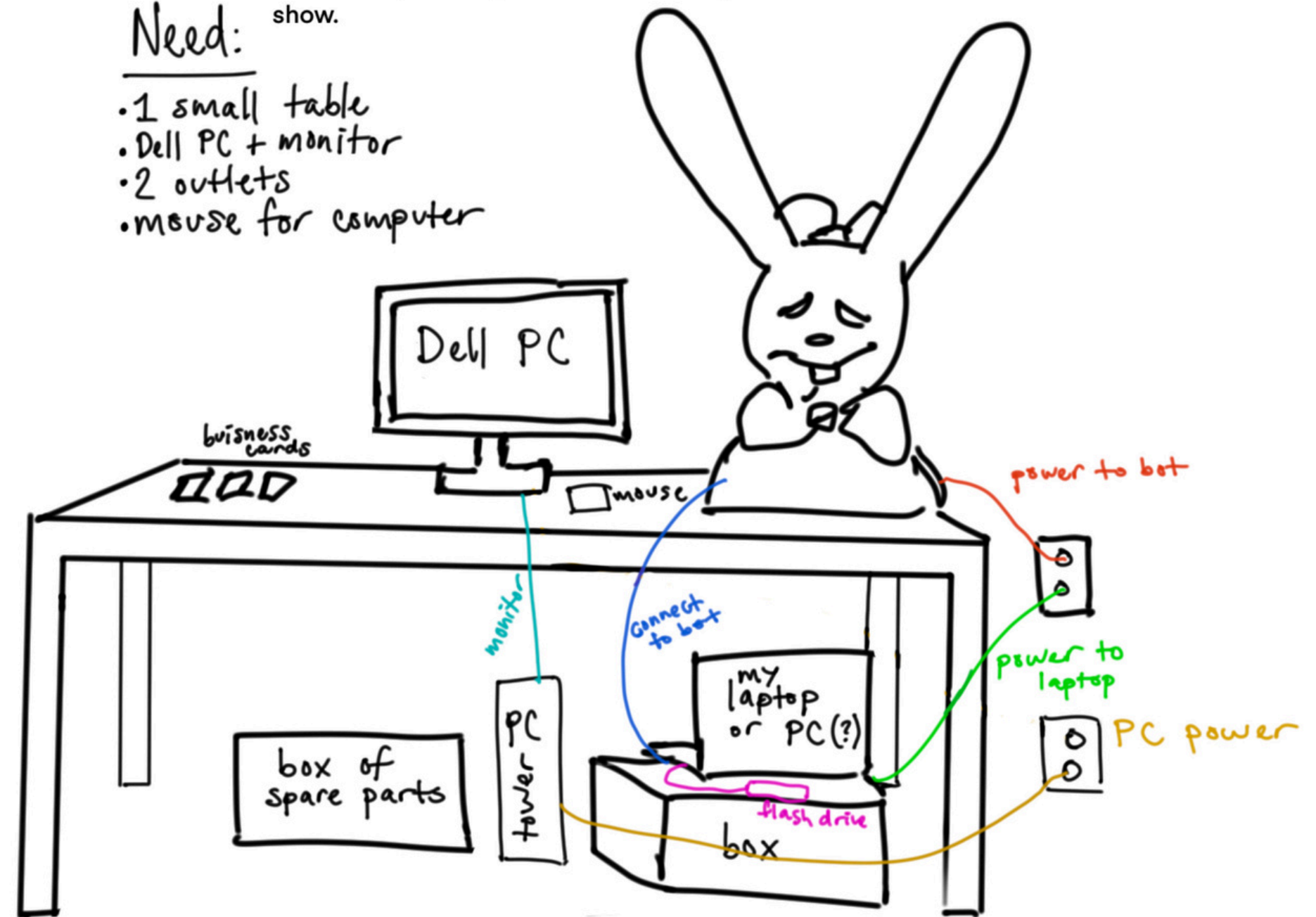
SENIOR SHOW SETUP

After 3 iterations,
this ended up
being the final
plan. Please note
the laptop ended
up being on the
table for display
too.

