

# julian marmier

# Shortened Portfolio

For more details about each project, visit [julianmarmier.com](https://julianmarmier.com).

## Sections

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ONE	<a href="#">High School Robotics →</a>	4
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MARKET 2DAY

COMPANY  
INFOMarket 2day  
[market2dayapp.com](https://market2dayapp.com)

Among the many projects I've helped this startup with, the biggest one so far is to redesign their application to make it more accessible for customers of all technological backgrounds.

View the latest revision here: <https://www.figma.com/proto/dEzRAIo81oVQucqMJHzYQ0/App-Redesign-for-Market-2day?scaling=scale-down&node-id=247%3A410>

## Improved Onboarding

### Vendor

**Sign Up/Create a Vendor Account**

**What markets do you work at?**

Please choose at least one market where you sell your products.

**Markets Nearby** **Search**

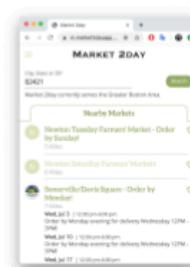
Marshfield Farmers' Market

(regular list of markets nearby, same as search page)

**Next**

The "Markets Nearby" Tab should only appear if GPS is available

+ when not selected



(vendor product page interface)

**Let's get you started**

Upload a profile picture and set a description for your page!

**Choose Profile Picture...**

Name: Reality Crunch Farms

Your Story: We are from Lexington, MA.

**Next**

**Do this later** if the user has not entered anything

**Add some products**

What products do you sell? Add them here. Don't worry, you can change these later if you forgot a few!

Eggs	\$8.00 / dozen
Pepper Soap	\$5.00 / cup
Shepard's Pie	\$10.00 / piece

**+ Add Product**

(Existing new-product page)

**Next**

**Do this later** if the user has not entered anything

**Almost there! Set up a payment method**

Connect a bank account via Stripe to receive payments from customers.

**Click here to connect now**

You will be sent to an external website.

**Next**

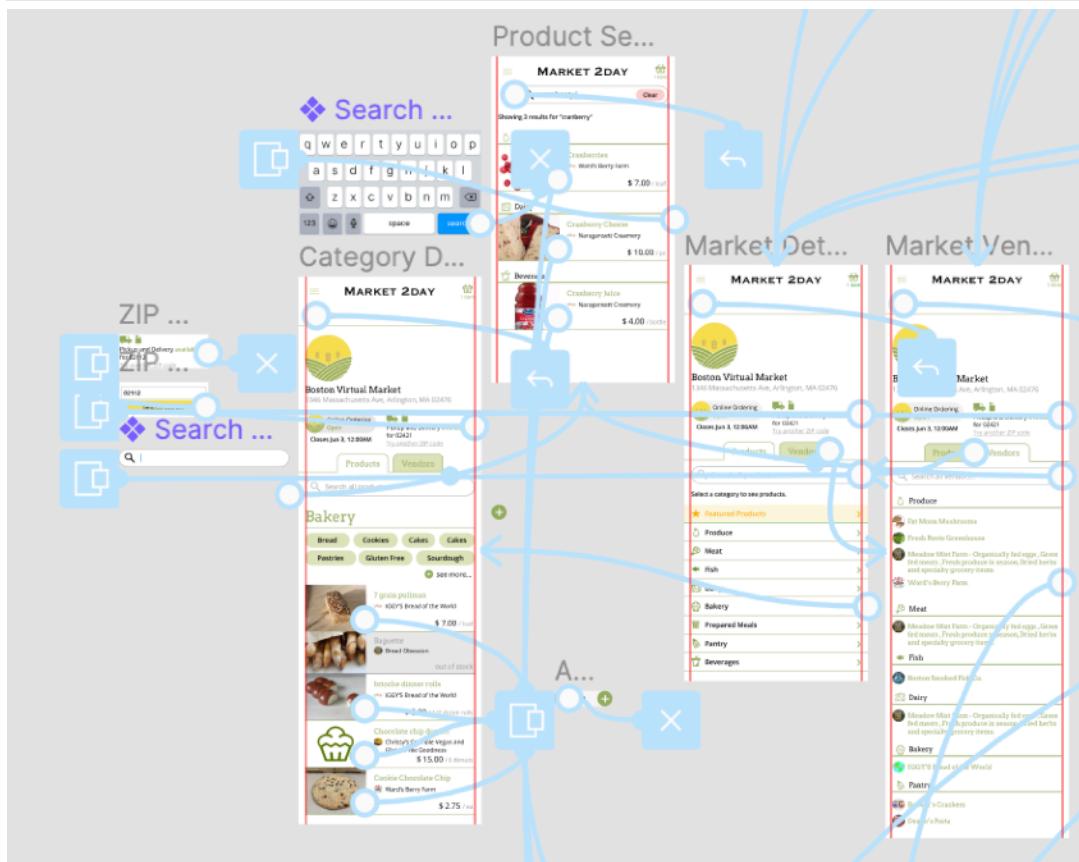
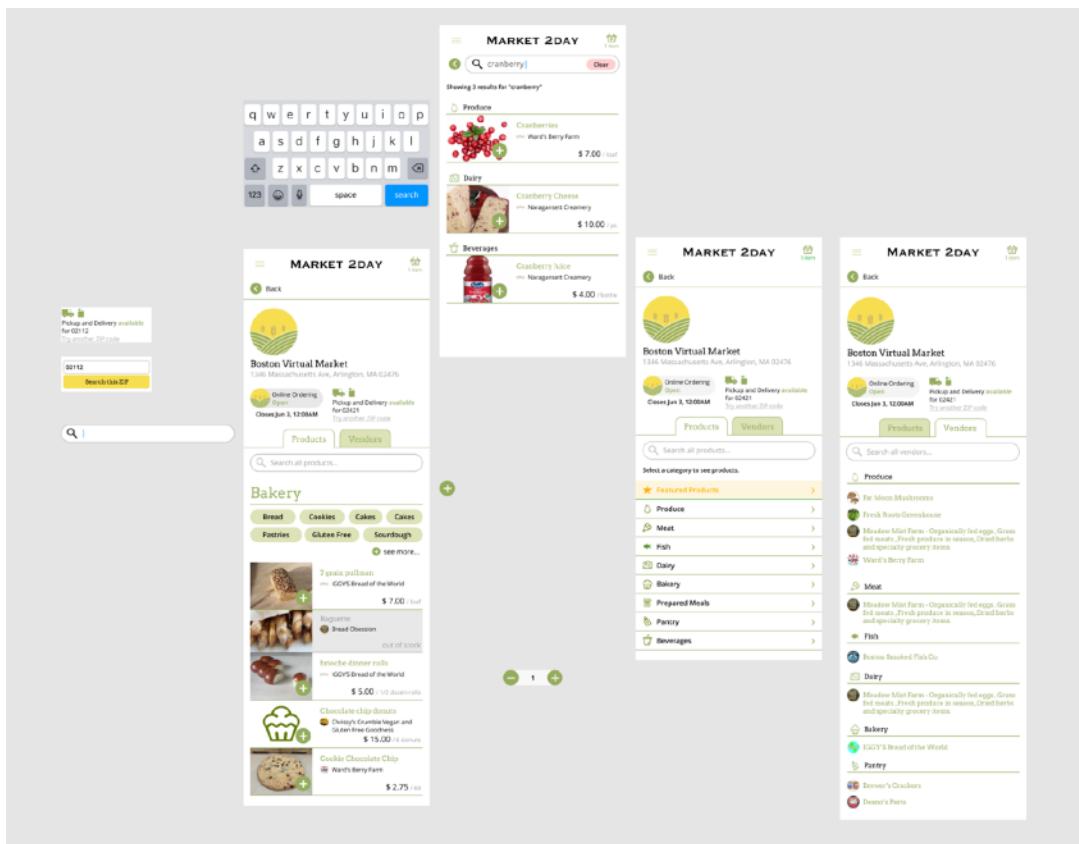
**Do this later** if the user has not done anything

