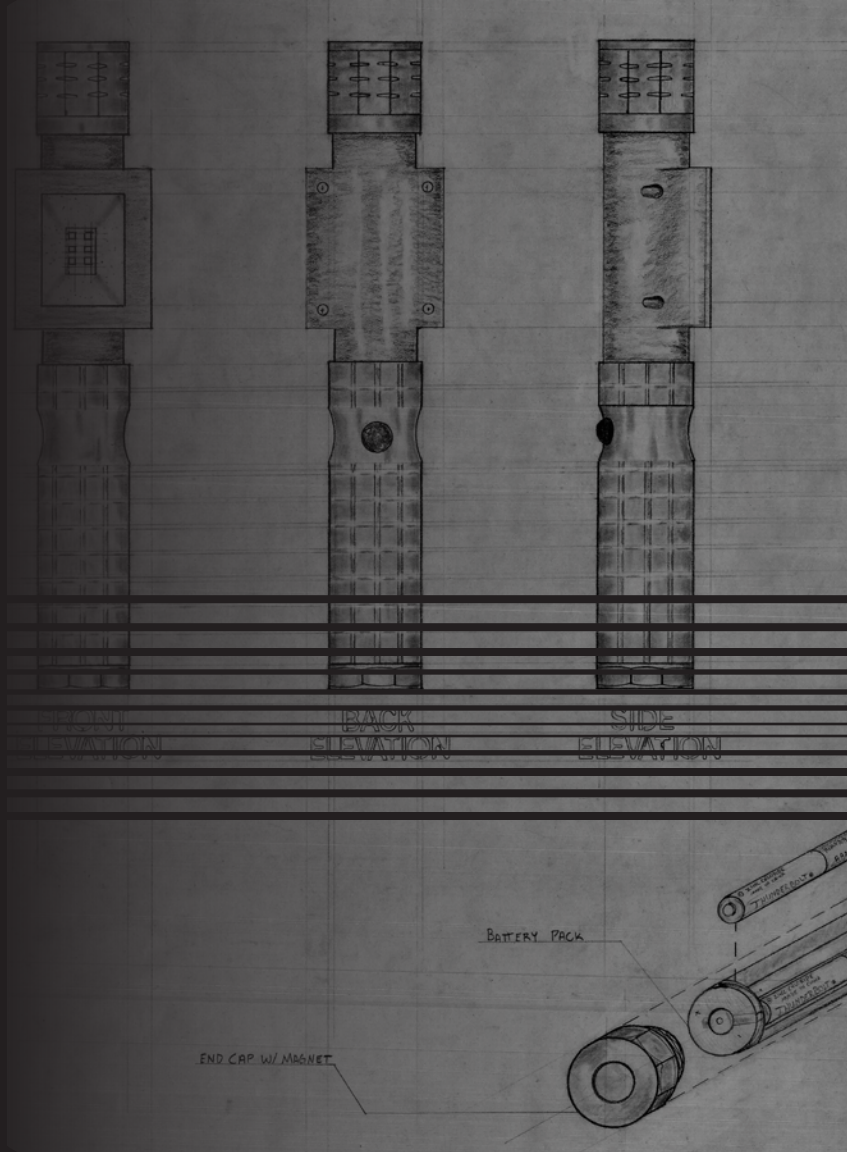
ENVIRONMENTAL PRODUCT DESIGN

PORTFOLIO 2022

LUKE TRUE
UNIVERSITY OF COLORADO



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@lukedesignsproducts

ABOUT ME

Highly accomplished United States Navy shipboard firefighter and Chemical/ Biological/Radiological defense & decontamination subject matter expert. Qualified fire suppression systems maintenance technician with more than 7 years of experience performing assigned responsibilities in high-stress and demanding environments. Current student at The University of Colorado specializing in product design.

EXPERIENCE

LEAD OF SALES & SERVICES 2020-2021
Jubera Jiu-Jitsu, Broomfield, CO

DISTRIBUTION MANAGER 2019-2021
Black Lab Sports, Boulder, CO

CO-OWNER AND OPERATOR 2017-2019
Colorado Tree Company, Longmont, CO

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR (CBRN) DEFENSE OPERATIONS AND TRAINING SPECIALIST 2012-2016
Naval Special Warfare Development Group, Virginia Beach, VA

FIRE SUPPRESSION MAINTENANCE SHOP SUPERVISOR 2008-2012
USS George Washington, Yokosuka, Kanagawa, Japan

EDUCATION

UNIVERSITY OF COLORADO 2018-2022
Bachelors in Environmental Design & Minor in Space

ART INSTITUTE OF COLORADO 2018
Product Design (Transfer)

CERTIFICATIONS & TRAINING

TOP SECRET CLEARANCE 2012-2016
United States Navy/ Department of Justice

JOURNEYMAN FIREFIGHTER 2009-2016
2000+ Hours (Department of Labor)

REMOTE EMT- BASIC 2015-2019
NREMT No. E3209964/ CO EMS No. Q160668

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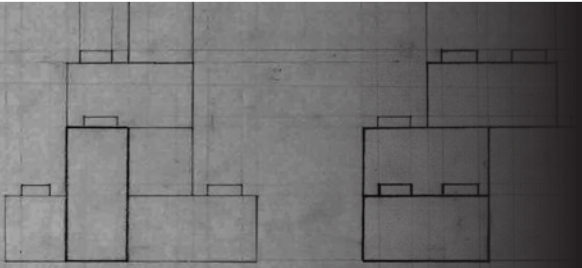

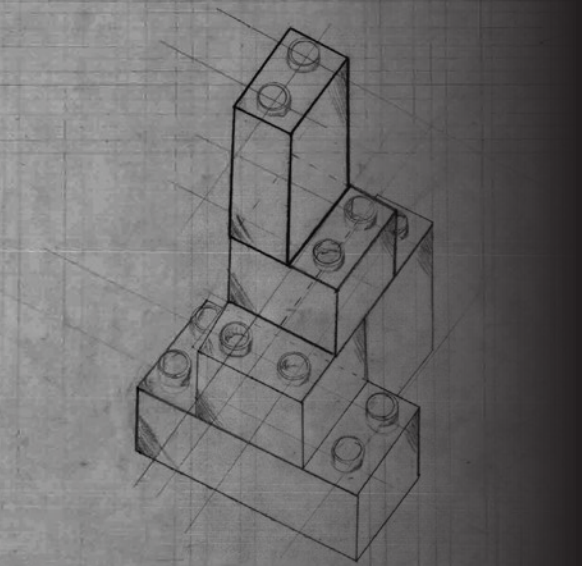

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DIGITS hand-clock

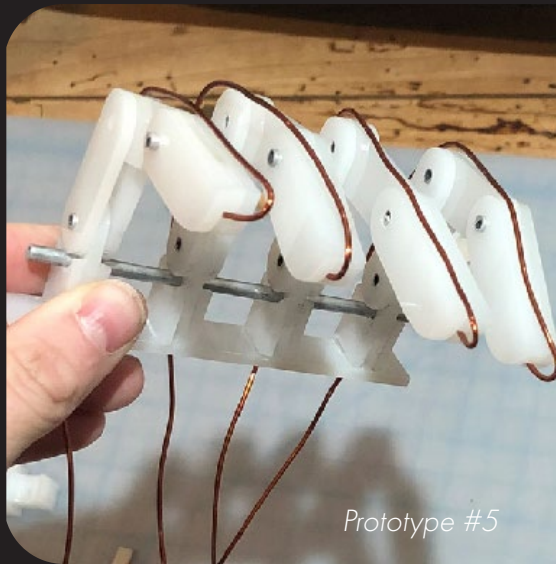
What is it?