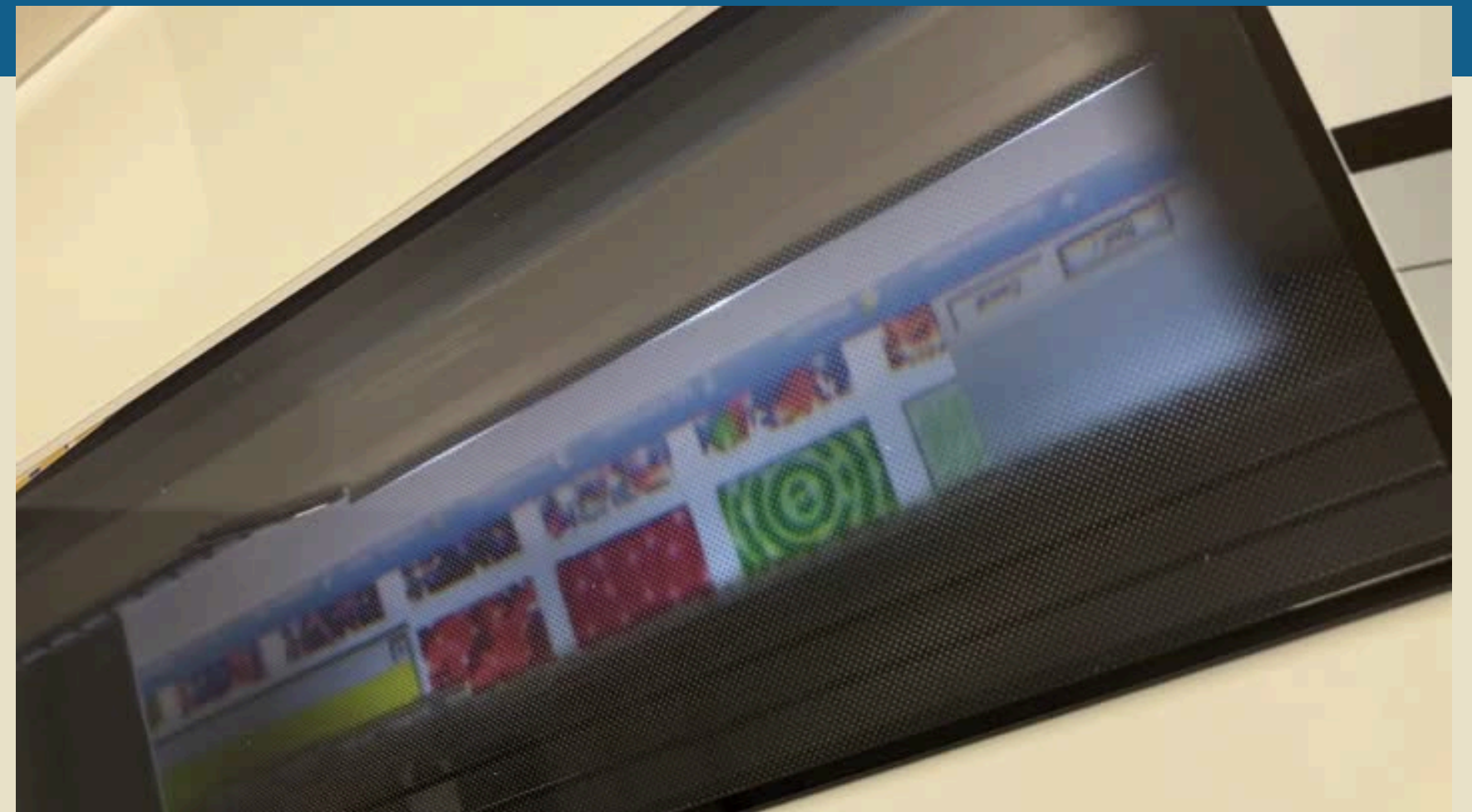
Can I please use my own laptop to control the robot? I will only have it at the table for the 5-7 reception. The rest of the week it will be completely unplugged and unmoving. It has my software, program, settings, and the correct amount of USB ports. I will be supervising it at all times during the senior show.

Need:

