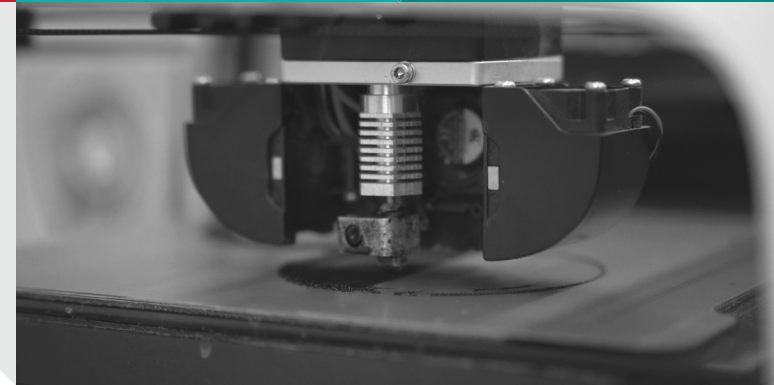




**SDSU**  
ZIP Launchpad

# H.G. FENTON COMPANY IDEA LAB



**CAPABILITIES  
BOOKLET**

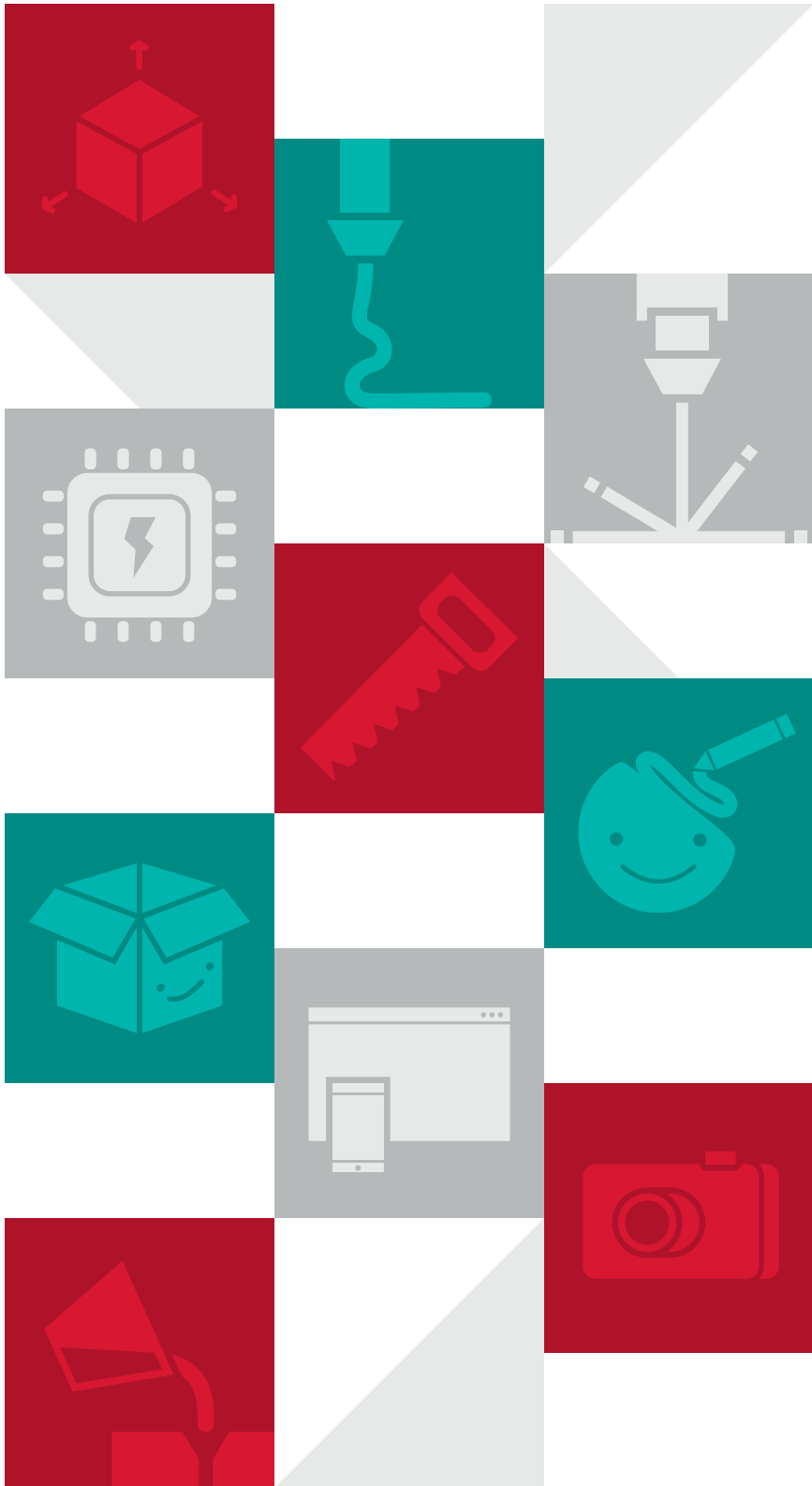


## What is the H.G. Fenton Company Idea Lab?

The **H.G. Fenton Company Idea Lab** is a part of SDSU's ZIP Launchpad. The Lab is staffed with a team of 6-8 interns, all skilled in various disciplines. The Idea Lab helps startup teams and other on-campus students and organizations to bring their ideas to fruition, at no additional charge to them. The lab contains 3D printers, laser cutters, CNC mills, CNC routers, an electronic station, and many other tools.

In this booklet we will showcase our capabilities with the various tools and softwares we have on hand here at the lab!





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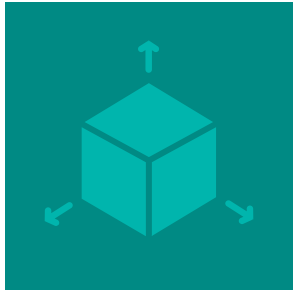
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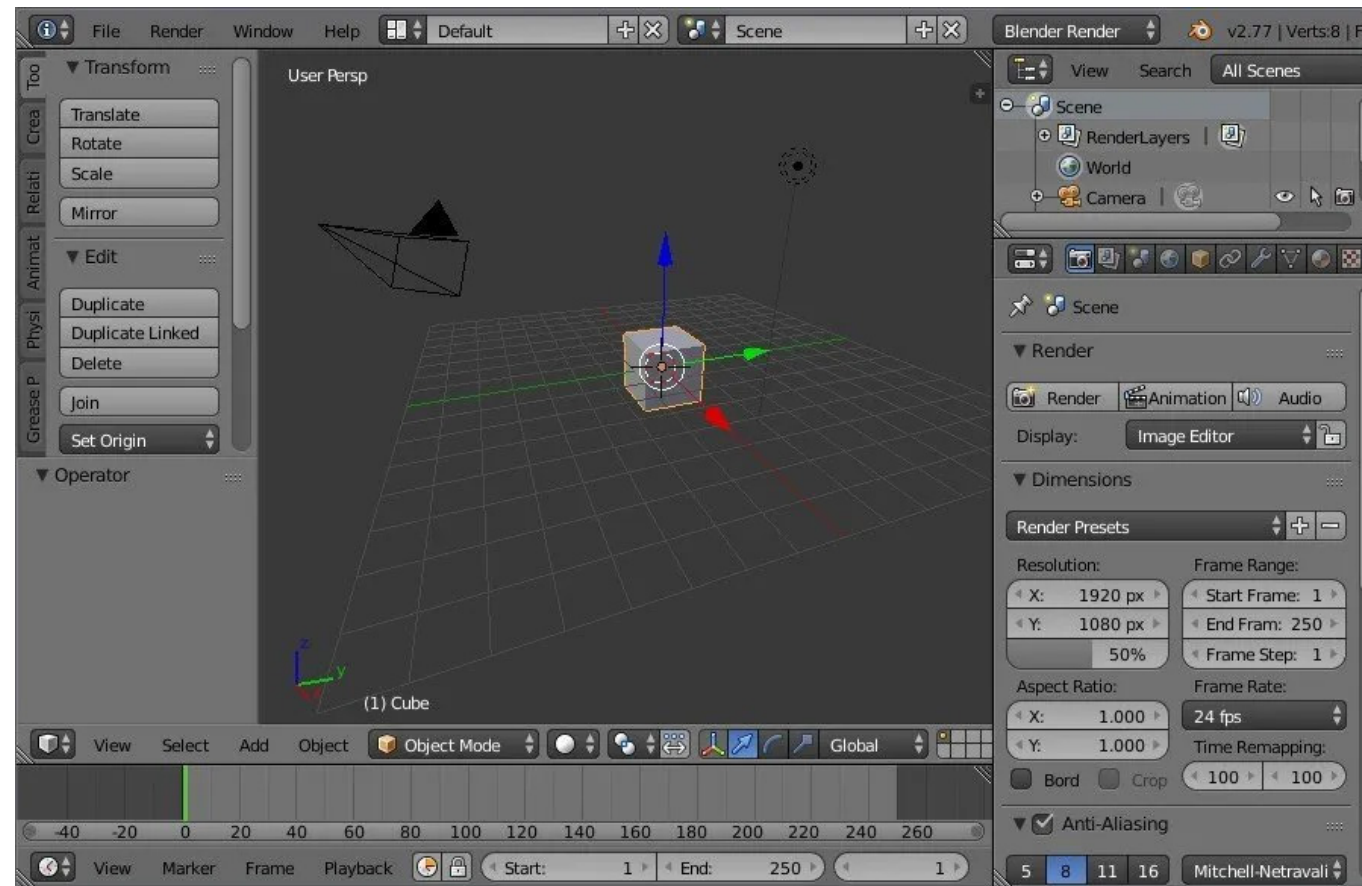