# FEATURE — Market 2day

Work for a startup

Portfolio

Julian Marmier





Lexington Legoheads

[legoheads.weebly.com](http://legoheads.weebly.com)

*My robotics team.*

*Part of the [FIRST Tech Challenge](#) and qualified for the FIRST World Championships in Detroit via the Vermont Inspire Award.*

### Subsections

<sup>A</sup> [\*\*Engineering Notebook\*\*](#)

5

<sup>B</sup> [\*\*CAD Render\*\*](#)

9

**SECTION TWO****Engineering Section**Z  
END OF  
BINDER**Engineering Daily Journal****SEE LAST CHAPTER**

C

**Strategy, Scouting, Statistics & Science**

- |     |                             |      |
|-----|-----------------------------|------|
| 14. | Game Strategy and Planning  | 13.1 |
| 15. | Scouting & Statistics       | 14.1 |
| 16. | Material Science (Friction) | 15.1 |

D

**Robot Design Evolution, Innovation & CAD**

- |     |  |      |
|-----|--|------|
| 17. | Design Principles                          | 16.1 |
| 18. | Evolution of Our Design                    | 17.1 |
| 19. | Drawings & Animations of the Robot Modules | 18.1 |
| 20. | PTC Creo CAD                               | 19.1 |

E

**Robot Engineering Hardware, Electronics & Mfg**

- |     |                              |      |
|-----|------------------------------|------|
| 21. | Hardware Modules             | 23.1 |
| 22. | Engineering Innovations      | 24.1 |
| 23. | Electronics, Wires & Sensors | 25.1 |
| 24. | Manufacturing                | 23.1 |

F

**Robot Software Computer Vision & Navigation**

- |     |                                      |      |
|-----|--------------------------------------|------|
| 25. | Code Development Process             | 24.1 |
| 26. | Software Modules                     | 25.1 |
| 27. | Autonomous Software Programs         | 26.1 |
| 28. | Teleop Software Programs             | 27.1 |
| 29. | <i>Control:</i> Sensors & Algorithms | 28.1 |
| 30. | Odometry & IMU                       | 29.1 |
| 31. | Computer Vision                      | 30.1 |