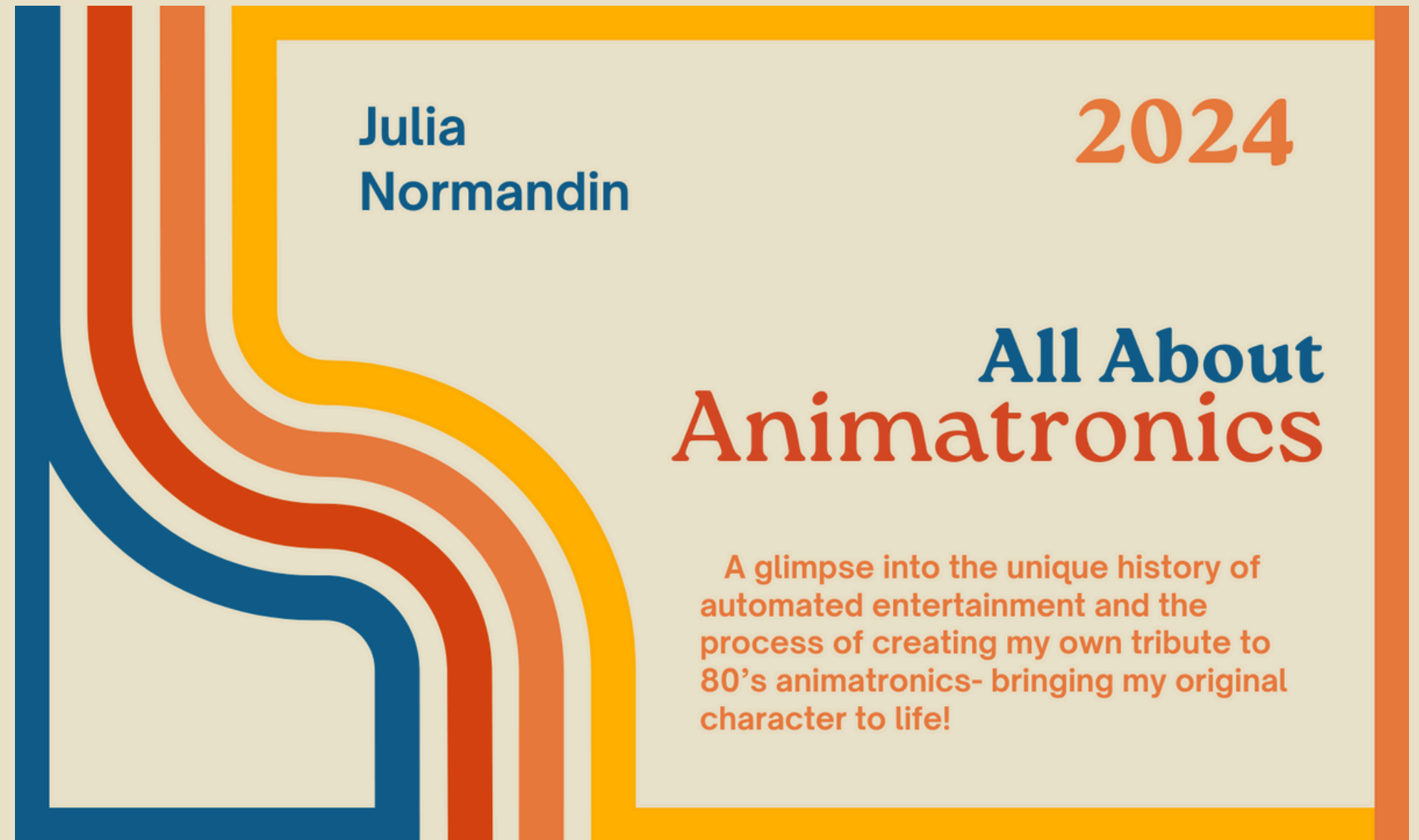
- 1 small table
- Dell PC + monitor
- 2 outlets
- mouse for computer