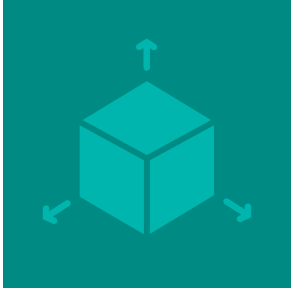
LAB CAPABILITIES:

# 3D MODELING

## What Can We Model?

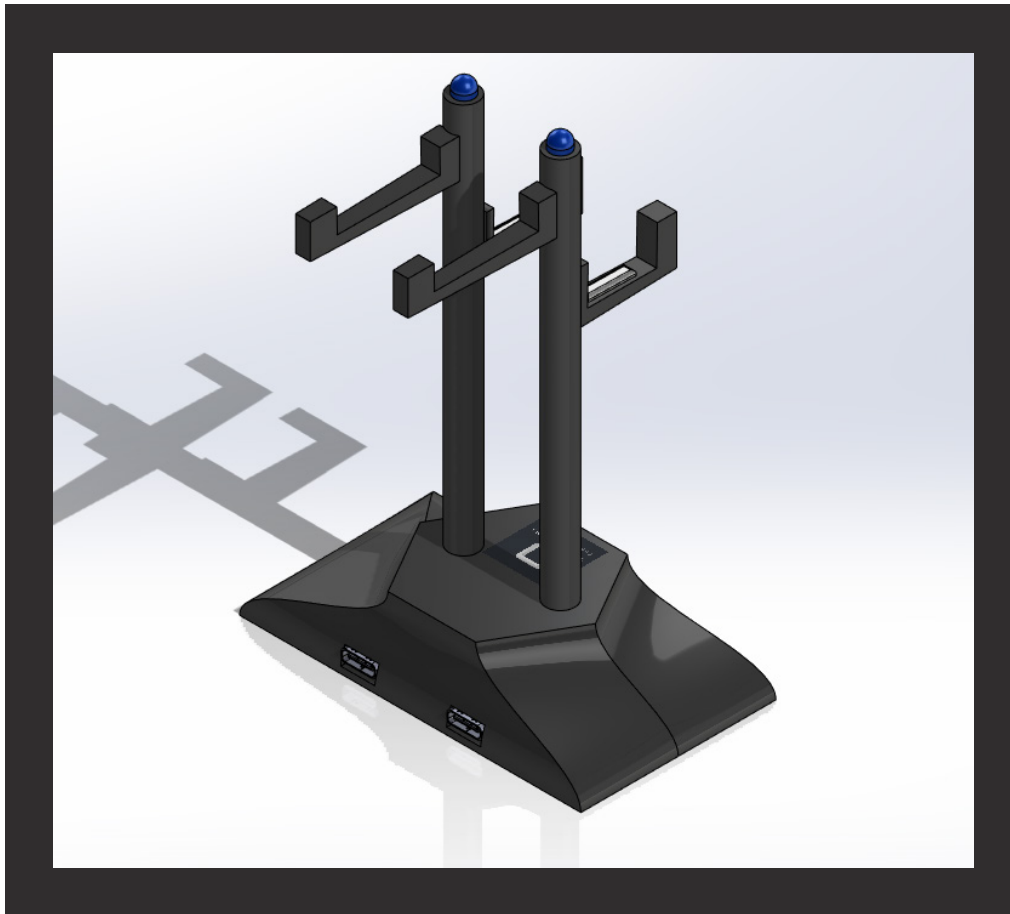
At the ZIP Launchpad, many projects go through the digital design and revision phase before they are brought to life with the 3D printer or laser cutter. At the lab, we implement commonly used modeling softwares, from AutoCAD to SolidWorks. Our intern team uses these applications to design 3D fabricated products.





3D MODELING

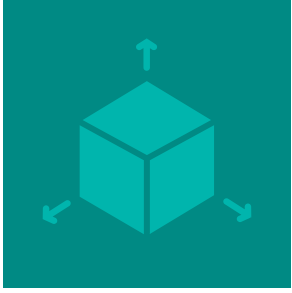
# PROJECTS



## VR Headset Stand

This is a project in which the team that requested this project needed to sign off on the digital design before the project was 3D Printed. Therefore our intern team modeled the design first in SolidWorks to give the team a real sense of the design choices.



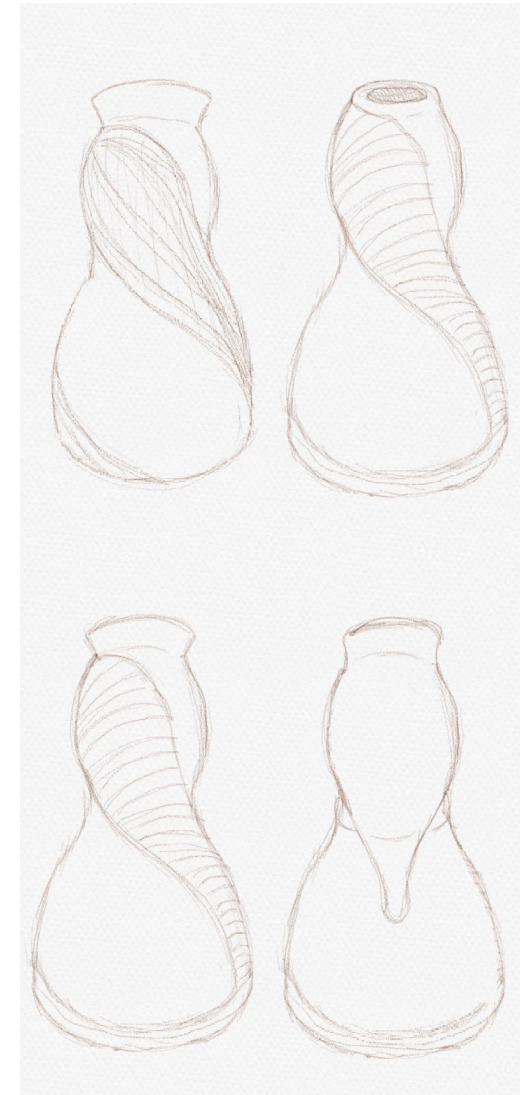
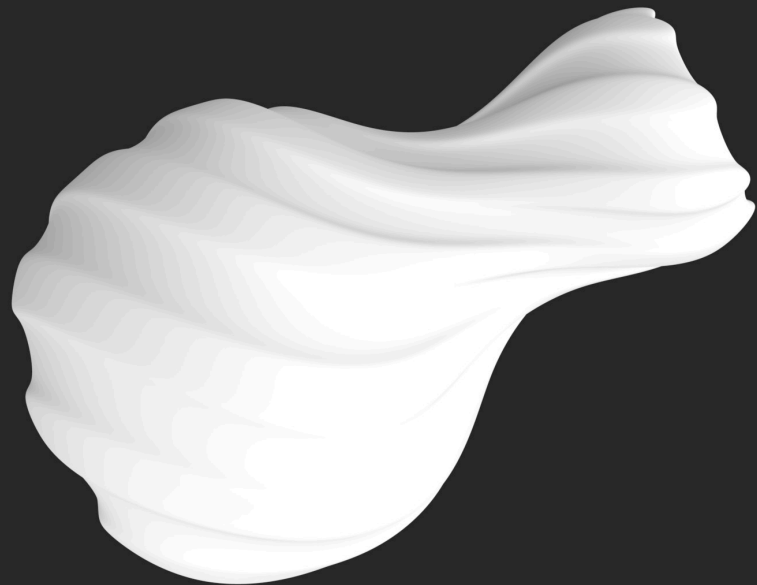