G

**Testing & Quality**

- |     |   |      |
|-----|---|------|
| 32. | Failure Mode and Effects Analysis (FMEA)            | 31.1 |
| 33. | <i>Hardware Testing:</i> Visual & Testbed Program   | 32.1 |
| 34. | <i>Software Testing:</i> Verification & Maintenance | 33.1 |

# Summary

11251  
Founded 2010

Lexington  Legoheads

## Suggested Pages

- PAGE 4.1** Meet our team members!
- PAGE 9.2** Learn about the modular exhibit we take on the road.
- PAGE 12.6** Read about a successful event with a sponsor,
- PAGE 13.2** Find out how we discover our alliance picks.
- PAGE 18.1** Discover our hardware and software innovations.
- PAGE 25.2** Take a peek at what and how we manufacture.
- PAGE 30.1** Sense the sensors and algorithms we implement.
- PAGE 35.1** Test the writing of our pre-match testbed program
- PAGE 41.1** See how we raise money through sponsorships
- PAGE Z.17.7** Step into the world of the Legoheads for a day.

END OF BINDER

## Team 11251

We are the Lexington Legoheads, an independent robotics team from Lexington, Massachusetts. Made of eight seniors and one sophomore, our team is a very diverse group, passionate not just about competitive robotics, but excited to **share our knowledge** and **make a difference** as we move on into our fourth year of the *FIRST* Tech Challenge.

We started when we were as little as 7 years of age, and continue to chase a dream of one day going to the World Championships. Even if we never achieve that goal, we want to inspire others to learn what we did.

## Our Backstory

*“Never Quit”*

The Legoheads were formed by **Rohan** in 2010 as a *FIRST* Lego League team when he saw the Pickle Jarheads, a local town team, demo their robot in the town library. He pulled in a small group of friends. After initial success, when things didn't go as planned in the second year, everyone **quit** except **Rohan**. He found similar passionate people who had experienced frustrations elsewhere but had **refused to quit**. **Andrew** joined in 2012, **Samedh** in 2013, & **Sameer** in 2016. We have stayed together through success and failure. **Amolak, Julian, and Joris** joined in 2018, and **Sydney** joined us this year. Each of us has something special to contribute without whom we would not be complete. We have gotten to know and trust each other really well.

## Legoheads by the Numbers



**A**

Our Team

Lexington  Legoheads

# Julian

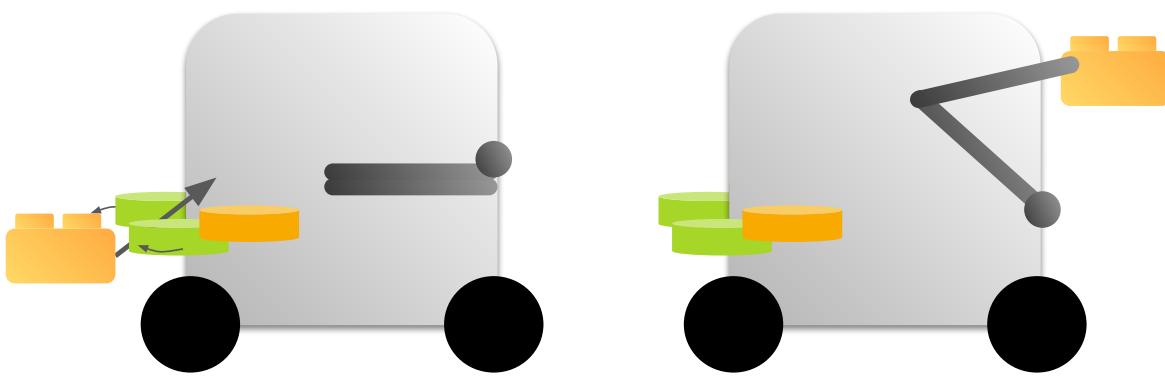
Favorite Color  
**Gray**Favorite Movie  
**Amélie**Favorite TV Show  
**The Office**Favorite Book  
**Fantasy Life**Favorite Car  
**Tesla Model X**Birthday  
**December 17<sup>th</sup>**Favorite  
Sportsperson  
**Kilian Jornet**Zodiac  
**Sagittarius**Favorite Activity  
**Going Downtown**Favorite Food  
**Swiss Rösti with Bacon**Least Favorite Food  
**Very Dry Chicken**Most Memorable Vacation  
**Trip to Laos**Favorite Phrase Coach Says  
**"What a Country"**What the team  
depends on me for**Logo and Brand Identity****Engineering Notebook****AR**