SENIOR SHOW POSTER



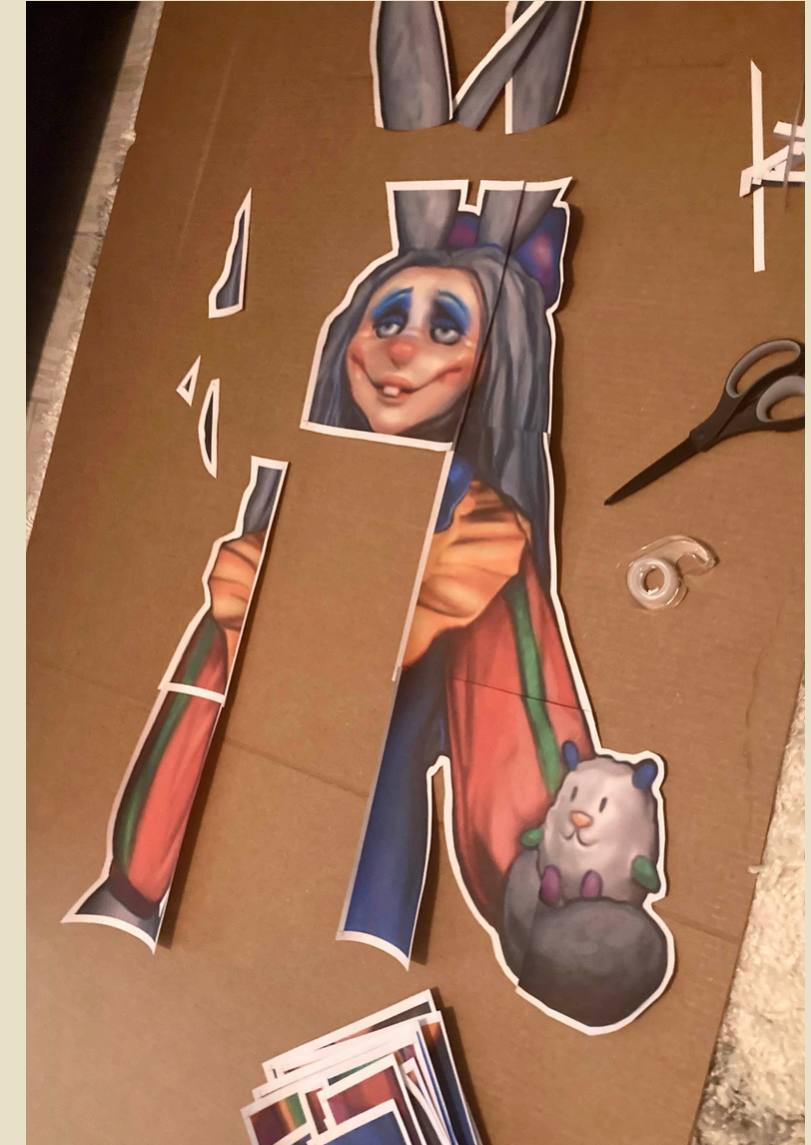
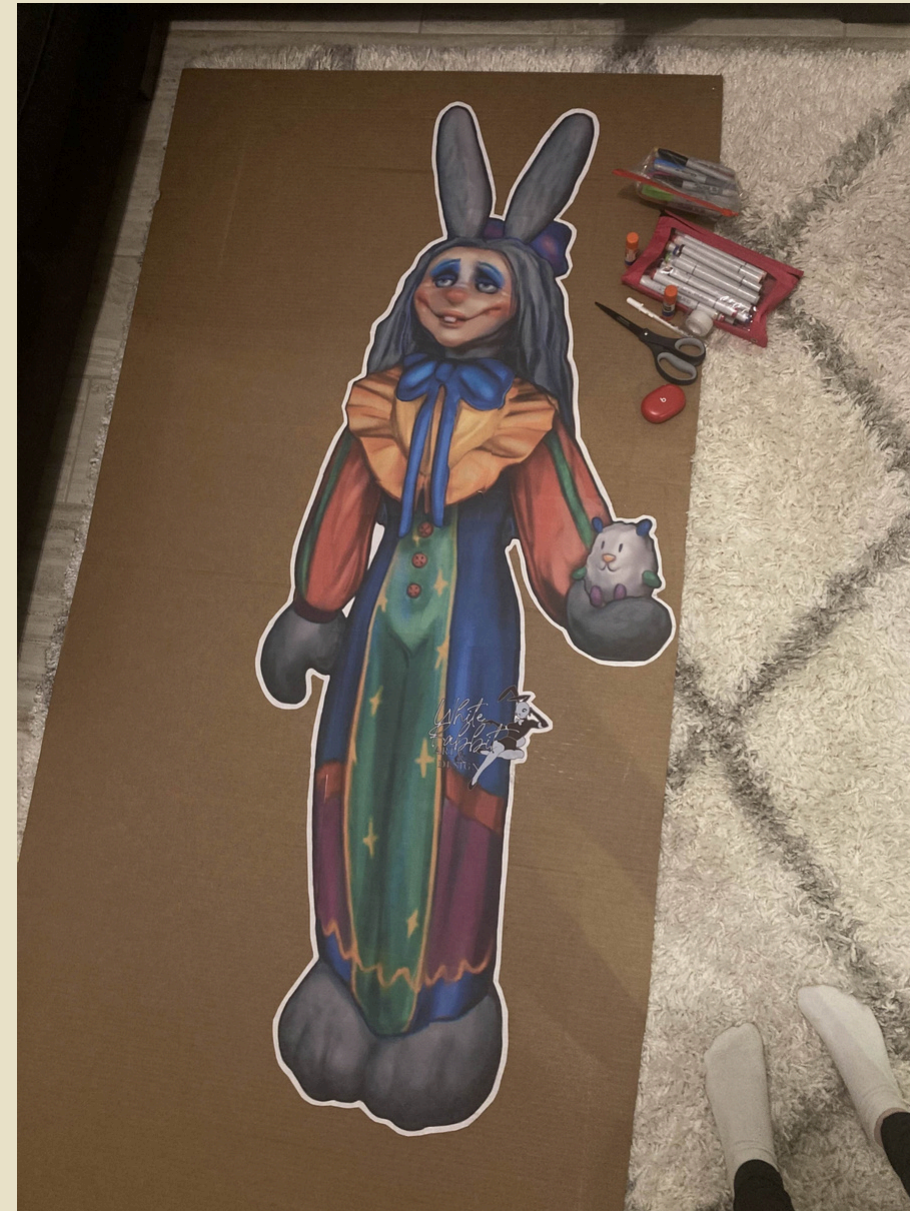
PLAQUE FOR TABLE