3D MODELING

# PROJECTS

## Custom Vase Project

For this project a vase was requested to hold artificial flowers for a display sharing the accomplishments of a ZIP Launchpad Startup team. Even though we could have just bought one, we determined that making our own printed one from scratch would be a great learning opportunity. This vase was conceptualized via sketching on an iPad and then modeled in Blender before being 3D printed and put to use.



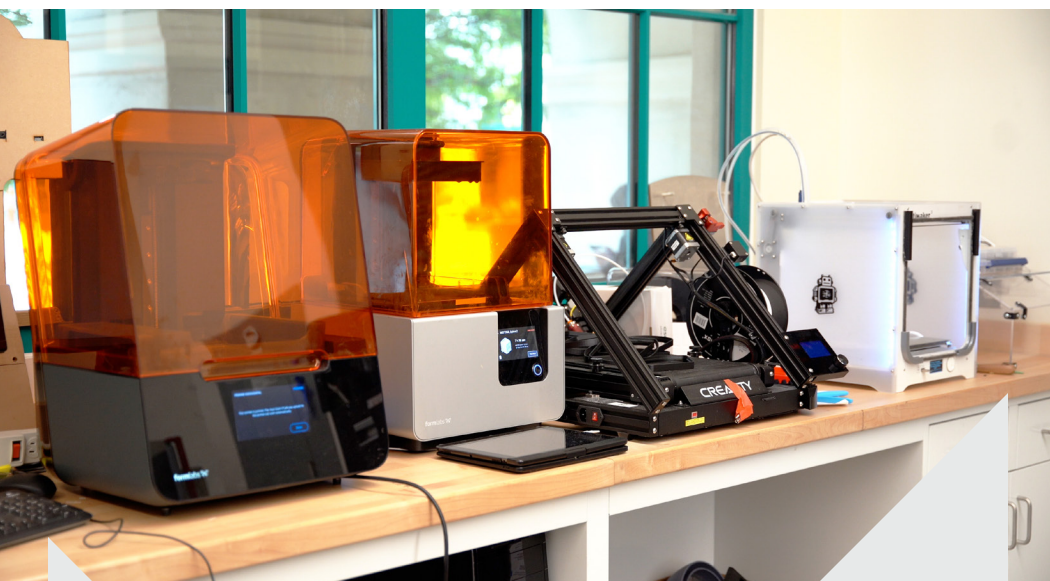


LAB CAPABILITIES:

# 3D PRINTING

## Our 3D Printers

Our rapid prototyping lab is able to bring any digital 3D models into reality with our various 3D printers. There are two types of 3D printers that we use: filament 3D printers and resin 3D printers.



### FILAMENT 3D PRINTERS

Filament printers, also known as Fused Deposition Modeling (FDM) printers, build up 3D models by melting plastic that is deposited through a moving nozzle creating flat layers that stack up to create a three-dimensional form. Once printed, the model is cleaned up with cutting pliers and can be smoothed with sanding techniques.

### RESIN 3D PRINTERS

Our resin printers use a technology called stereolithography (SLA) in order to print 3D models. This process uses a focused laser that traces a path in a tank of UV-sensitive resin that makes up each layer. Once printed, the resin model is washed off in an isopropyl alcohol bath and cured in a heated UV chamber.

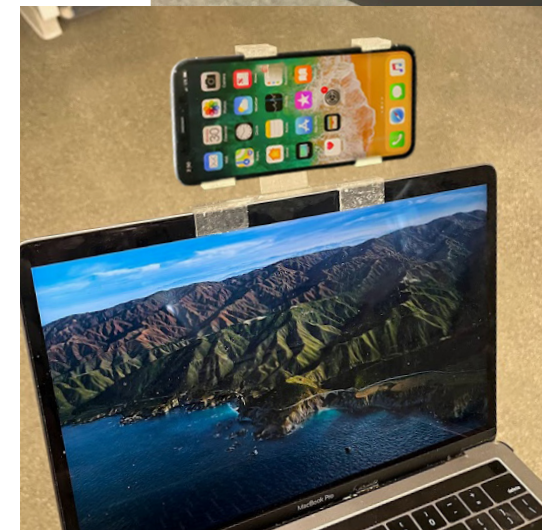
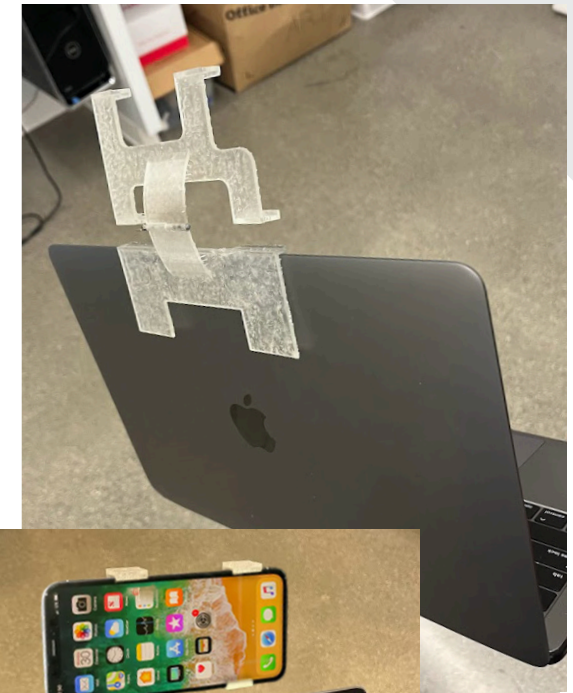


## 3D PRINTING

# PROJECTS

### Laptop Phone Mount

For this project we worked with a student group that was enrolled in the Management 358, Fundamentals of Entrepreneurship class. In this course each team designs a product and we offer our lab services to them to bring it to life. Their project concept was a laptop phone mount. Their idea was to create a phone mount with an adjustable hinge so that it could be used as a higher quality webcam for your laptop. The CAD model of the phone mount was designed by one of our mechanical engineering interns. This prototype was printed full-scale with our Formlabs Form 3 SLA printer to be used in a physical demonstration. This high-fidelity printed prototype allowed for a clear demonstration of their working product.







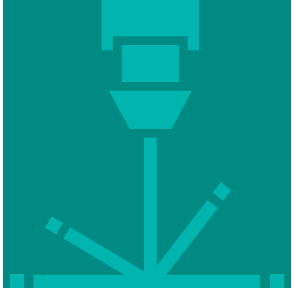
3D PRINTING

# PROJECTS



## Growing Kid Bicycle

We helped one of the MGT student groups with the design and prototype of their product, Growing Kid Bicycle. Their idea was to create a bicycle frame with an adjustable length so that this bicycle could be fitted to users as they grow, negating the need to purchase a new, larger bike as a child ages. The CAD model of the bicycle frame was designed by one of our mechanical engineering interns. This prototype was printed with our Formlabs Form 3 SLA printer at a small scale, as it was to be used for presentation purposes. This high-fidelity printed prototype was a small scale functioning version of their product vision.