PAGE #

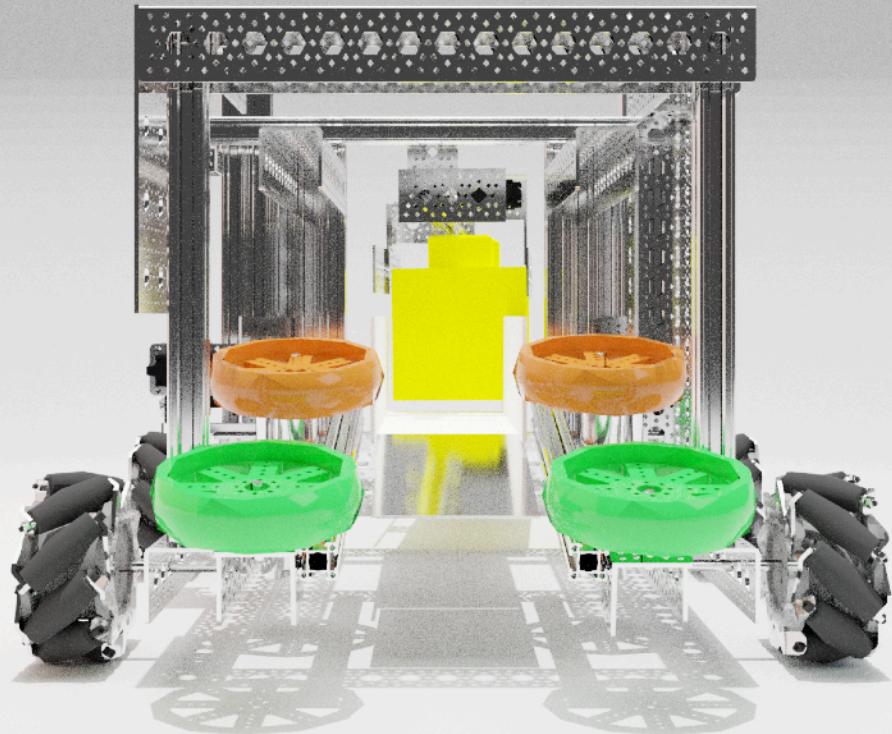
Lexington  **Legoheads****D**  
Robot Design

## 2D Animation

To complement the evolution of our design, we created 2D animations of the robot chassis for each version using Adobe Animate. Below is part of the chassis we made using Animate, which shows the *Stone* being intake and then stacked with the cantilever.

**Intake****Cantilever**

PAGE #



▲ Render of our 2020 robot's fourth revision. Made using Blender.

For a short animation of this model, also made by me, see  <https://youtu.be/o44oXrlgEQM>.

# Web Design & Development

In this section I've added some of the more recent notable projects I've worked on.

Other projects not shown include [⌚ julianmarmier.com](#), [⌚ foda.julianmarmier.com](#),  
[⌚ math.julianmarmier.com](#), and [⌚ lhsphotoclub.org](#).

## Subsections

<sup>A</sup> <a href="#">Masks for Hunger</a>	11
<sup>B</sup> <a href="#">Organize</a>	13



# Masks For Hunger

**Masks for Hunger**

⌚ [masksforhunger.marmier.co](https://masksforhunger.marmier.co) (archived)

During quarantine, I made this website for a friend's organization, complete with a CMS backend using NetlifyCMS, GatsbyJS, and React.

**Masks For Hunger**  
Boston

[About](#) [Getting a Mask](#) [Catalog](#) [Contact](#) [Donate](#)

**About**



**Lyla Chereau**  
Grade 12 • Boston, MA

In recent years I have participated in the Walk For Hunger with Project Bread, an organization that works towards ensuring that families and children have food for the weekend, and are helping to combat the global hunger crisis in our local communities.

Due to COVID-19, The Walk for Hunger on May 3, 2020 was cancelled but the fundraising must continue; with the being focus primarily on rapid response to food insecurity being caused by the COVID-19 crisis.

However, the driving force of this organization is that **HUNGER NEVER STOPS!**

I decided to be a virtual walker partnering with my mother's efforts to help the community navigate through this new environment. I am encouraging you to donate to my fundraiser to help families that are not as fortunate as us in these times. With your generous donations we give you the opportunity to pick a mask from a selection of our beautifully homemade fabric masks.

[Check out my progress here!](#)

**THE PROGRAM**

**Masks for Hunger** is a student-led organization that helps people get the food they need during the COVID-19 crisis. [Learn More →](#)

**Masks For Hunger**  
San Diego

**Catalog**

		
Springtime Buds 1 mask left	Speckled Night 4 masks left	Afternoon Tea 5 masks left
		
Beige Picnic 2 masks left	Truffula Puffs 7 masks left	Fall Foliage 2 masks left

← Writing in Chapters collection Delete entry

**CHANGES SAVED**

Choose different image Remove image

The image used in the list of chapters on the Masks For Hunger main page. A good idea for this is an image of the city of your chapter. Pixabay might have some good ones.

**HEADER TEXT**

Help people get the food they need during the COVID-19 Crisis

The big message you see when you first load the page.