BUISNESS CARDS



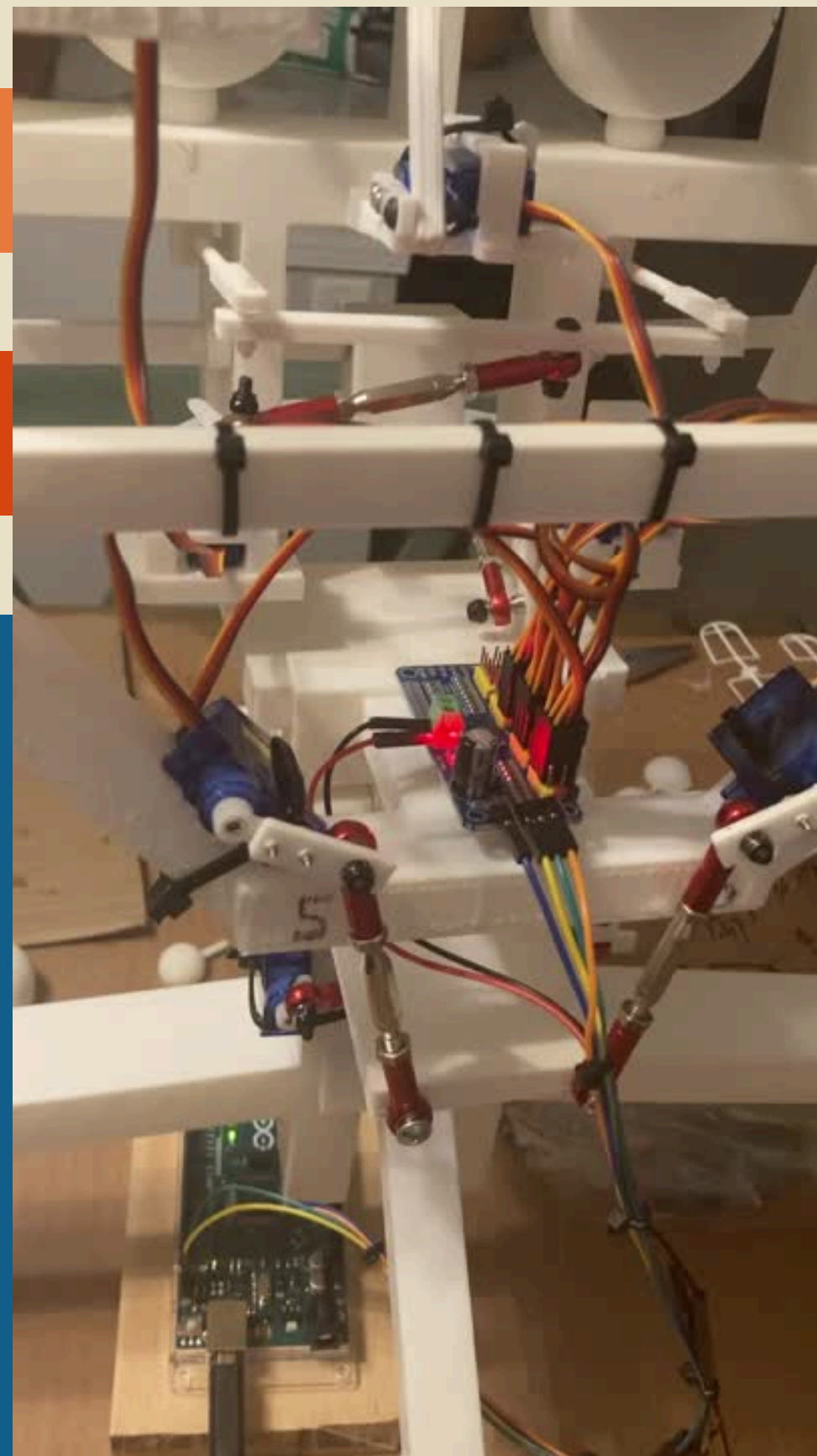
CARDBOARD CUTOUT





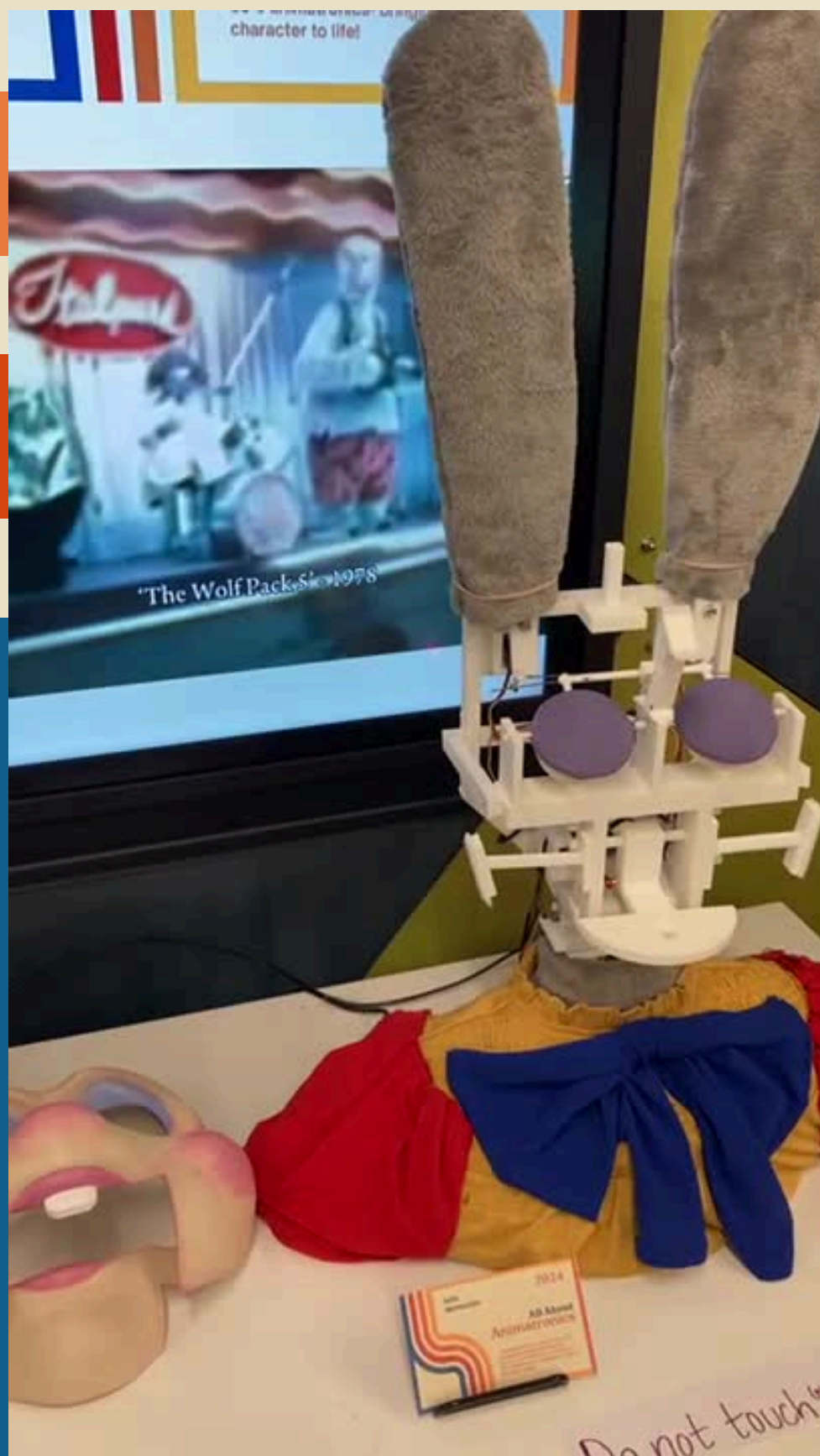
PAINTING







COSMETICS



SENIOR SHOWCASE



FINAL DELIVERABLES

Website: <https://froufroubiz.wixsite.com/wrartdesign>

YouTube playlist that contains all three 'history' videos in the website: https://youtube.com/playlist?list=PLaWVPe_nc5JHlG2EqtzXrJQa-8VLyg5g&feature=shared

My FigJam board: <https://www.figma.com/board/qnvl58M993mPGlsezM5WTX/Senior-Project-Notes?node-id=0-1&t=k2Fwg74pRvVKylo4-1>

Project Pitch Presentation: https://www.canva.com/design/DAGO4gA_XsY/ZRTwkEvrLy9AuWklFKyPqQ/view?utm_content=DAGO4gA_XsY&utm_campaign=designshare&utm_medium=link&utm_source=editor

Progress Check Presentation: https://www.canva.com/design/DAGSeiqt-i0/vGWB-fhfSQSCPypK5dutmg/view?utm_content=DAGSeiqt-i0&utm_campaign=designshare&utm_medium=link&utm_source=editor

Sign-Off Presentation: https://www.canva.com/design/DAGWbHZLOQ0/COHkvAd_rjf2bY1bQmeFgg/view?utm_content=DAGWbHZLOQ0&utm_campaign=designshare&utm_medium=link&utm_source=editor

Plaque: https://www.canva.com/design/DAGXCBQtuOg/6quvWhjumY5WAqy2SF3D_Q/view?utm_content=DAGXCBQtuOg&utm_campaign=designshare&utm_medium=link&utm_source=editor

SENIOR SHOW MARKETING: **

Reel 1: https://www.instagram.com/reel/DC8GSfbMDD-/?utm_source=ig_web_copy_link&igsh=MzRlODBiNWFlZA==