Digits is a innovative project that re-imagined what a time piece can be. The idea was formed around the concept of non-verbal communication. Hand signals for numeric information is well understood around the world and we wanted to take advantage of this universal communication. Digits tells time by displaying fingers to show the hour. The fingers slowly raise to display approximate minutes of the hour. For the 11 o'clock and 12 o'clock time period, the right and left hand will hold a finger up for the corresponding numerical value.

Prototype #1-4

Prototyping

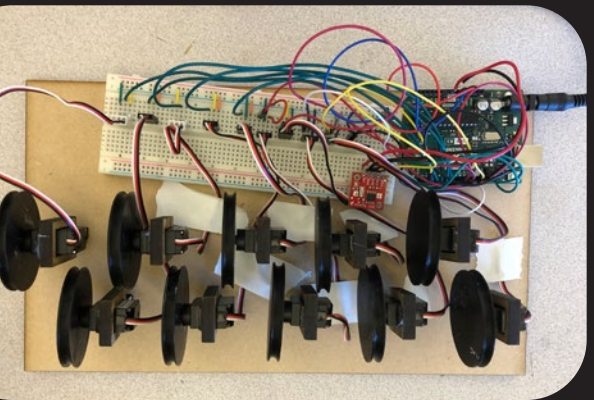
Finger motion was the primary problem we had to solve. The finger ultimately had to be attached to servo motors for actuation. After a few prototyping attempts, we landed on one that proved our concept.

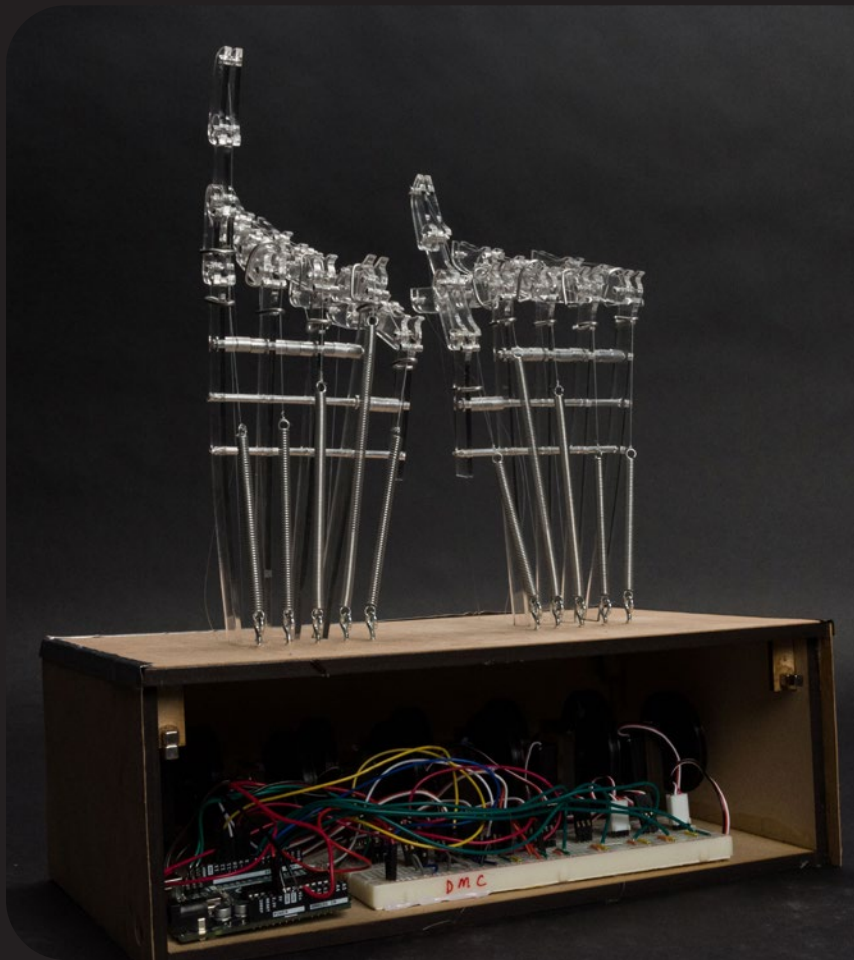


Prototype #5

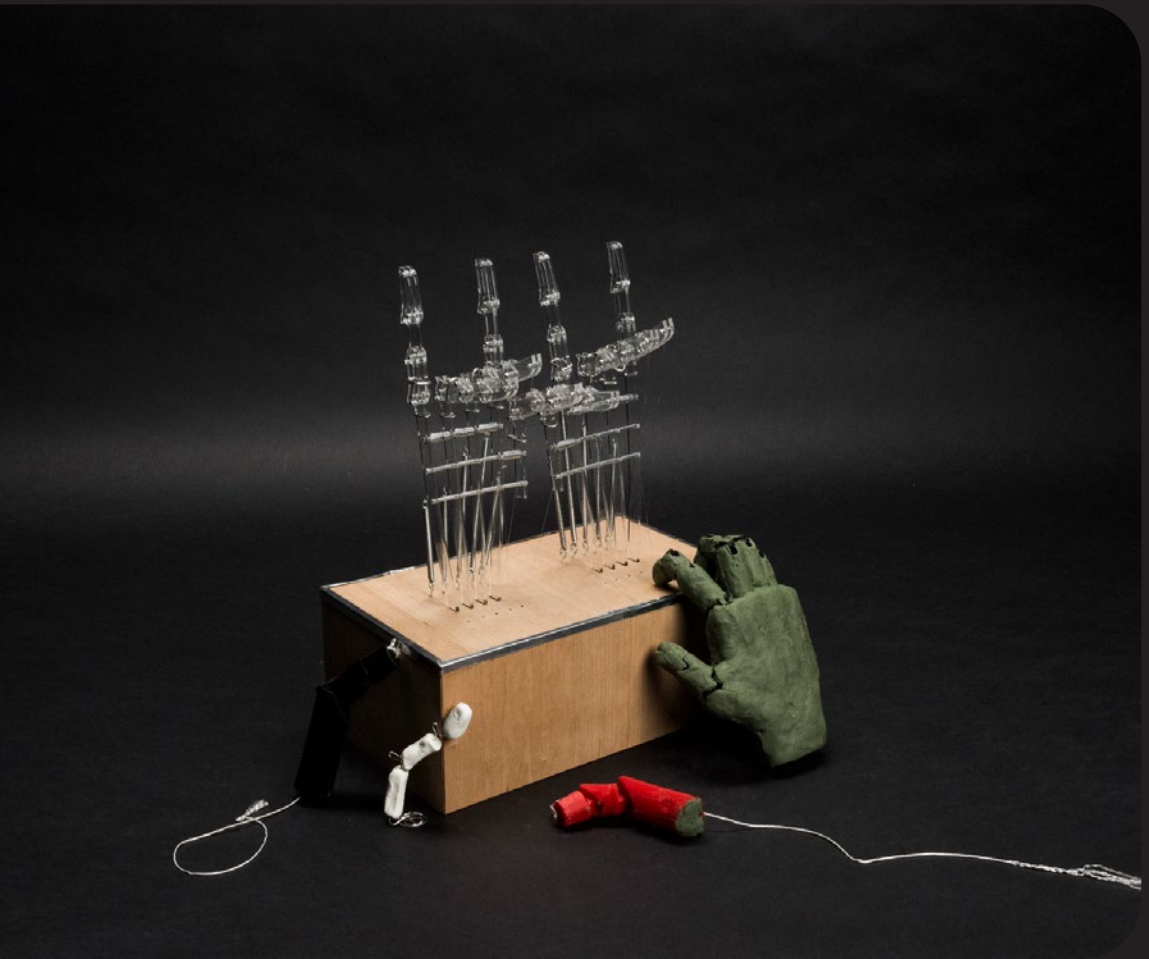
ARDUINO

Along with the physical design of Digits, we had to create the coding for the motion of the hands and to keeping track of the time. We used a real time clock (RTC), 10 servomotors, and an Arduino Uno for the electronics side of the project. Many components had to be designed around the constraints and ability of the Arduino and its size. The most difficult aspect was the coding and assigning motor control to time signatures. This was a confusing task, but we ultimately figured it out and learned a ton in the process.