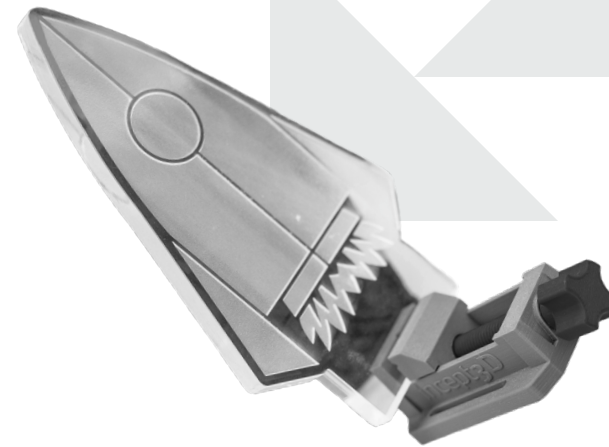


LAB CAPABILITIES:

# LASER CUTTING

## Our Laser Cutters

Our rapid prototyping lab is able to bring designs to life with the help of our two laser cutters. Our laser cutters are capable of working with a wide range of materials such as wood and acrylic.

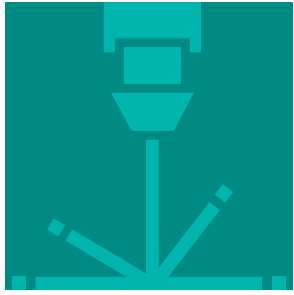


### HOW IT WORKS

A laser cutter is controlled by an external program on a computer, and uses a high energy focused laser to cut through or engrave materials with high precision. It works by directing the laser beam through a series of mirrors and lenses to focus the light into an intense beam. When the laser makes contact with the material, it rapidly heats and vaporizes the material in accordance to the desired pattern.

**Laser cutters in our lab: Glowforge & ULS**





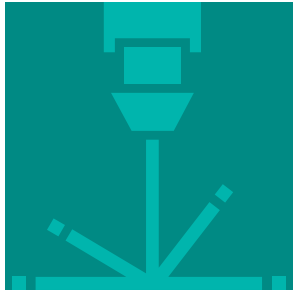
LASER CUTTING

# PROJECTS



## CAL Holiday Donor Gift Box

The lab worked with the College of Arts and Letters to come up with a gift for their donors. This project was created with help of our graphic design interns. The gift was composed of laser cut wooden boxes, with the CAL logo and building engraved on the top. The initial design was drafted in Adobe Illustrator and input into the laser cutter for the engraving and cutting process.



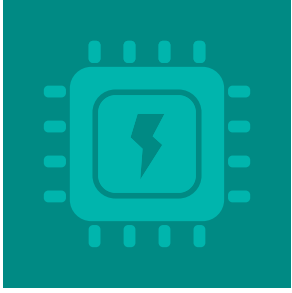
LASER CUTTING

# PROJECTS



## Mintz Awards

Laser cut and engraved from acrylic, these entrepreneur awards are given to the top-achieving teams at ZIP Launchpad every semester. These awards are made possible by Mintz, a law firm that supports the ZIP Launchpad.

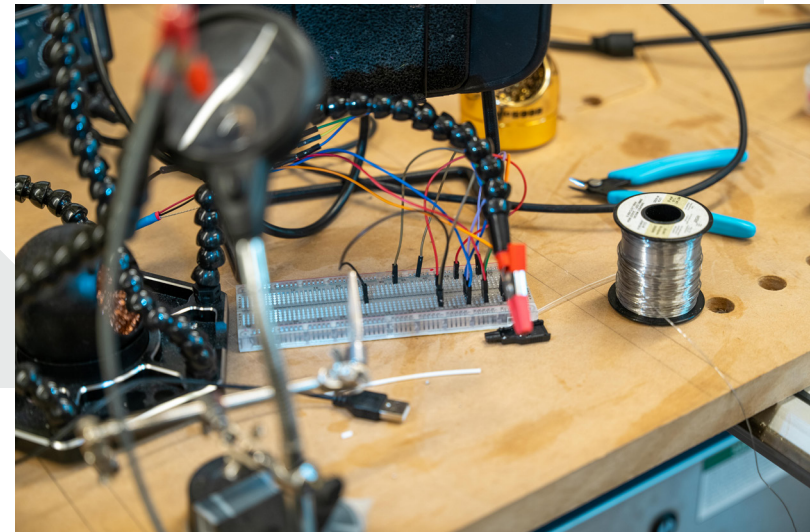


LAB CAPABILITIES:

# ELECTRONICS

## Electronics Station

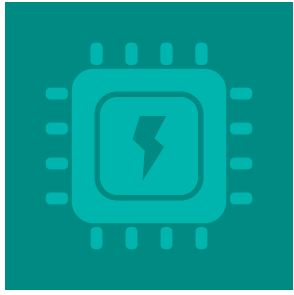
Our rapid prototyping lab has the capability to work with electronics and computer programming. Our engineering interns are capable of developing custom firmware, and working on circuits.



## OUR TOOLS

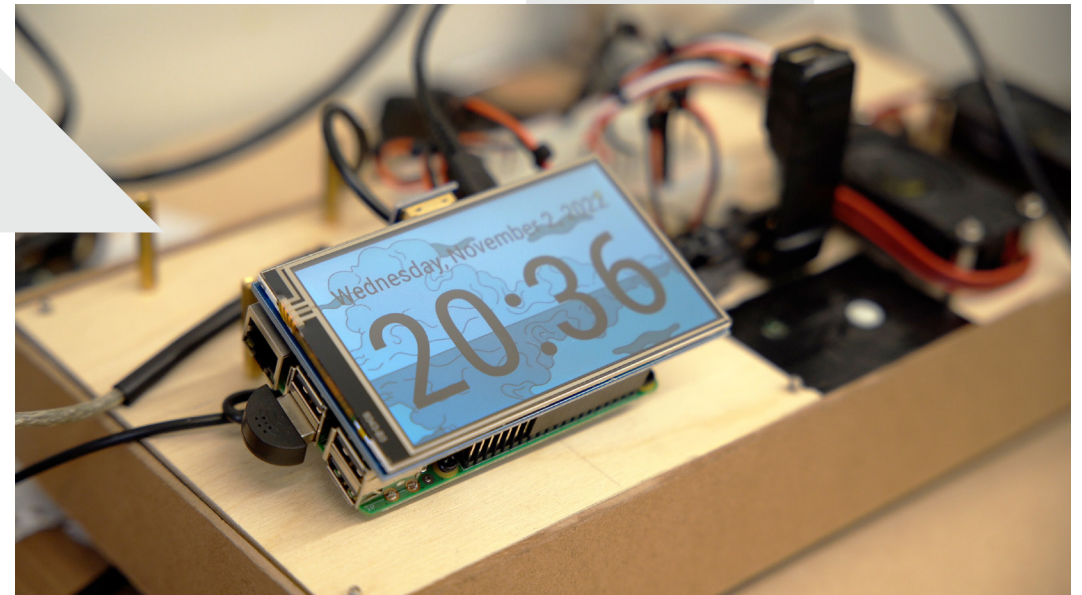
We have access to tools and components such as soldering irons, circuit boards like the Raspberry Pi, wiring, DC power supply, a function generator, an oscilloscope, and more!