**HEADER IMAGE**



Choose different image Remove image

**Boston**

**Masks For Hunger**

Help people get the food they need during the COVID-19 Crisis

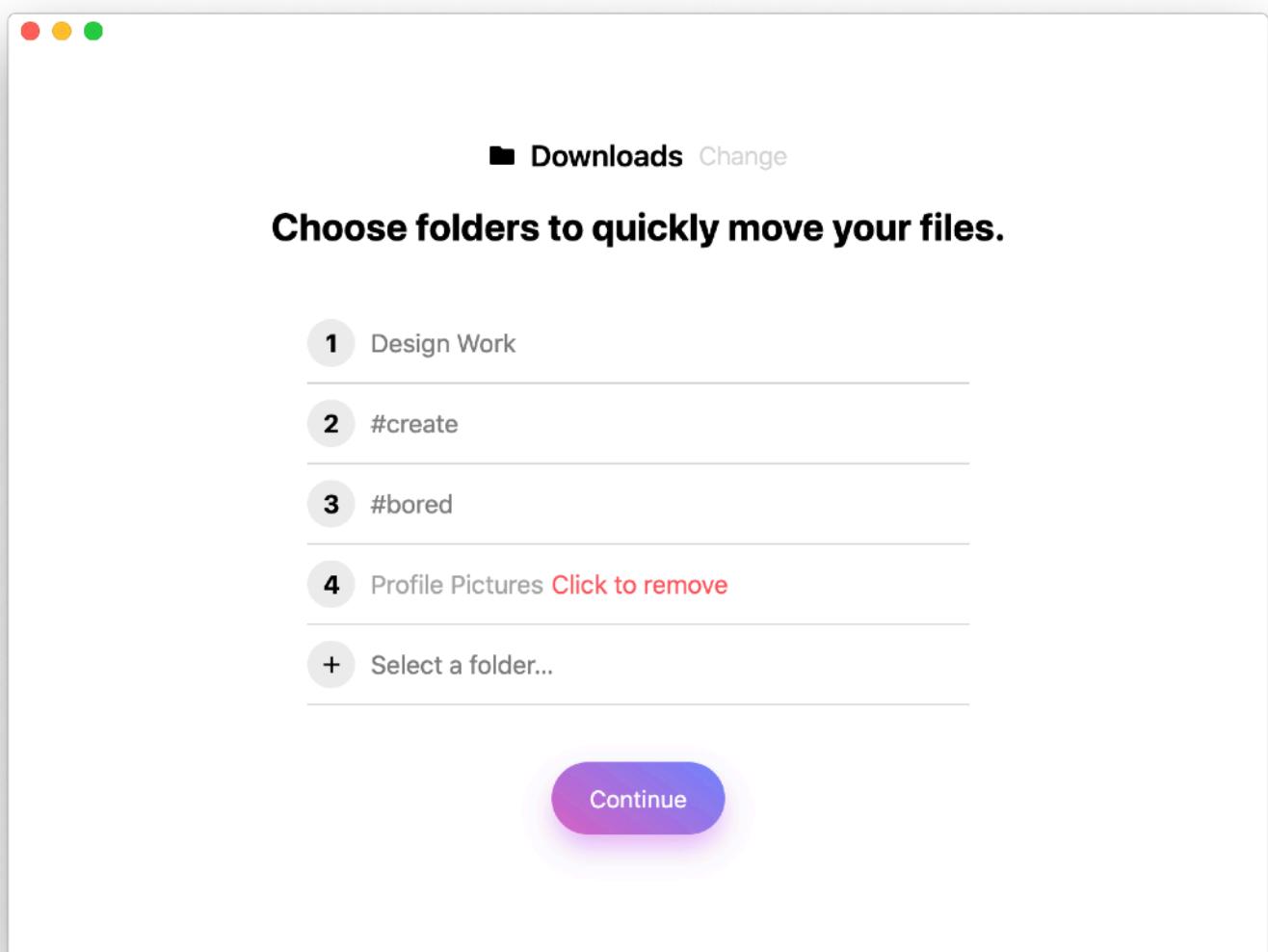


# Organize

organize.julianmarmier.com

A file management application I made while learning to build desktop apps with Electron. A minimalistic interface allows for files to be quickly kept, removed or transferred to a different folder. **This project is in development** and still lacks many important features that I hope to add in the future.

Currently I'm working on a redesign that uses Tauri, which will greatly minimize space taken up and make development easier.