FINAL



Times Up

Along with the physical design of Digits, we had to create the coding for the motion of the hands and to keeping track of the time. We used a real time clock (RTC), 10 servomotors, and an Arduino Uno for the electronics side of the project. Many components had to be designed around the constraints and ability of the Arduino and its size. The most difficult aspect was the coding and assigning motor control to time signatures. This was a confusing task, but we ultimately figured it out and learned a ton in the process.

HANKO

Client Directed Project

The hanko is a traditional Japanese object that is used to stamp official documents. The hanko stamp is similar to our written signature, but has far more meaning ingrained into the object. Family crests and names are inscribed onto the stamp which can vary depending on the level of formality the official document requires. Many Japanese citizens have multiple hanko for these various occasions.

This hanko was designed for a student client. The hanko had to embody his spirit and personality. My client was an avoid fisherman and enjoyed the outdoors. My goal was to extract his unique humanness and put it into a hanko he would actually use and carry.

Iterative Prototypes

The form finding process for this hanko went through many iterations and sketches. The hanko was meant to be tied on to a gear bag. I initially based my designs off a pocket watch, but found the shape to be too familiar. My later prototypes displayed here show a progression of elongating and sliming the over all form. The final designs were compact and ergonomic to the hand. The final prototype was CNC cut and then hand assembled.

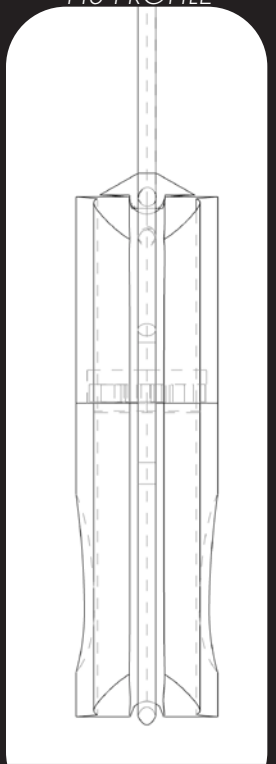
H1 PROFILE

H1 FRONT

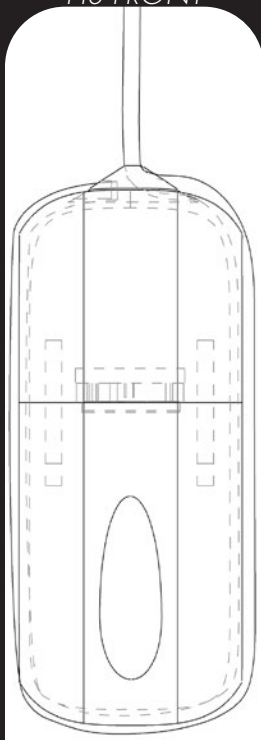
H2 PROFILE

H2 FRONT

H3 PROFILE



H3 FRONT



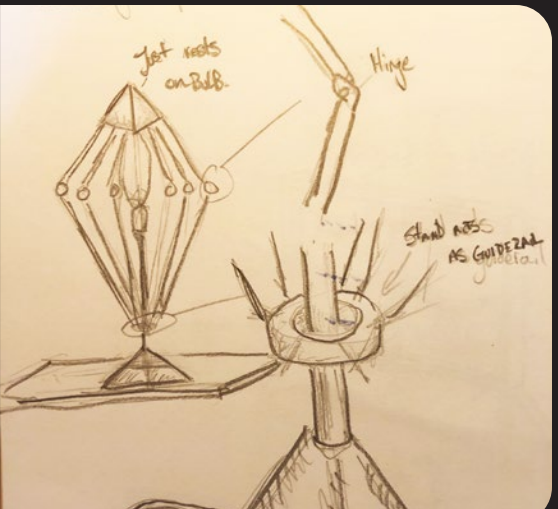
Adventure

The end result of this project was a success in the view of my student client. The hanko feels adventurous and earthy which compliments the clients personality.

LUMINAIRE

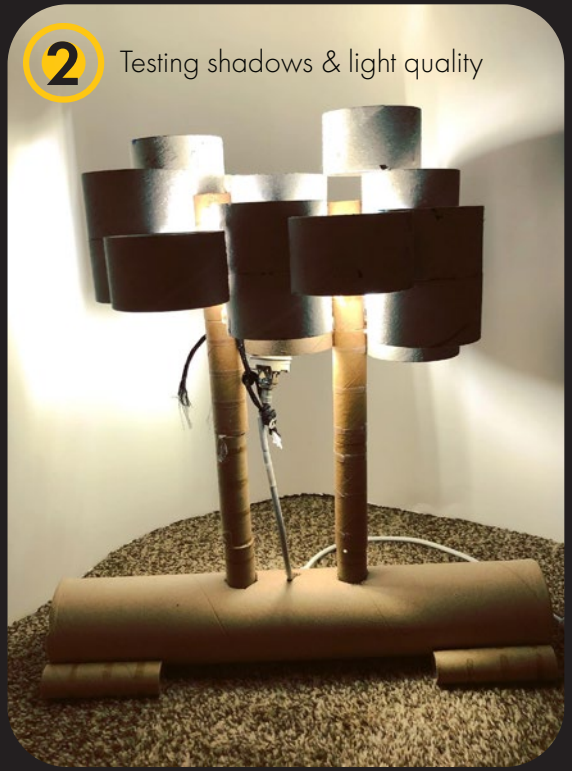
Shaping Light

This project was centered around creating light that can be adaptable. My goal was to create a light that you can "sculpt" for the atmosphere you wanted. The quality of light was also of high priority. I aim for a soft glow that felt natural and inviting.

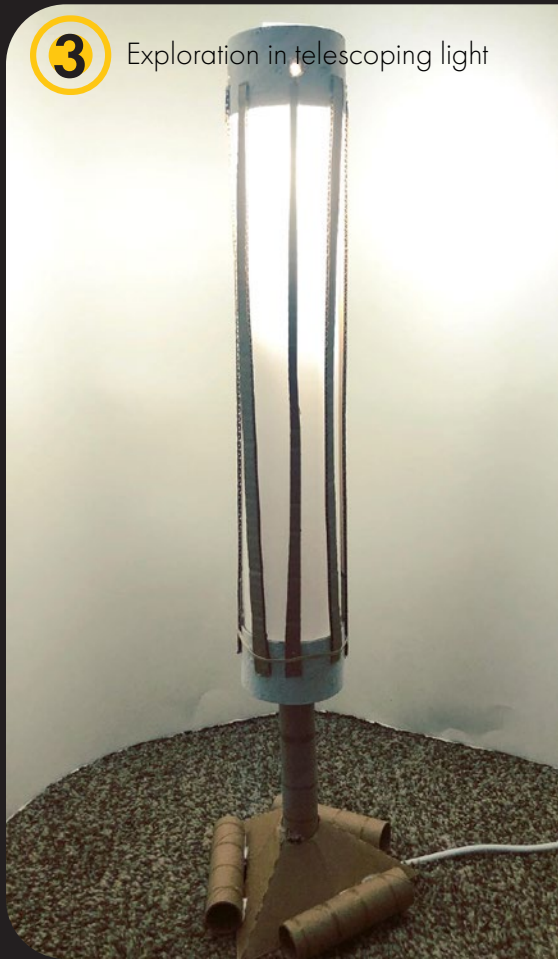


1 Size and light coverage iteration

2 Testing shadows & light quality



3 Exploration in telescoping light

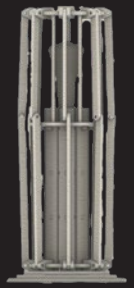


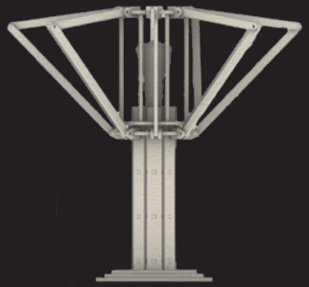
Low Fidelity

Low fidelity prototypes helped me quickly identify form and test light behavior. These prototypes were quick, dirty, and fun. All the material used was etiher trash or recycled packaging from other products.