ELECTRONICS

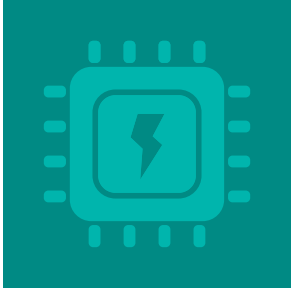
# PROJECTS



## Timewise

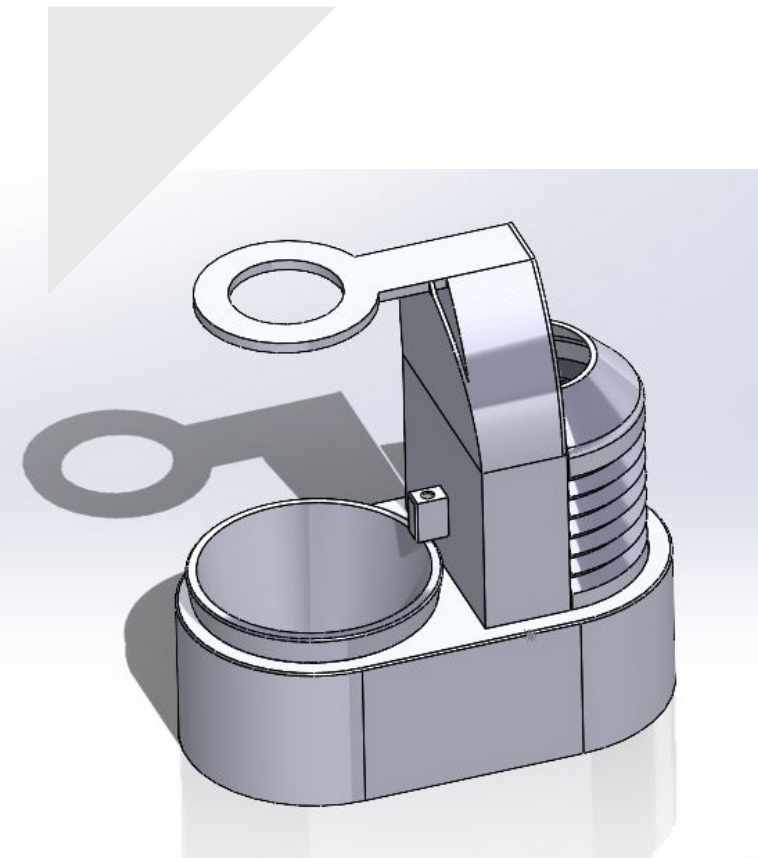
Timewise is a smart clock with a mission to provide a convenient way to tell time, set alarms or reminders, wireless charging dock and it comes with complete Amazon Alexa integration. In order to get the smart clock interface to work our computer science interns worked hard to create the code it needs to operate. Timewise uses a raspberry pi, essentially a tiny computer to integrate all of the processes the clock has to execute.





ELECTRONICS

# PROJECTS



## Acoustic Roots

This project is a plant terrarium with a built in speaker. It allows users to connect the speaker to your phone, so you and your plant can groove to the beat. The terrarium is also equipped with its own irrigation system to nurture the plant. This was created with the help of our engineer interns and graphic design interns. Our engineer interns coded using embedded programming, which allows both the irrigation and bluetooth system to work as a collective.



LAB CAPABILITIES:

# WOODSHOP

## Working with Wood

At the H.G. Fenton Company Idea Lab we also have the capabilities to cut and form wood to many different shapes with the machines we have available. We have a CNC router, a band saw, a drill press, a belt sander, and also a table saw. All these machines can be combined to create unique cuts on wood and cut them to many different intricate shapes, as well as cutting thick larger pieces of wood that would not be able to fit or be cut in the laser cutter.





WOODSHOP

# PROJECTS

## AIRE Fitness

This project was intended to be a small-scale model representing the idea of the company, which was to create a portable gym that could be contained and stored in a shipping container and opened on rooftops within cities. The frame for the box was made up of four cut wood panels using the band saw and table saw, and the decorative side panels were also cut with the band saw and details added with a drill.





WOODSHOP

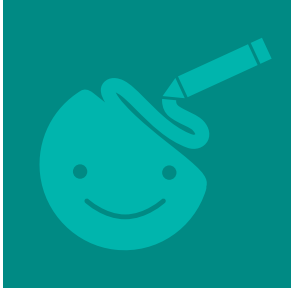
# PROJECTS

## ZIP Center Skate Rack

The skate rack was a challenge by the lab to store the skateboards of students visiting the ZIP Launchpad to work or attend lectures. The whole thing was cut with all the range of wood cutting tools and then painted with ZIP Launchpad brand colors and made mobile with wheels.







LAB CAPABILITIES:

# BRANDING DESIGN

## Building Identities

At the lab we value our ability to help mold team brands and give them the design direction they need to fully visualize their designs. We are able to offer these many teams, logo designs, landing pages, full website design and direction, and also branding guidelines and brand sheets for professional application.



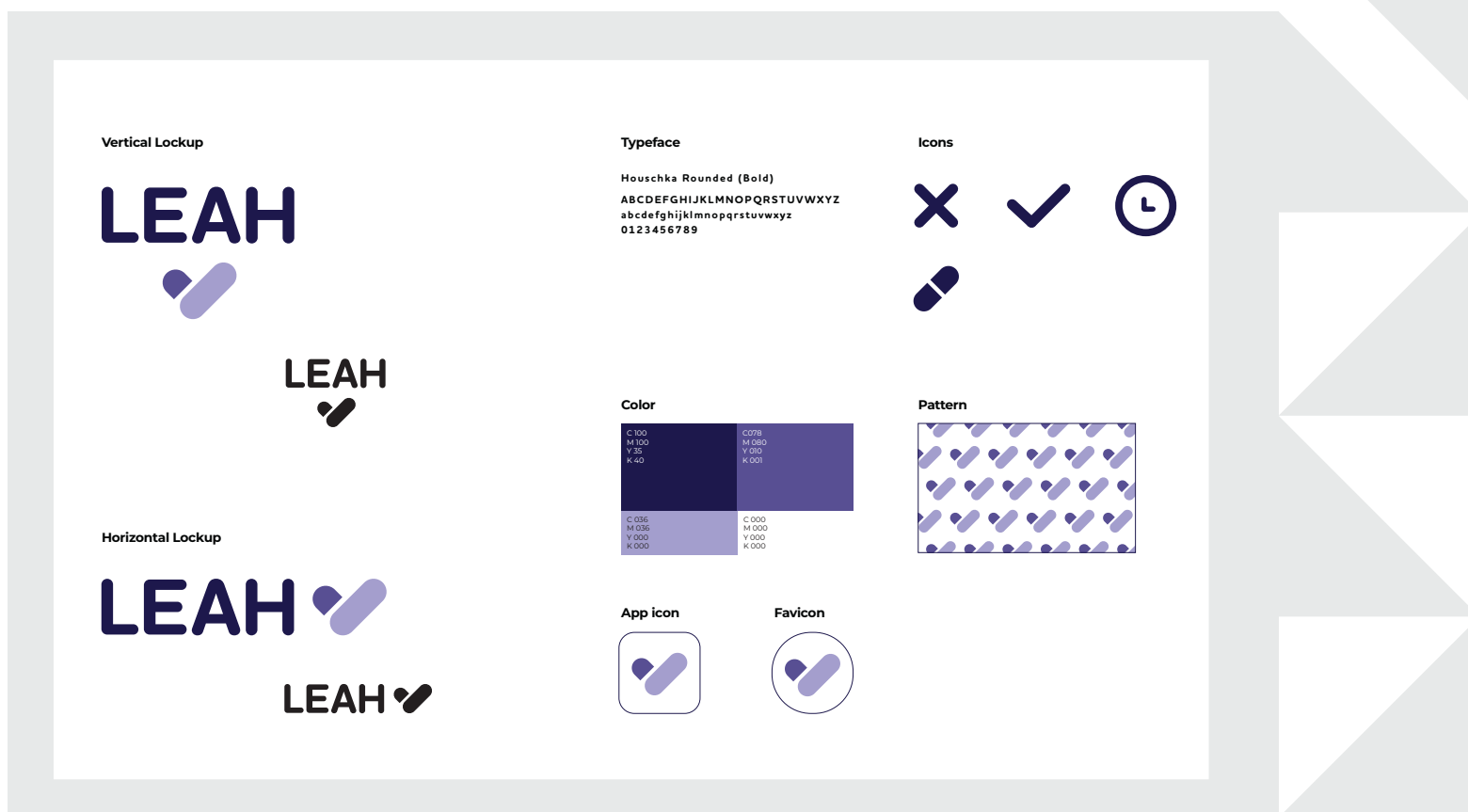


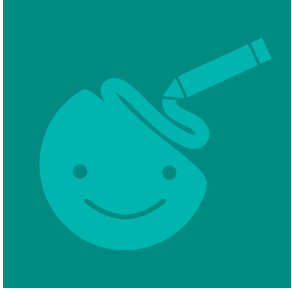
BRANDING DESIGN

# PROJECTS

## LEAH Logo & Icon System

The LEAH Logo project was completed to give the ZIP team and new logo after a name change. The fundamentals of the logo were kept the same and applied to the new name with touch ups and corrections added, along with a new set of icon to go along with the visual branding system.