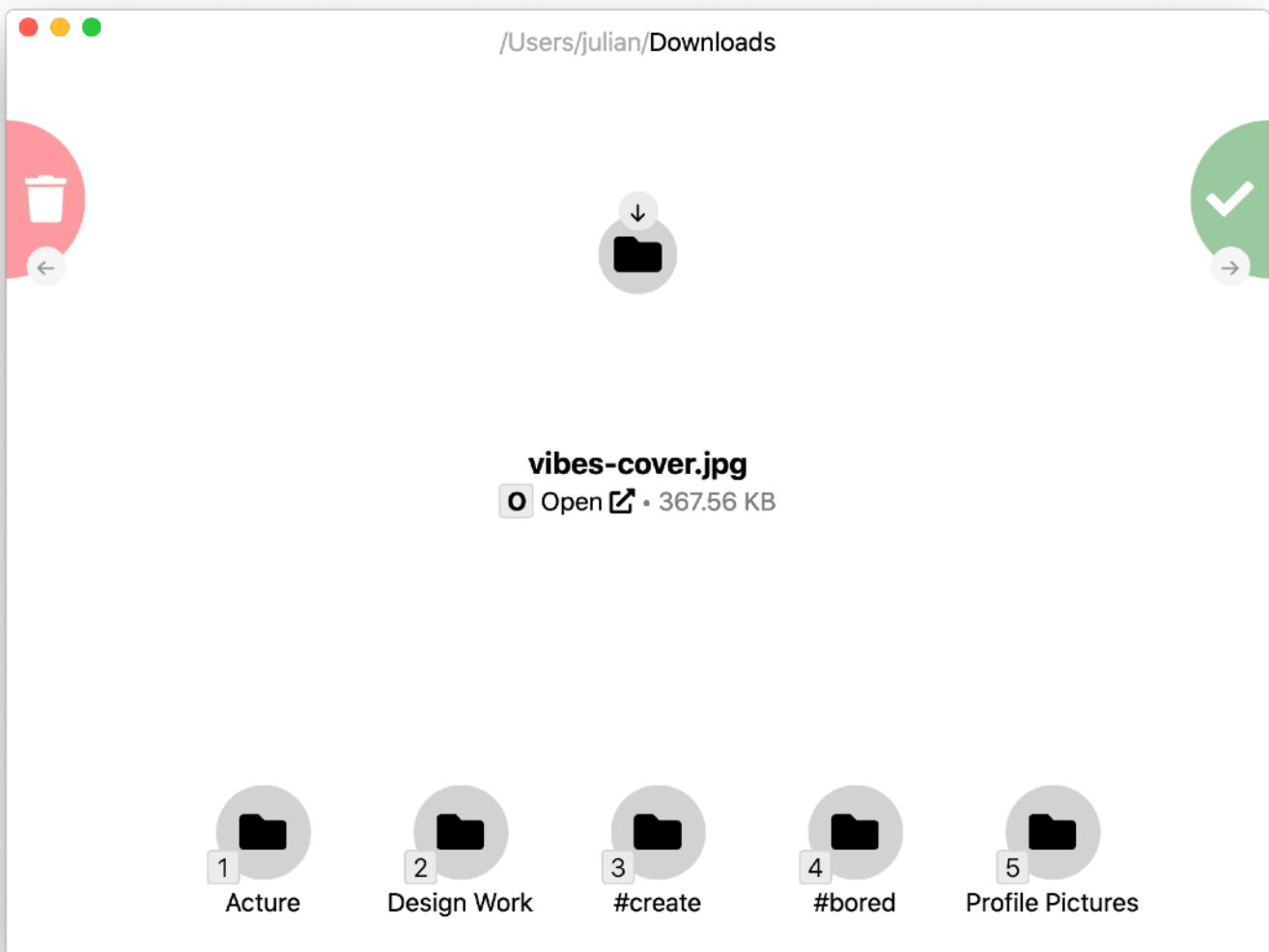


## SECTION TWO — Web Design & Development

– B. Organize

Portfolio

Julian Marmier



STUDIO  
INFO

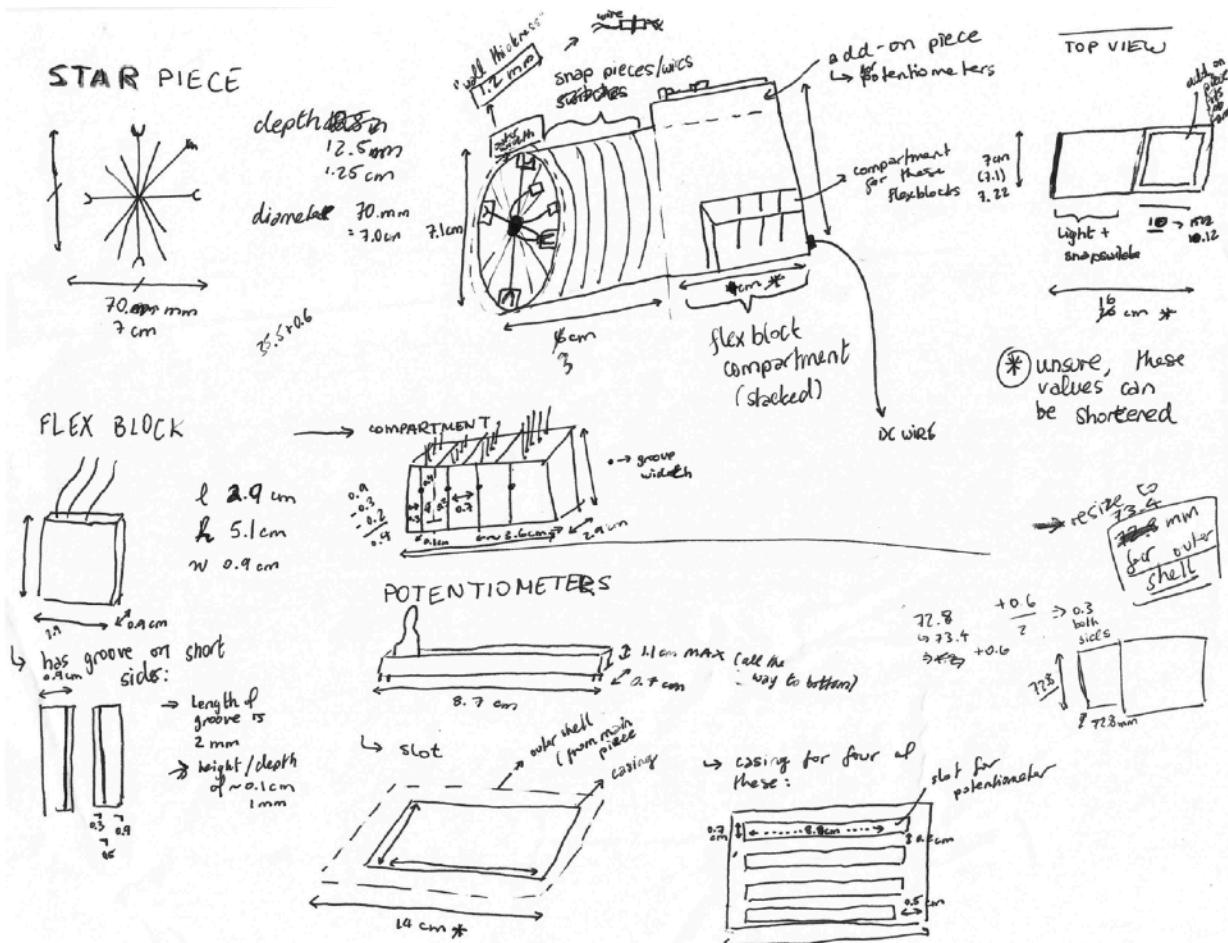
MIT Museum Studio & Compton Gallery

[mitmuseum.mit.edu/mit-community/mit-museum-studio-and-compton-gallery](http://mitmuseum.mit.edu/mit-community/mit-museum-studio-and-compton-gallery)

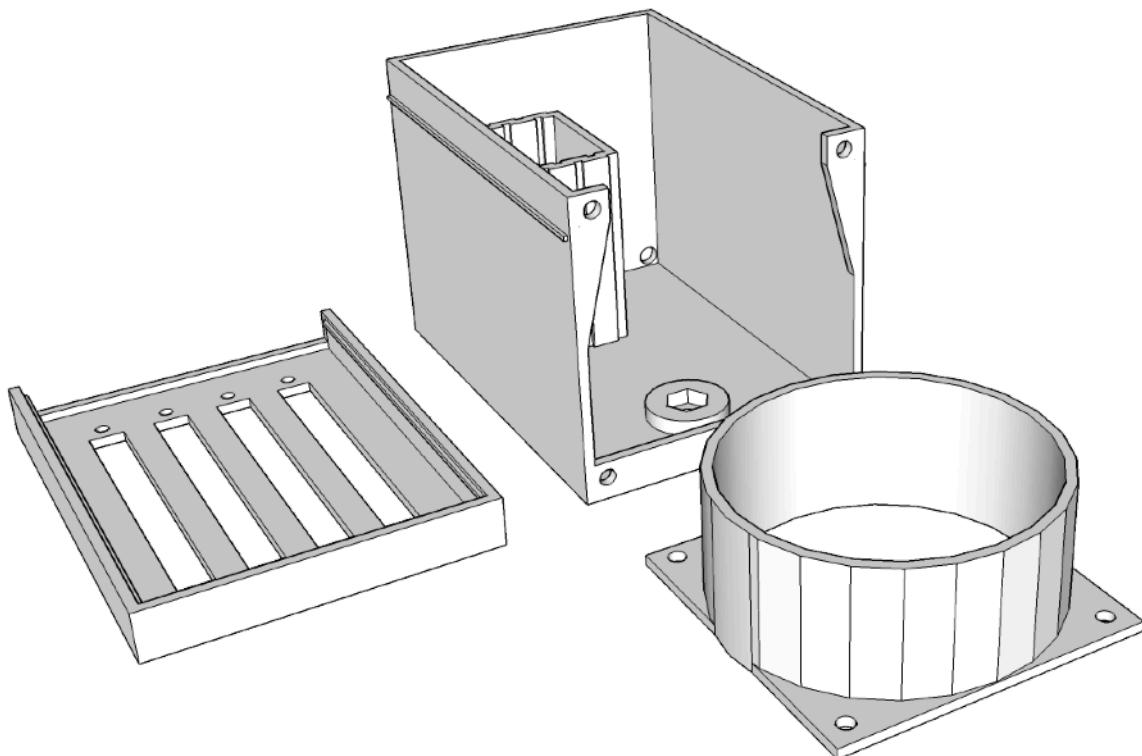
Internship

One of the projects I was tasked with was designing color-adjustable studio lights based off of a cardboard and foam model provided by the studio managers. The design eventually became two different final prototypes—initially we had planned to 3D print the frame, but that turned out to be too expensive, so instead we went for stacked precision-cut plexiglass plates, held together by threaded wire.