UP POSITION

TOP VIEW





DIGITAL MODEL

Medium Fidelity

This medium fidelity prototype was a proof of concept for the motion and adaptability of the lamp. The connections and joints were the main focus of the prototype to finalize materials and hardware needed for the final prototype of this project.

DOWN POSITION

TOP VIEW

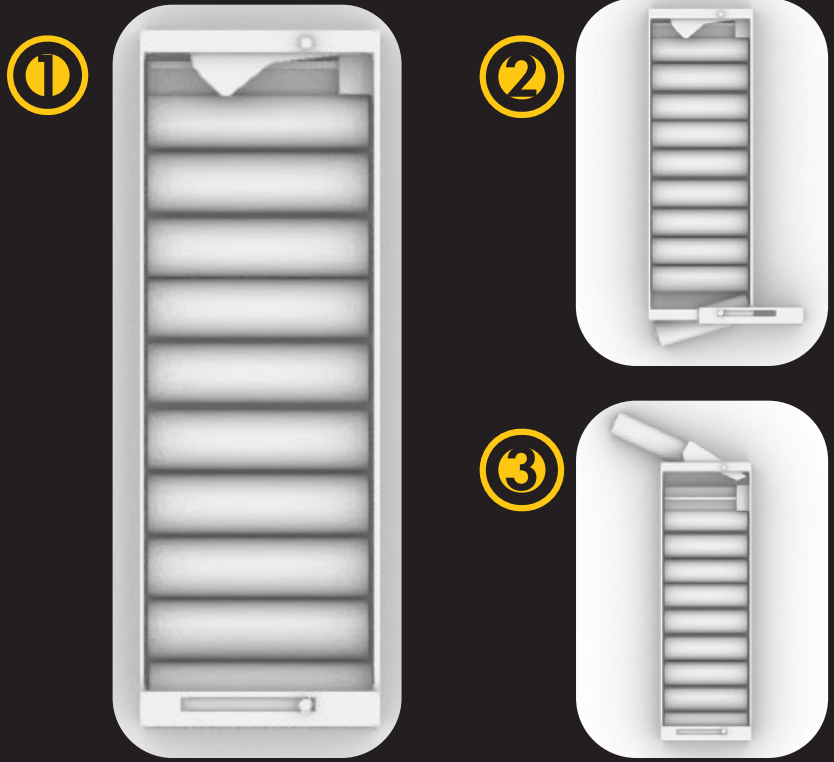
At Home

This lamp now resides at my house in my living room. Personally, I love this creation. I use it everyday and find myself changing it's configuration around every three months. The light provides adequate coverage of the living room while providing a soft warm glow. Guests seem to enjoy the uniqueness and adaptability pf the lamp. If I were to attempt this project again, I would spend more time developing the joints and movable parts so it can be handled less delicately.

ELEMENTAL

Battery Packaging

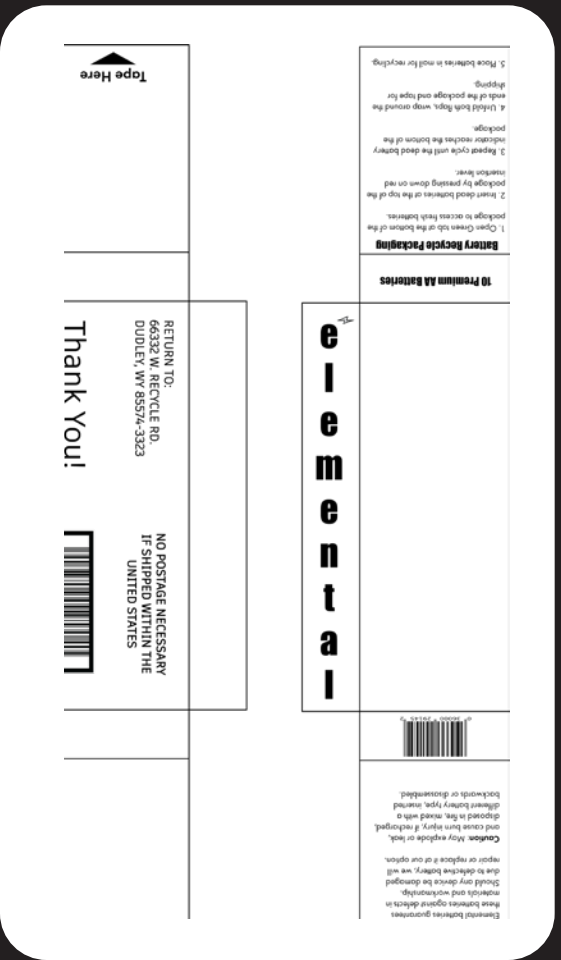
Elemental is a new concept for battery packaging. Current packaging for batteries is far from user friendly and does not promote proper disposal for dead batteries. Elemental is a magazine of batteries that allows for a cyclic feed of new batteries and storage for dead batteries. After the pack is full of dead batteries, it allows the user to reseal the package and ship them to a near by recycling center for proper disposal.



1. Full pack of new batteries a customer would buy in the store.

2. Access fresh batteries by sliding bottom cap to the side.

3. Place dead batteries in the top compartment for storage and disposal.



Packaging

The packaging is meant to have a life cycle that lasts all the way to the battery recycling center. The packaging has fold out tabs that will allow the user to easily tape and ship dead batteries directly to the recycling center without secondary packing for shipping.