BRANDING DESIGN

# PROJECTS

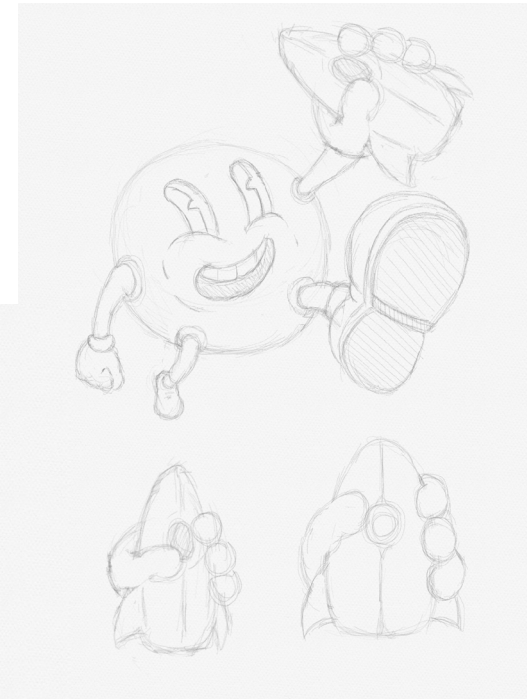


## Links to STEM

The lab had a visit from a local high school organization called Links to STEM. The idea was to create branded t-shirts, that encompassed the ZIP Launchpad and the high school organization, with the ultimate goal of creating t-shirts that would stay true to the ZIP brand but also be fun and trendy.



Links to STEM





LAB CAPABILITIES:

# PACKAGING DESIGN

## Elevating Products

When it comes to promoting a product, its presentation is one of the most important things to consider, as it is the first impression a consumer gets of the product. Luckily, our graphic design interns are able to produce clean and effective packaging designs that will change those first impressions into *great* first impressions.



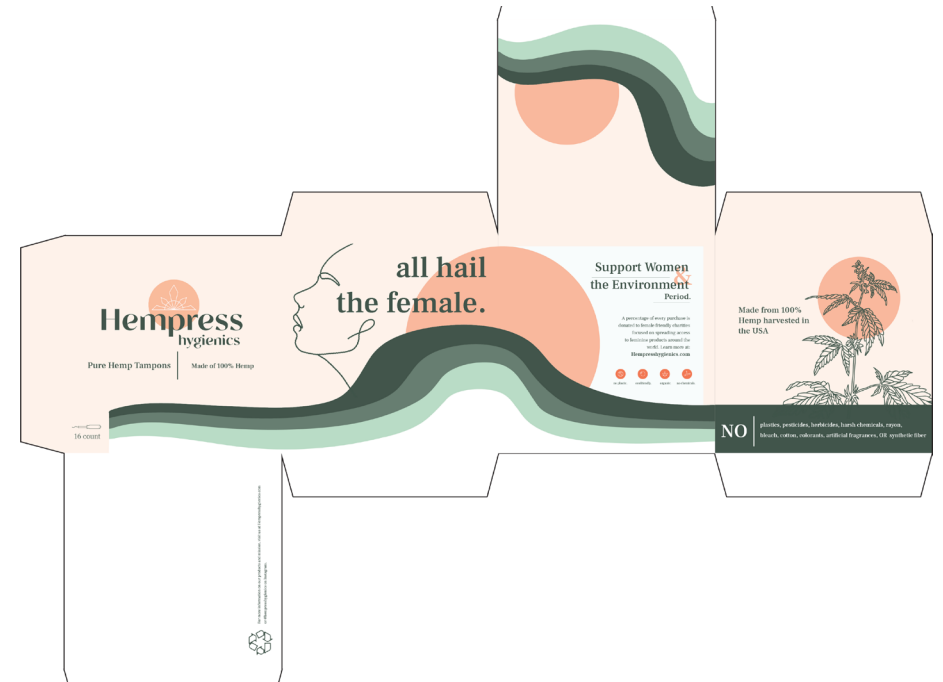
Our graphic design interns take creative direction in order to conceptualize a style and design that will fit the product. Once a direction is established, our interns use the latest Adobe Creative Cloud software to design digital mockups and/or print-ready packaging designs for teams to use in real-world scenarios.





## PACKAGING DESIGN

# PROJECTS



## Hempress Hygienics Packaging

We helped one of our teams, Hempress Hygienics with their products' packaging design. The goal was to capture an aesthetic that represented the brand's messaging and tap into a feminine-empowering & sustainable look and feel that their products (pure hemp tampons & pads) promote. The entire design was made using Adobe Illustrator by one of our graphic design interns and they created a few variations to pitch to the team before moving on to the final. The final design considered a consistent color palette and flow throughout the packaging's surface, which helped create a clean and friendly packaging solution that clearly promotes and communicates the product.

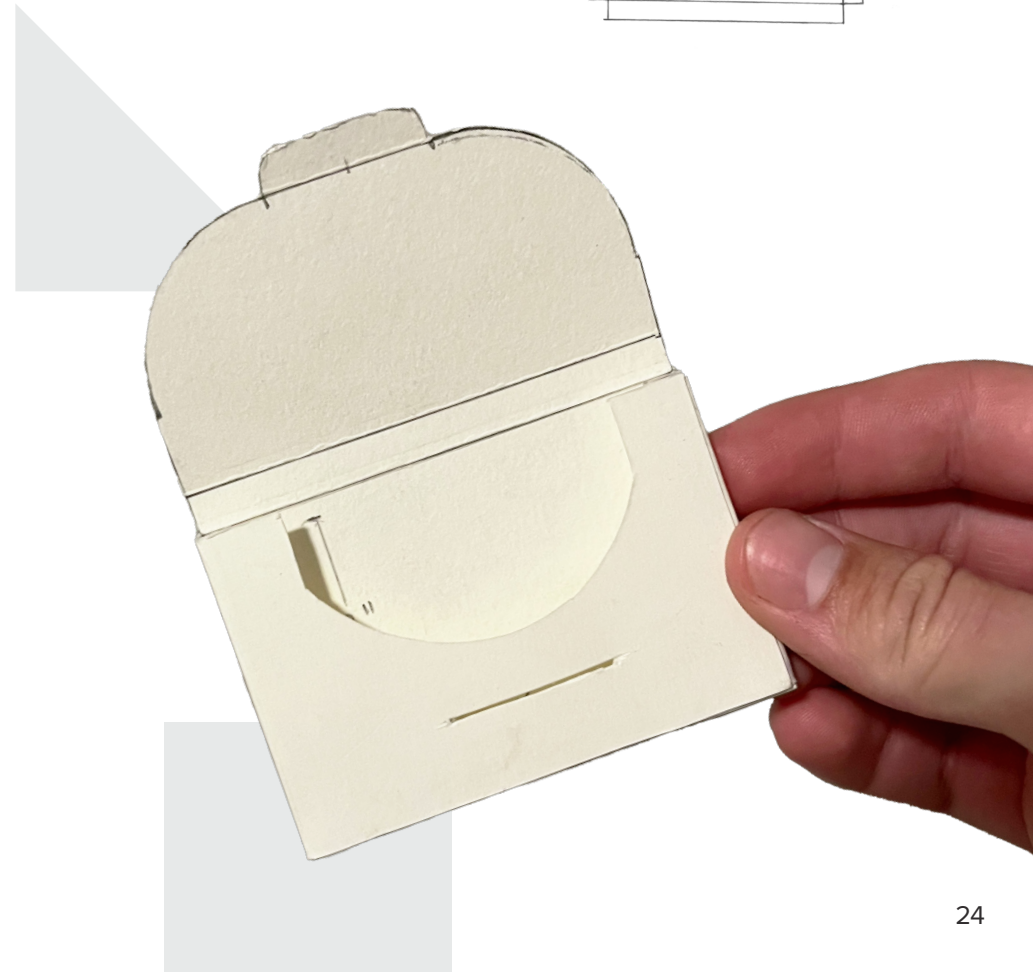
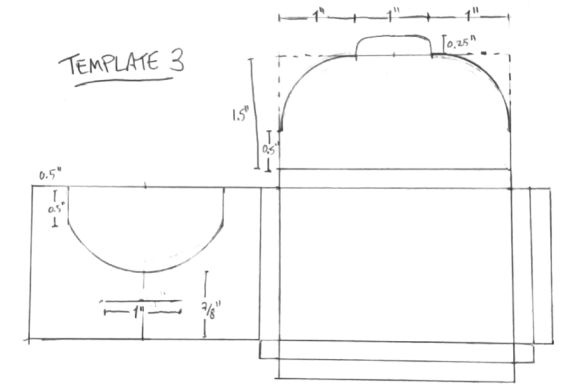


## PACKAGING DESIGN

# PROJECTS

### Hover Cover Packaging Prototype

One of our teams, Hover Cover needed a functional prototype package for sample packs of their product, which was portable toilet seat covers. One of our engineering interns was assigned to design this packaging in order to dispense each seat cover one at a time. Considering cost and functionality, the engineering intern was able to experiment with different packaging solutions. After going through a few iterations, the final solution was presented as both a flat file and a physically folded prototype.