Reel 2: https://www.instagram.com/reel/DDA5z0zhu26/?utm_source=ig_web_copy_link&igsh=MzRlODBiNWFlZA==

Poster: https://www.instagram.com/p/DCzocnWSL8G/?utm_source=ig_web_copy_link&igsh=MzRlODBiNWFlZA==

*I have a 15gb folder of progress pictures, working files, test files, 3d print stuff, 3d modeling parts, documentation videos, etc. If you need those, please let me know. However, many are included in the progress/sign-off presentations above.

**I also did a lot of marketing organizing in the class FigJam, helped my fellow classmates sort out the plaques, supported communication, helped offer ideas for the senior show website, provided general uplifting vibes, assisted with mounting a few people's posters, etc.

——Please note: I also spent a bunch of time on my personal branding as well, including revamping my portfolio website so it's updated in time for the show, designing & printing my business cards, and creating a domain. www.wwwrabbit.biz

A PERSONAL REFLECTION ON THIS SEMESTER, SR. PROJECT, & THE FGCU DMD PROGRAM AS A WHOLE

1

This project was definitely a huge undertaking. I had never built a robot before and I had little 3d modeling experience. But I managed my time, broke the project down into a lot of small pieces and did copious amounts of research. Sometimes I had to multitask, but I did my best to remain on track all semester.