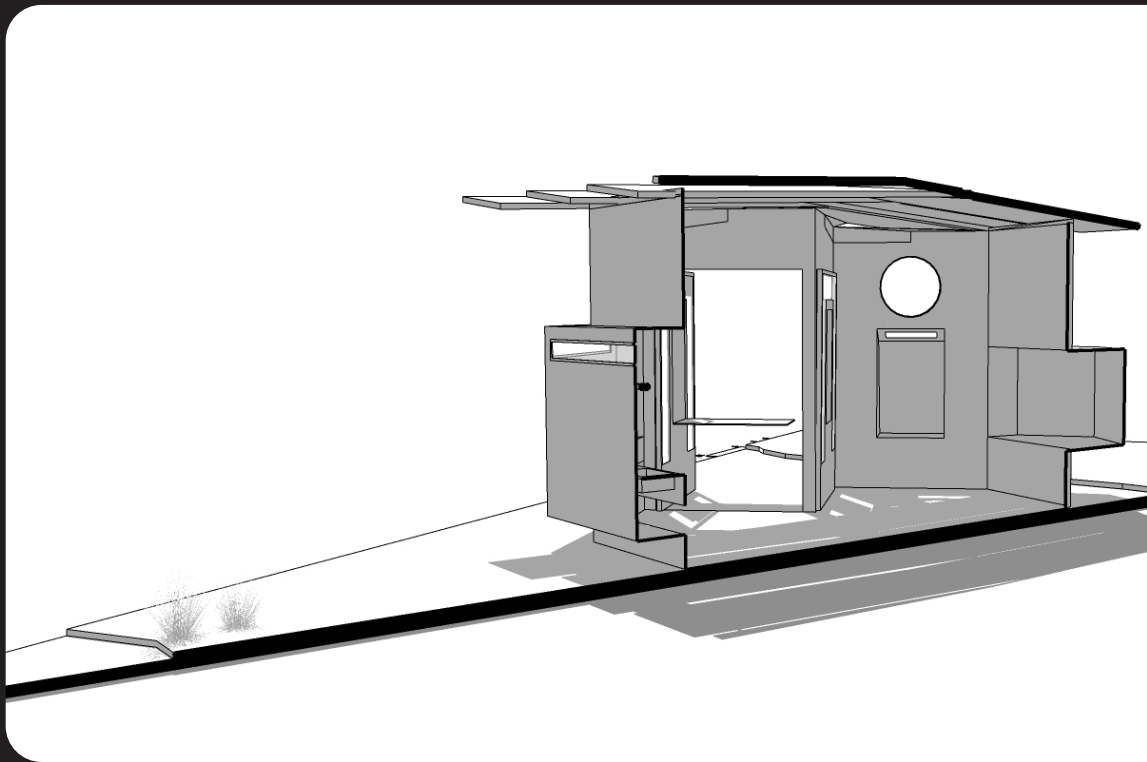
Function

This video gives a quick insight into how this packaging functions and operates.

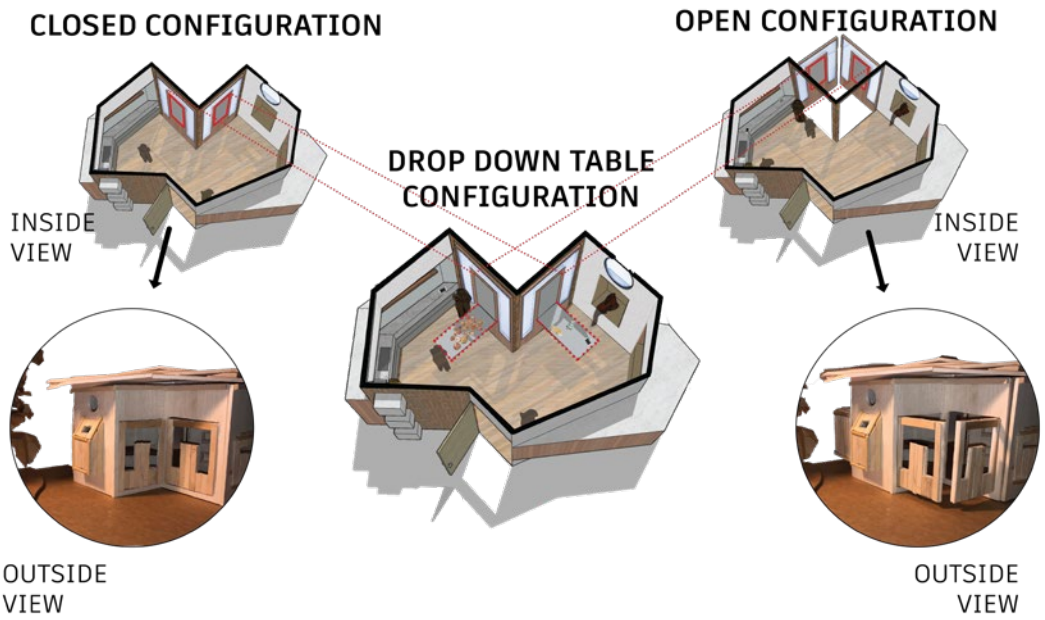
OPEN DOORS

Personal Space

Open Doors was a client led architecture project for a young female adult. The project mission was to create a small space under 300sqft that would act as a small studio and place of gathering that is separate from a main residential unit. The client loved cooking for friends and family. This design incorporates a full kitchen, lounge area, and adaptable outdoor configurations for summer B.B.Q.s.



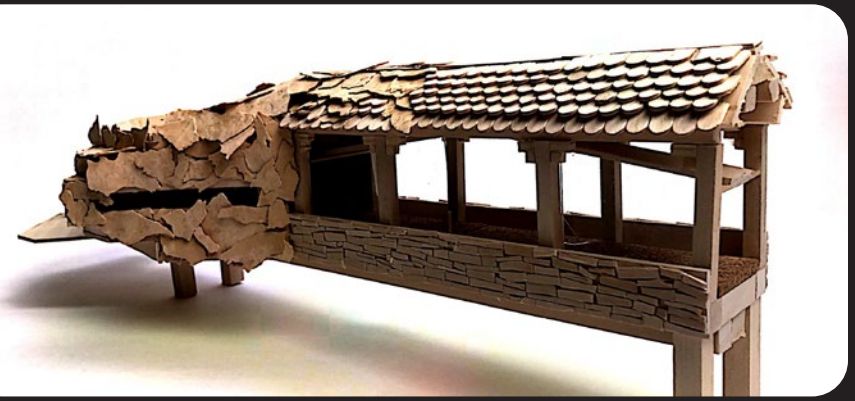
Focus on Adaptability



The client for this project wanted a space that would be inviting for social gatherings and could be adaptable for the weather various weather conditions. To address the wants of the client, focused on creating a door system that allows for flexibility in it's programming. The doors to the space open up in a unique way that is either completely open to the outside, completely closed off, or creates an enclosed outdoor room that protects from the wind but is open to the sun or stars. These various configurations match the needs and wants of the client while maintaining a minimal footprint on the property.

FINAL

SKY STUDIO



Connecting Colleges

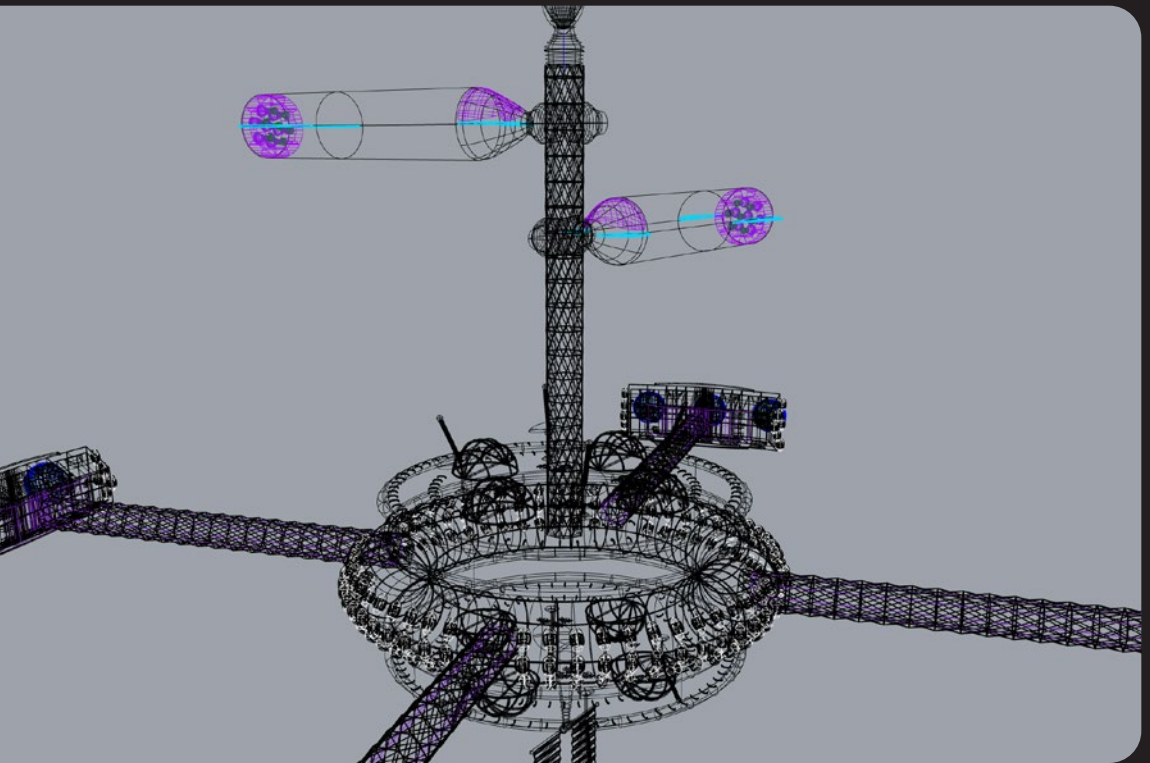
This was a freshman year Architecture assignment. The prompt was to create a space that connects the Environmental Design college with the Art college on the University of Colorado's campus. My objective was to connect the two college via a sky walk over the main drive on campus. I wanted to fuse the Tuscan vernacular aesthetic of CU with a modern basophilic design. The fusion is supposed to highlight the creativity of the Art college with the traditional architecture established. As students and visitors enter on to campus, they would be welcomed with this bold architectural piece.