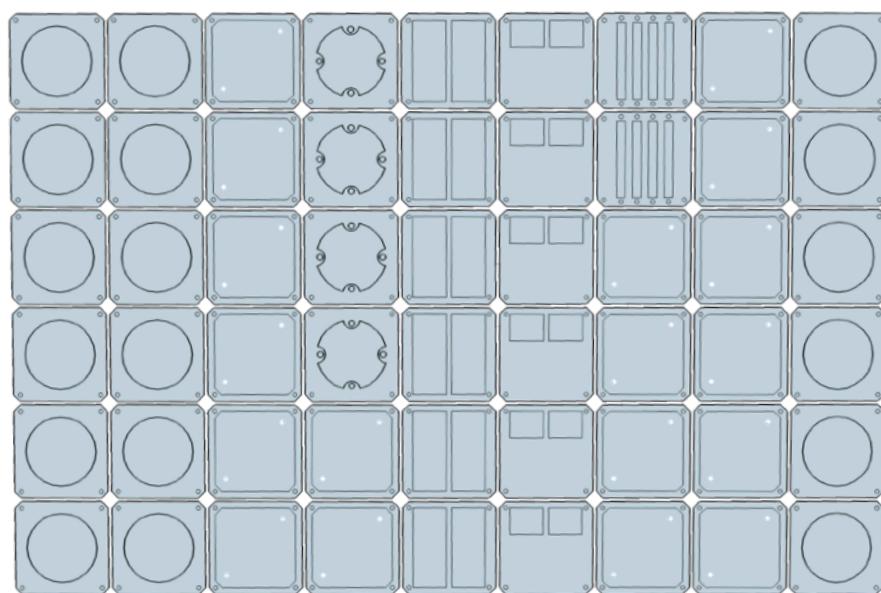
From this project I learned how to design and build something from start to finish, which inspired me to want to pursue a future in product design and design engineering.



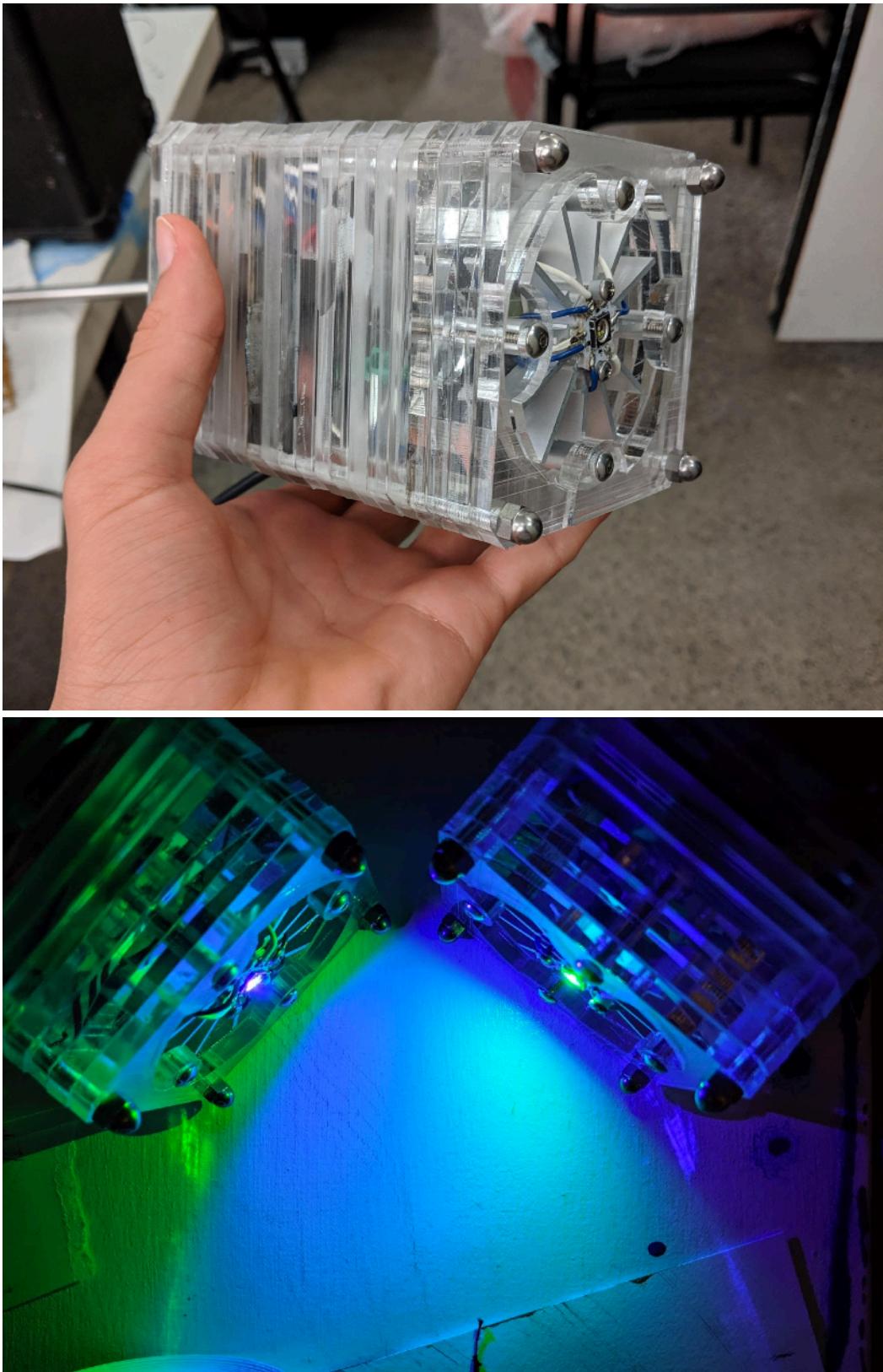
▲ Design Phase — gathering information about electrical components and the dimensions of the case.



▲ The final 3D model to be printed. However this would have cost around \$90 in printing per model!



▲ Instead we went with a plate system...



▲ The final product!