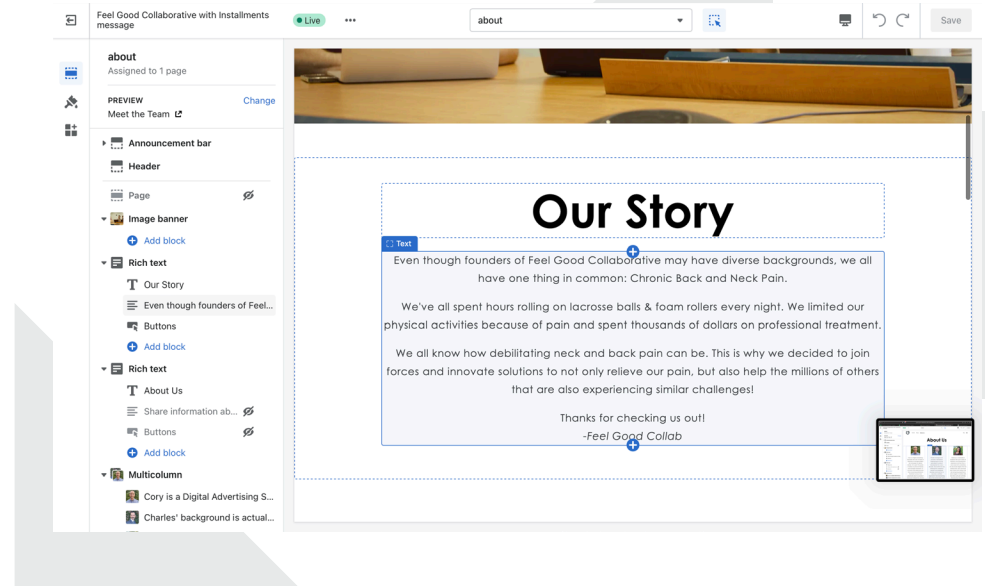
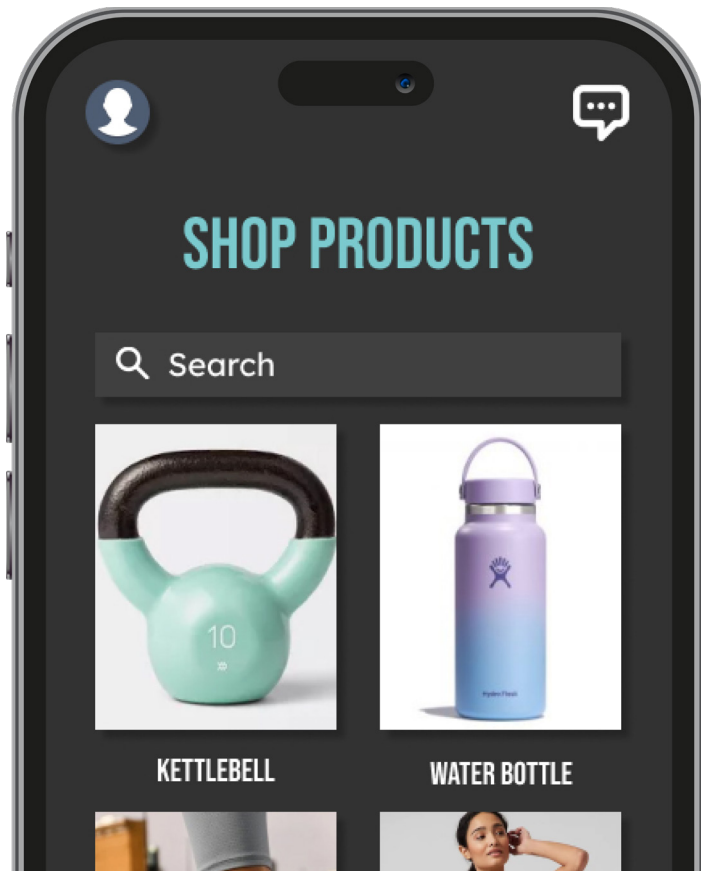


LAB CAPABILITIES:

# UI/UX DESIGN

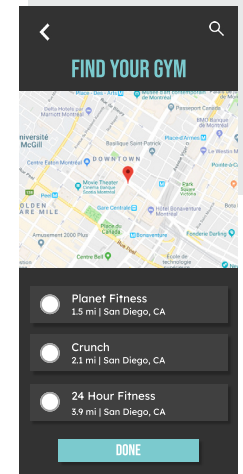
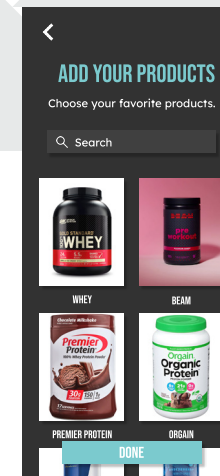
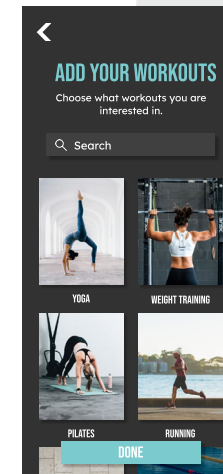
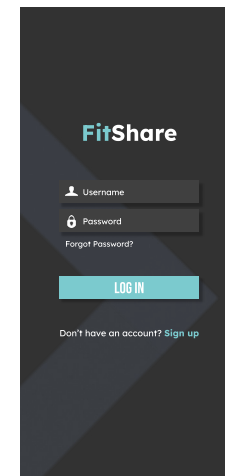
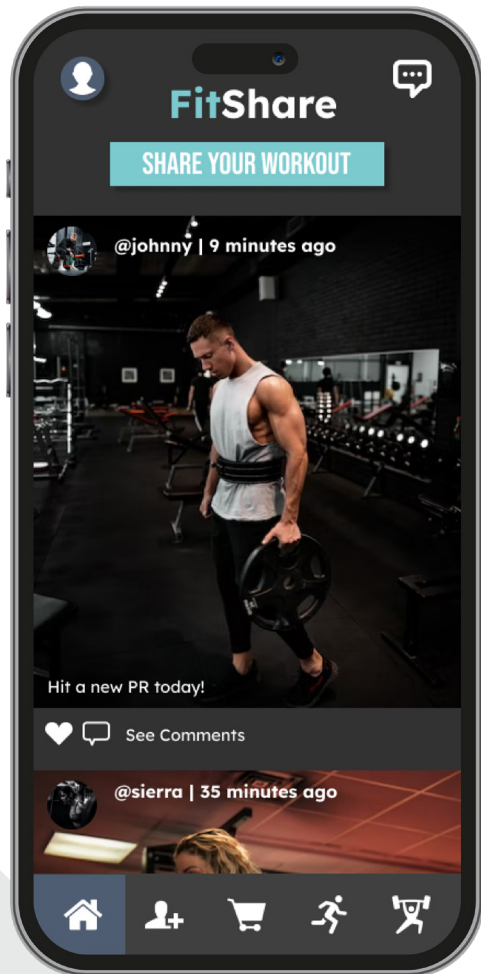
## Enhancing Digital Experiences

Web and app design happen to be very important in regards to branding. Having a website or app that encompasses the message of your company is essential. Fortunately, our interns are well-versed in creating clean user interfaces.



Our interns are able to take the vision of what is desired and are able to create intuitive and fresh interfaces. Softwares our interns may use include, but are not limited to Figma, Adobe Illustrator, and various web building tools such as Shopify or Wix.