I think the main theme of this project was trial and error. There were countless times where bits of my project would fail- whether it be a 3d mesh, a physical print, or a mechanical issue. Every time I would troubleshoot and move on. There was a time where I nearly gave up due to being so frustrated. Nothing seemed to be going right that day, so I took a break and spent the following two days solving the problems.

To accept failure and have the will to try again is incredibly important as a creative.

The project was a huge commitment time and money-wise, but I kept to it and I think it had a great final product. I finished everything I wanted to on-time. There are only a few elements of my animatronic I want to continue working on in my free-time after graduating, such as upgrading her servo motors to support the face and head plates. But those were deliberately meant to be an “after the senior showcase” thing anyway.

Some things I noticed while at the senior show: many people were fascinated, maybe a little perplexed, lots very curious. At one point there was a little girl who showed up and spent basically the entire time looking at my project. She thought Frou Frou was cool, and it means so much to me that I was able to inspire a little girl with something she’s probably never seen up close before. I was inspired by animatronics when I first went to Disney at 2 years old and obviously I’ve kept that love for them my whole life. So, **it’s the highest honor of a creative, artist, designer, etc. to be able to pass that love on to a younger audience- especially girls of color, in otherwise male-dominated fields such as design and robotics.** This payoff is priceless, and to me, so much more important than any grade I could receive on this project. This was my last hurrah in school, probably forever, so I really wanted to make it count, for my sake and others’ inspiration. *Otherwise, what’s the point?*

A PERSONAL REFLECTION ON THIS SEMESTER, SR. PROJECT, & THE FGCU DMD PROGRAM AS A WHOLE



Now, *what did I learn this semester?* **I learned that you shouldn't give up, you should go after your wildest ideas, take risks, and know that these risks will pay off in the end-** if you stick to that route 100% so all goes as planned. I also learned, mostly from watching my peers, to stay on-task, finish things completely, and pour your heart into them (because it's very clear when people don't.)

Several people asked me if I was crazy taking on this project. To them I would simply reply, 'yes, but **I've never met a successful artist that isn't a little crazy.**'

On the topic of art, I'd also like to mention that this project is completely Generative AI-free. I know Professor Denny is probably the one reading this (hello), and I'm sorry if this offends you, since I know you're adamantly pro-AI, but my personal opinion on it is quite different from yours and I'd like a chance to explain it real quick before I graduate, since I never got a chance to in class: **Generative AI is inherently and highly unethical on every level.** Here's a very quick summary of why that is- although I also recommend looking this stuff up so you can see for yourself. **Research is cool! Knowledge is power!**

GenAI hurts all creatives, breaches copyright and privacy laws, contributes to unconsented data scraping on a level that's never been seen before on Earth, distributes harmful/fake/untrue content at an alarming pace, contributes to global warming on a huge scale, amplifies existing biases the models are trained on, creates terrible labor conditions known as "digital sweatshops", puts artists out of business, generally appears unprofessional and lazy, and MORE...

A PERSONAL REFLECTION ON THIS SEMESTER, SR. PROJECT, & THE FGCU DMD PROGRAM AS A WHOLE



GenAI is being used to create inappropriate pornographic images of children, women, celebrities, and other completely non-consenting folks. It promotes unhealthy beauty standards by constantly generating curvy women with tiny waists and flawless skin. This creates harmful gender stereotypes and objectifies women on a large scale. It endangers children and exposes them to abusive fetish communities online. It has been shown that women have lost their jobs due to fake explicit content of them being spread online.

It has also been exposed that some companies who use AI hiring practices show signs of sexism, racism, predatory advertising, and other biases. In countries like the Philippines, people are forced to receive little to no pay on their work where they manually train AI day-in and day-out to keep up with the demand worldwide. There are lots of American AI companies that do not abide by labor laws and outsource cruel sweatshop labor overseas for very little money.

GenAI uses a lot of carbon in an already-warming society for seemingly lazy tasks. One singular ChatGPT query uses 10x the amount of electricity than a standard Google search. Data center power demand will increase by 160% in the next 5 years. The energy needed to train GPT-3 could power one American household for hundreds of years. In 2022, (before ChatGPT was even released) GenAI already accounted for 1.5% of all global electricity usage. Also in 2022, in-house company owned emissions were 622% higher than officially reported. In Florida alone, there are currently 122 AI data centers, with each producing over 700lbs of CO2 every year.

AI scams and misleads people by creating deep-fake ads, fake videos of crime scenes, fake natural disaster pictures, and deep-fake politician speeches and testimonials.

Building a single server farm displaces animals and disrupts ecosystems. The average conversational exchange with ChatGPT is equivalent to pouring a large bottle of fresh water onto the ground. The amount of clear freshwater needed to train GPT-3 is enough to fill a nuclear reactor's cooling tower. Data centers can't always fit in cities anymore so they're pushed into more suburban, rural areas, causing water shortages in already vulnerable, drought-prone, or struggling areas. 1/5 of all current US AI data centers consume water from basins with moderate to high water stress. Due to climate change and the accelerated effects with the recent AI boom, Stanford estimates that by 2071, half of all the US freshwater basins will be rendered unable to meet demands.