Art college classrooms and library space.

Design college studio space and walkway.

GAIA SPORE

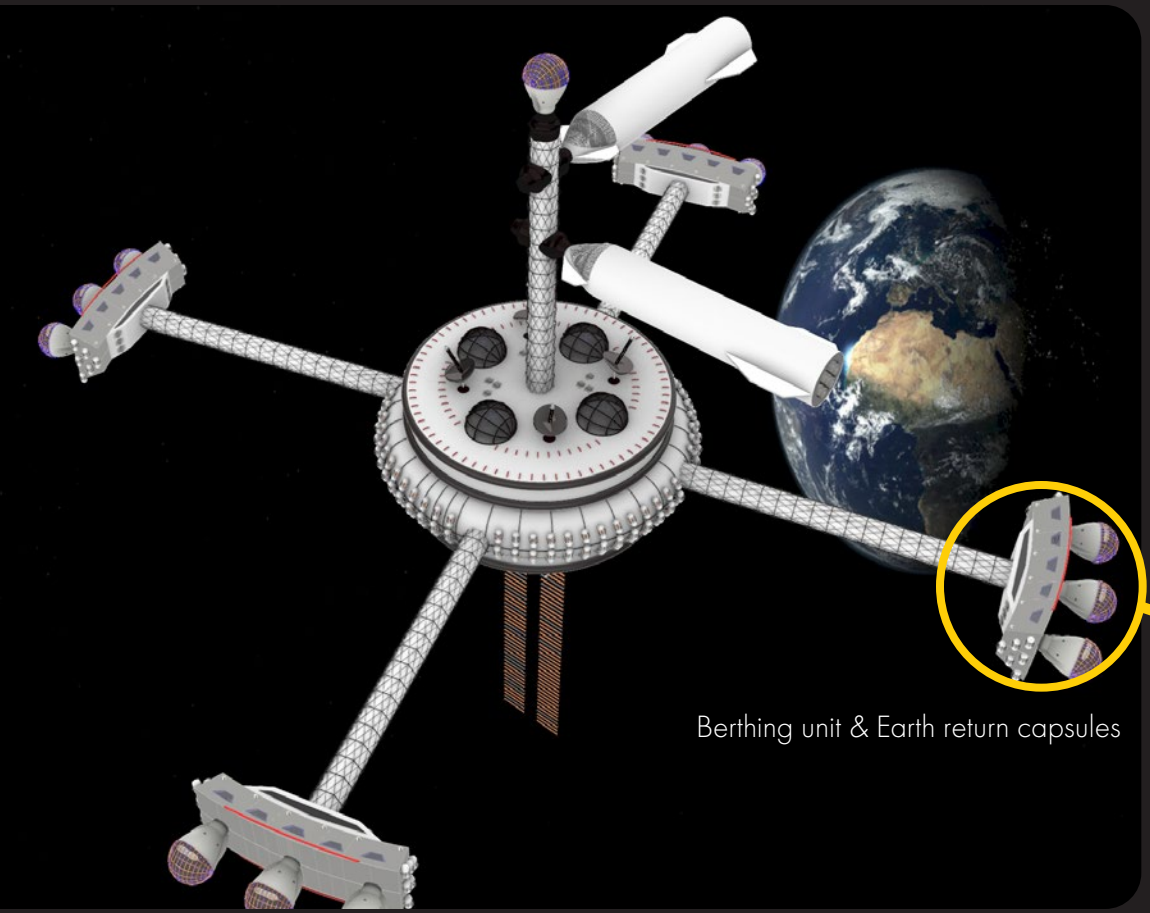
Future Above



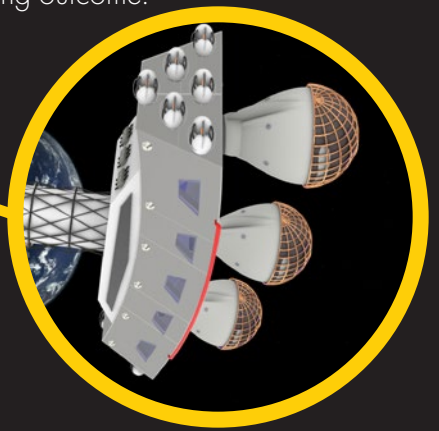
Gaia Spore was a 3D rendering project that didn't have to be realistic or demand accuracy. The goal was to be creative and make a model that could be displayed in a sci-fi movie or animation. For my project, I wanted to design a space station that would have multiple gravitational environments. The basic idea is that there is a central passage that is in micro-gravity. This would allow for easy docking from orbit. The middle disk would rotate around the central strut and have a martian gravity environment. The outer spokes would be the berthing area for astronauts. This area would maintain Earth's gravity for the health of astronauts.