# PROJECTS



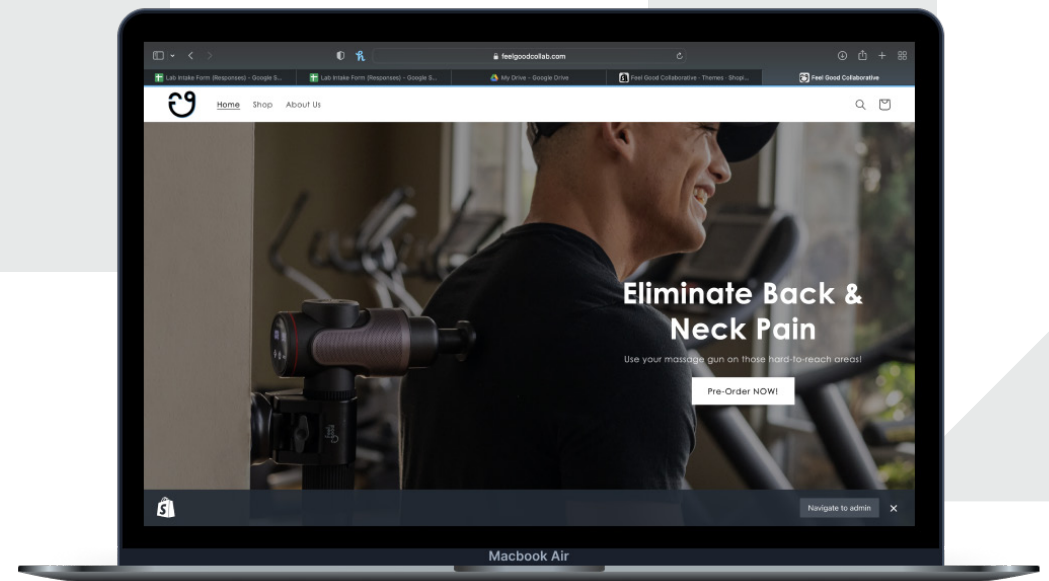
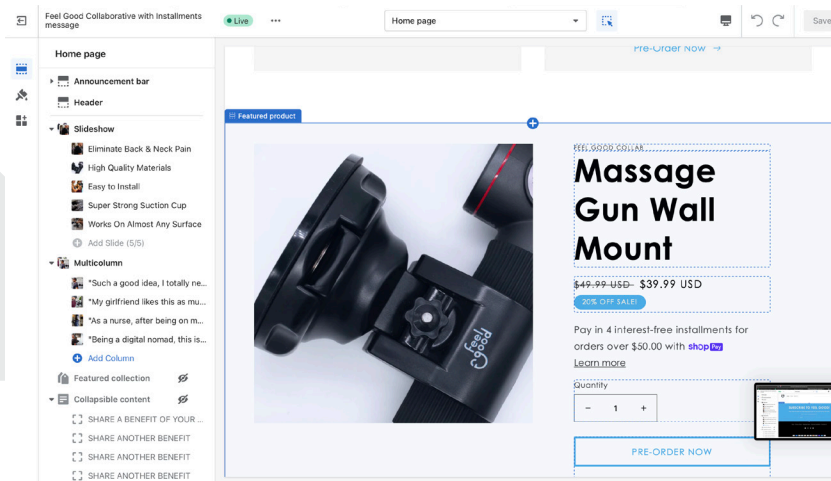
## FitShare App

We helped one of our teams FitShare to make a working app prototype. The goal was to create a fitness app where you can share your workouts, compete with friends, shop for fitness products, and also receive updates for your local gym. The prototype was put together with the help of one of our graphic design interns. The final working prototype was published on the popular prototyping platform Figma.



UI/UX DESIGN

# PROJECTS



## Feel Good Collab Landing Page

We helped one of our teams Feel Good Collab to make a landing page. The goal was to encompass what the company is about, which is treating back and neck aches using their massage gun product. The composition of the website was put together by one of our graphic design interns, who worked closely with Feel Good Collab to capture their message. The final landing page gets their message across cleanly and efficiently.

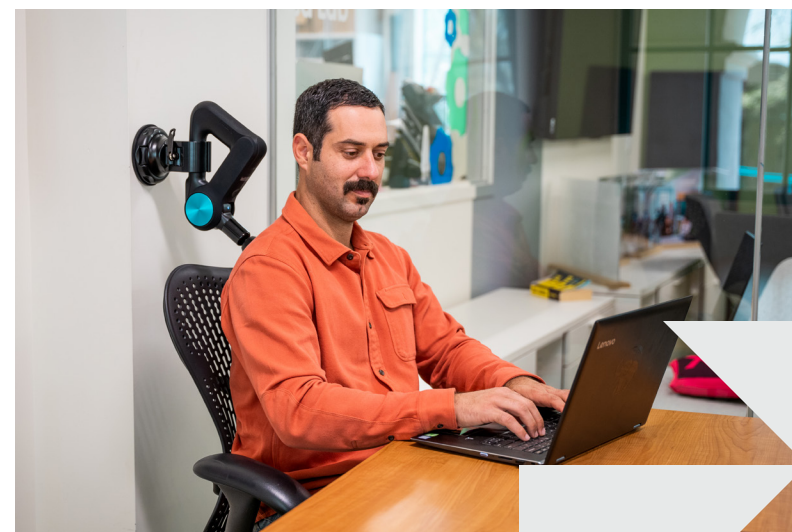


LAB CAPABILITIES:

# PHOTO & VIDEO

## Capturing For Engagement

Our rapid prototyping lab not only helps produce physical and digital prototypes for teams, but can provide photo and video support for our teams and the ZIP Launchpad Center. Whether it's to promote a product or showcase an event on social media, our media interns are able to produce high-quality photo and video content.



Using high-definition digital cameras, and our in-lab computer workstations, we are able to capture and edit content to be used in a variety of ways. For example, our interns have helped teams create video content for social media platforms such as Instagram and TikTok to reach and engage their audiences. We are also capable of taking professional product photos for use on websites or social media with our illuminated photo box setup. Visual digital media content is more prevalent than ever, and our lab is able to produce digital media content that can help teams get their ideas out there for people to see.



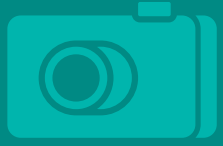


PHOTO & VIDEO

# PROJECTS



## Shezza Lace Sock Product Photos

We helped one of our teams Shezza by taking product photos of their new line of lace socks with padded heels for blister prevention. One of our media interns was tasked to capture different angles and details of the product itself along with live model photos. Using a portable photography set up, and a mirrorless digital HD camera, we were able to capture clean and well-lit photographs both indoors and outdoors. These photographs were all edited and touched up in Adobe Lightroom Classic and Adobe Photoshop to meet the professional standards needed to promote Shezza's new product on their website.



PHOTO & VIDEO

# PROJECTS

## Feel Good Collaborative Video Ads

Feel Good Collaborative requested help with capturing video in order to create a few different lifestyle video ads of their product in use. Using a mirrorless digital HD camera, our media intern was able to get 4K footage with the team and their models using the product in a few different locations. After editing the clips together and adding music in Adobe Premiere Pro, we were able to deliver the various video ads requested (15-second, 30-second, and 1-minute versions) to the Feel Good Collab team for use on their various social media platforms.





LAB CAPABILITIES:

# RESIN CASTING



## HOW IT WORKS

Resin casting works by first mixing a silicone solution for the mold. Using the silicone solution, we pour the mold mixture over the desired object and wait for the mold to set. After setting the mold, we can then take out the original object and fill the mold with resin. The resin solution is composed of two parts: the resin and the hardening agent. After the resin cures, we are then left with a copy of the original object.

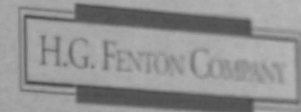
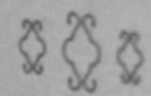
## Our Technique

Our rapid prototyping lab can use a technique called resin casting to create replica of an object, generally used on smaller scale for smaller projects.



SDSU  
ENGINEERING &  
INTERDISCIPLINARY SCIENCES

H.G. FENTON  
COMPANY  
IDEA LAB



TRUST, SERVICE AND INNOVATION SINCE 1906

**SDSU**  
ZIP Launchpad

**A BOOKLET SHOWCASING  
THE LAB'S CAPABILITIES.**