GenAI has unsustainable business practices, such as the fact it steals from non-consenting artists, dead people, and otherwise powerless folks online. Eventually, it runs out of source material and starts to regurgitate pictures based on already-generated images, leading to grotesque, confusing, false slop that, as previously mentioned, has a lot of consequences. It is physically impossible to credit every artist AI stole from if you use it in your work, and you can't claim it as your own since you didn't actually make anything. **AI would be nothing if it needed consent to steal.** There are numerous lawsuits over copyright issues and people using other artists' derivative work for profit. Even Adobe is under fire right now for claiming they only use their own Adobe Stock images to train their AI programs, when under investigation, this was proven to be untrue.

I could go into even further detail about all this, but I hope the point has come across by now.

A PERSONAL REFLECTION ON THIS SEMESTER, SR. PROJECT, & THE FGCU DMD PROGRAM AS A WHOLE



Basically, I'm proud to say that I haven't used GenAI in any aspect of this huge complicated project, and I was still able to meet the deadlines on time. Using AI makes the process go faster, sure, but there's no gratification in it, no sense of pride for your own work. I think working in tandem with AI tools are okay sometimes, but using it at every turn is damaging on every level. **I wish that it were promoted less in class, or at the very least, have the professors educate about its dangers, the reality of where the 'magic' comes from, and the toll it takes on our people, planet, and profits.** FGCU is heavily based in sustainability culture and there are few things less sustainable right now than promoting GenAI without any warning of its consequences. And I get it, all the DMD professors suggest we use it in every project. But someone should tell students to have pride in their original work! **We are here to create, to try and fail, to learn from mistakes.** GenAI skips all that. There is no learning once it becomes a habit to ask ChatGPT and Midjourney for everything. I'm proud of my work, and I feel accomplished to be able to take an idea from my brain and craft it all the way through to the end the "old-fashioned" way.

Design is art, and I wish FGCU DMD understood this more.

Maybe you're thinking, "*Well, why does this matter? We all do stuff that's unethical sometimes.*" True, however, society ingrains many of these things in such a way where they're virtually unavoidable. Take driving a car, for example. The entire US is based on car travel unless you happen to live in a big city. You are basically pressured into buying a car, gas, etc. All of that hurts the environment and/or supports harmful business practices, but it's nearly unavoidable. AI on the other hand, is completely non-essential. Nobody was using it 3 years ago and we were all fine. Nobody will require you to partake in this harmful practice on a daily basis. **That choice is entirely on you and your own morals.** It's like smoking, you don't have to do it, but people try it and then it becomes a habit where they forget why it was so bad in the first place. I know you often tell us to go against the grain and make our own paths, so **please understand my path was, is, and always will be the one where I advocate for creatives, the environment, women, children, labor rights, and minorities. The joy of creating art is the process itself, not how quickly you can jump over hurdles to reach the end.**

A PERSONAL REFLECTION ON THIS SEMESTER, SR. PROJECT, & THE FGCU DMD PROGRAM AS A WHOLE



As a whole I hope that for future semesters, the FGCU DMD program gets more aligned with artists and creatives. **Our main edge to standing out against AI is the fact we have the incredible ability to create with our own hands.** Bowing down to AI simply puts you on the same level playing field as everyone else. Anyone can type in prompts. It's okay to be used briefly as a tool, but a full reliance on it wears down your 'creative brain' tenfold. It would be sad to see a generation of creatives, designers, and artists lack the skills they need to have an edge in the industry because they became reliant on GenAI. **I hope if I have any legacy at all at FGCU, it's that I advocated for this change- for the DMD professors to educate about the consequences of AI as much as they advocate for it.** Then students can decide for themselves if they want to continue using it or not, and it may even promote self-confidence in their designs knowing they have the full ability to create awesome things on their own and still meet deadlines. It would just be nicer to give a more objective approach, explaining pros and cons, so that students can get educated and form opinions on their own. Up until my very last day at FGCU, none of the design professors have ever mentioned the 'dark side' of GenAI.

My message to future creatives at FGCU would be to never give up on things you feel passionate about, do lots of research on everything because learning is so important for staying ahead, to express yourself with every project that allows it, keep adding to your portfolio as much as you can, seize every opportunity to take risks, accept trial and error, learn how to fail and rise up again, and know that if you keep up the hard work you can have a successful career eventually- it just takes time. Make cool stuff! Be passionate about the things you love! Enjoy creating unique and wonderful things. Aim to inspire others.

I'd like to shoutout to my peers that supported me throughout this whole project, to my partner who was there every step of the way, to the wonderful new friends I've met during my time at FGCU, and to my family for loving and supporting me every day even when things get tough.

I'm so thankful to be an artist and designer, it is why I live and breathe, it motivates everything I do. I hope that spark never runs out.

If you read all this, thank you!
Julia Normandin -- White Rabbit Art & Design