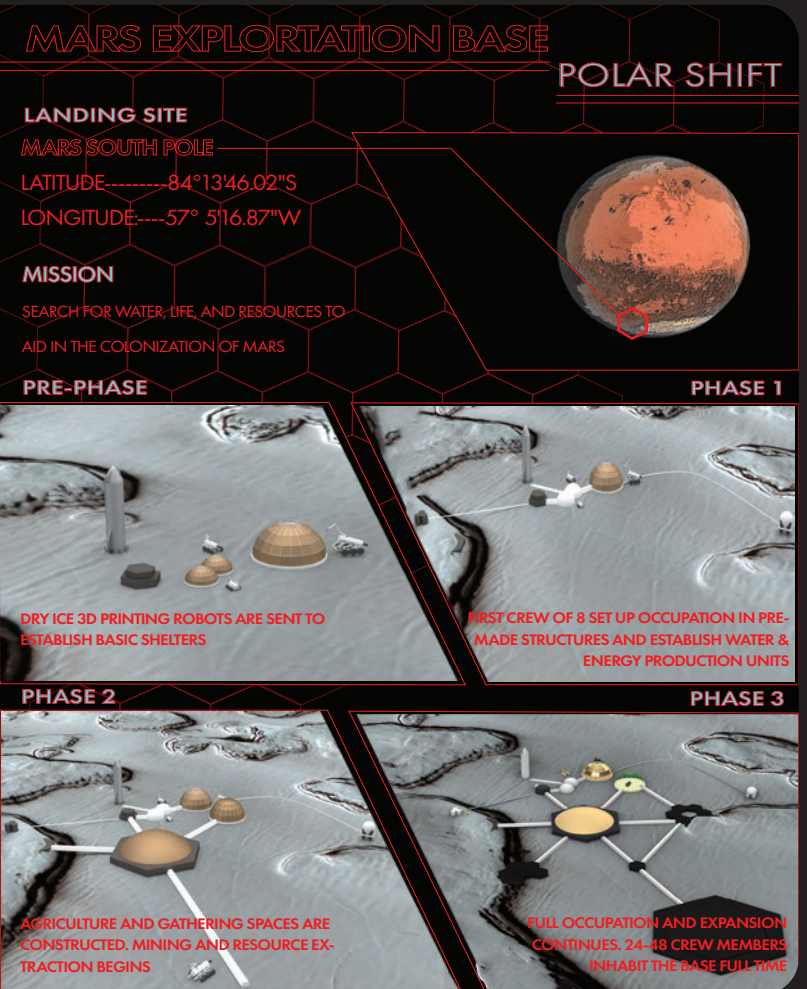
Space to Think

Projects like these allow room for unique thought experiments. Creative, free flow imagination projects like this grant designers like me the opportunity to visualize uncommon ideas without restriction. These projects give design intuition a higher role in the design process and it guarantees an interesting outcome.



Berthing unit & Earth return capsules

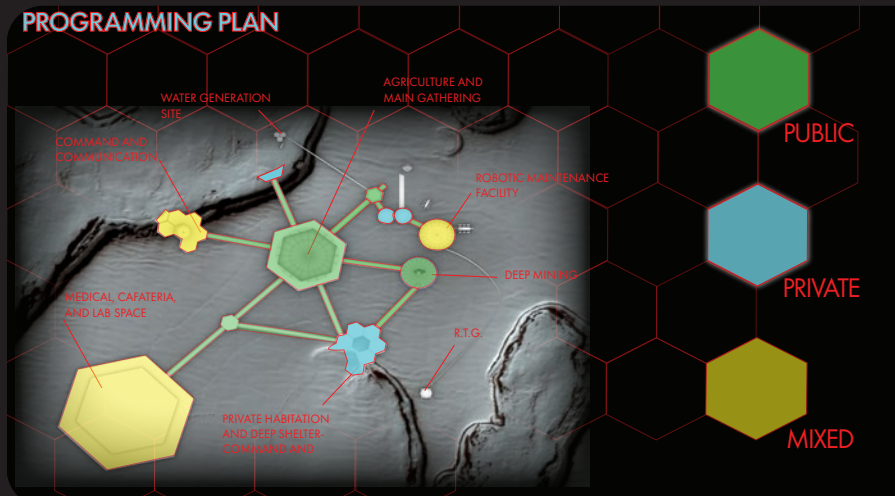


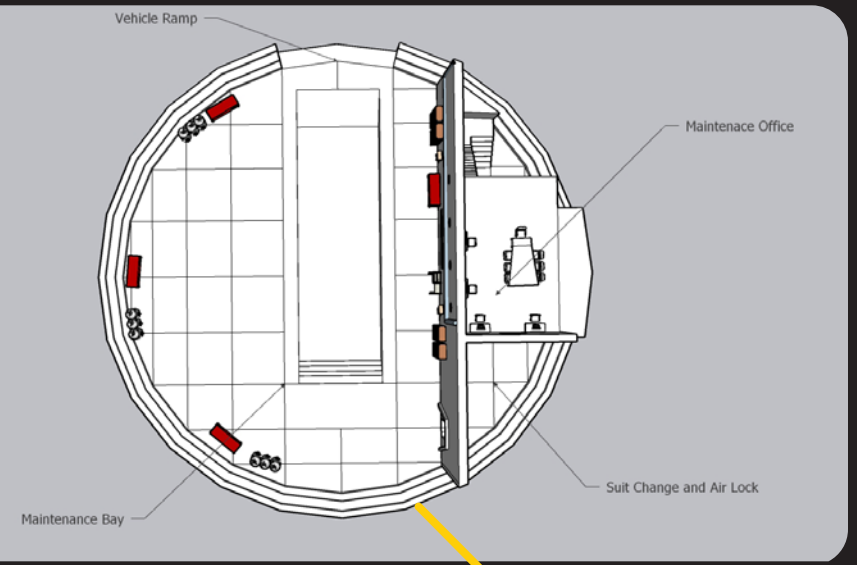


POLAR SHIFT

Initial Life

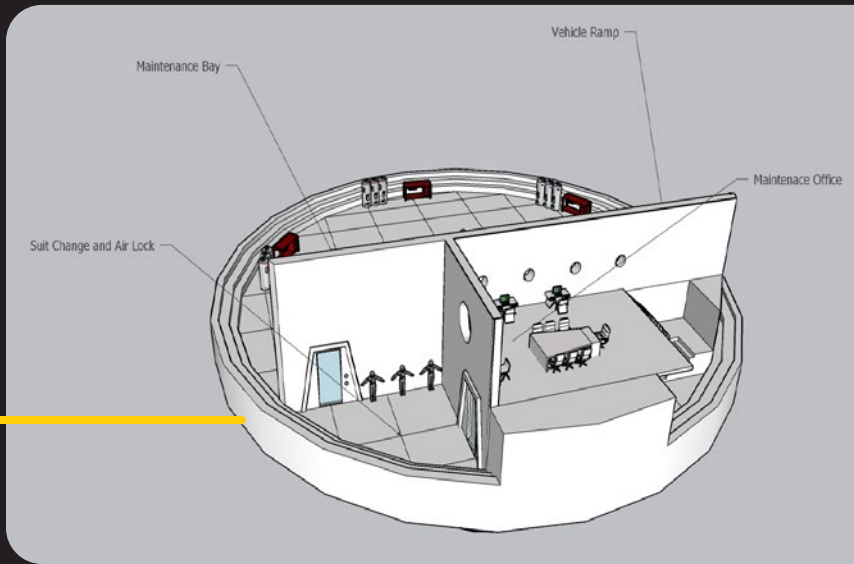
Polar Shift was a group design project that focused heavily on the programming of martian habitation units. The task for the groups was to envision a build up phase for the first colonizers on Mars. The architecture was less of a priority that spacial relationships. My portion of the programming for the group was focused on the construction bay for the colony.





Build First

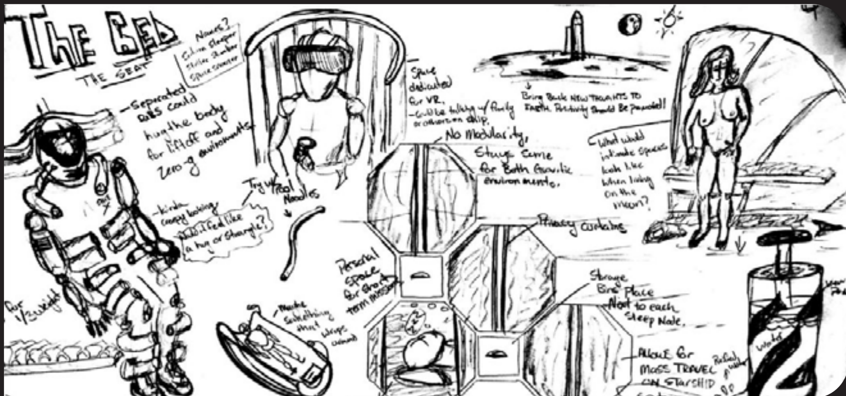
The construction bay would be one of the first structures developed on the surface. This space would allow for temporary habitation, vehicle and drone maintenance, as well as be the staging grounds for the future construction of a larger colony.

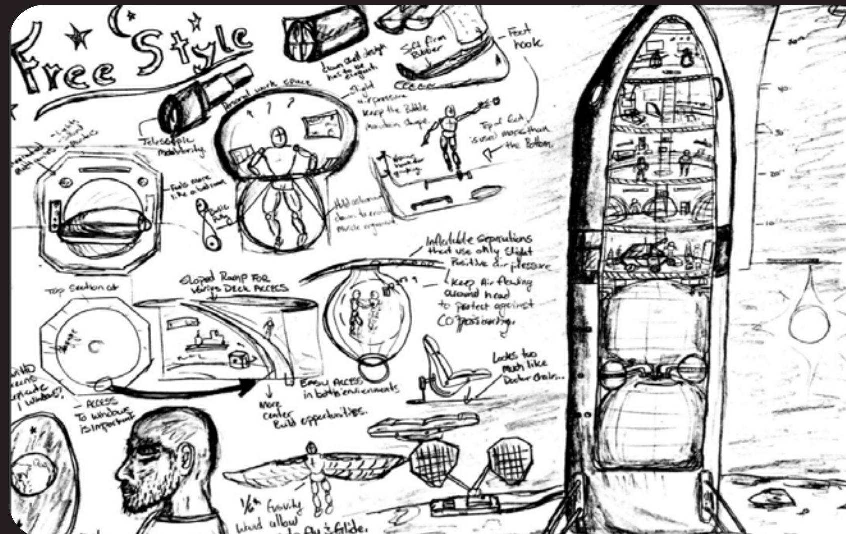


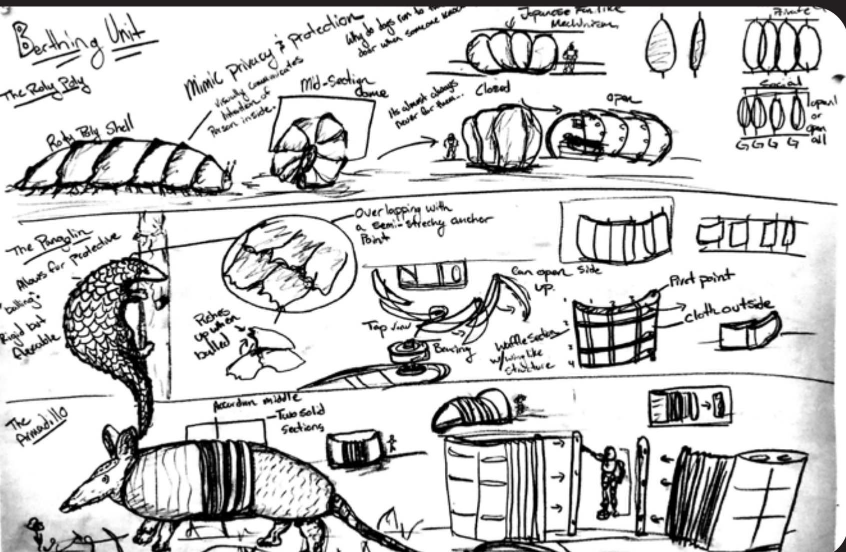
CAPSTONE

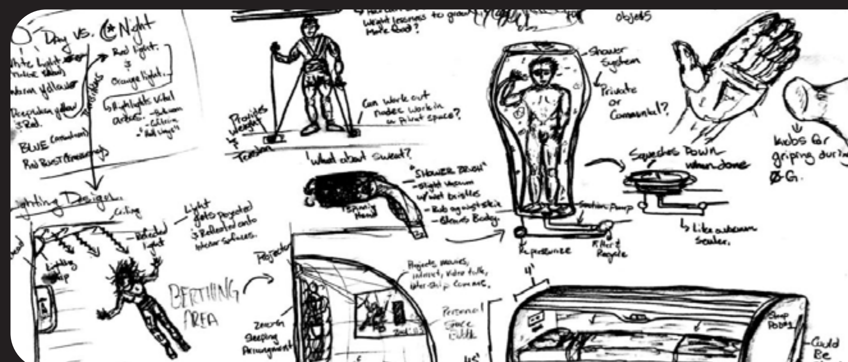
IN PROGRESS

DRAWINGS


The Bed
The Seat
No Modularity
Privacy curtains
Personal Space for short term missions
Storage One place next to each sleep node.
Allow for Mass Travel on Starship


Free Style
Telescopic Modularity
Inflatable separations that use only slight positive air pressure
Sloped Ramp for Various Deck Access
Easy Access in both environments
Top Section


Berthing Unit
The Roly Poly
Mimic privacy & protection
Roly Poly Shell
Mid-section dome
Closed
open
Social
The Pangolin
Overlapping with a semi-stretchy anchor point
Pivot point
cloth outside
The Armadillo
Accordian middle
Two Solid Sections


Day vs. Night
Red light
Orange light
Lighting Design
Berthing Area
Shower System
Private or Communal?
What about Sweat?

IN PROGRESS

IN PROGRESS

IN PROGRESS

MOON MAN

Hero's of Space

The Apollo missions give me inspiration and motivation. For me, our goal to go to the moon was not just a national goal, but a goal for humanity. It marked a new stage in our evolution. Exploration is ingrained into human DNA. It allows us to find more resources and understand our environments so we can prosper. Our leap beyond Earth is the next step for our species and civilization. I want to see humanity embrace our future instead of falling back on our history that has already been written.

Acrylic on Canvas 24"x18"

UMBILCAL

Upper Limits

Higher than any human, this astronaut is being born into a new world never seen. Our attachment to Earth will always be there, but the stars in the sky will pull us from our home to experience the unexperienced. This painting is a reflection of this feeling.

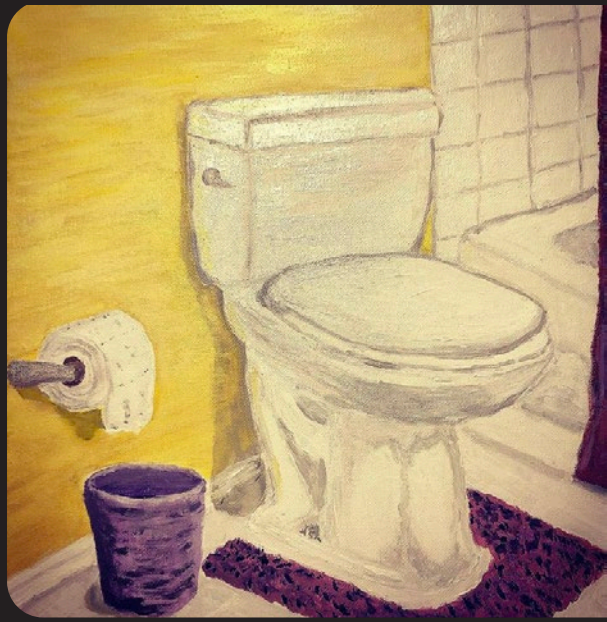
Acrylic and Plaster on Canvas 24"x36"

3D SCAPES

Nature Condensed

The natural world produces some of the most amazing views we can set our eyes on. I personally love mountain and desert landscapes. The light, shadow, and textures of these environments make my imagination explode. These pictures are layers of 3D printed plates that attempt to condense light, shadow, and texture. Although not as beautiful as the real thing, I love these creations because they are snip-its of memory, real and imaginary.

IN COLOR



Color is Emotion

Painting and art is a therapeutic process. It doesn't matter what the object is, it is the tone and emotion painted into the canvas that is the release. Yellow is important to me. It mimics the my feelings of bliss and serenity. Each of these paintings harness multiple layers emotion that felt genuine to me at the time of creation, even when the subject is something simple as a toilet.