



DANIEL WOODS | INDUSTRIAL DESIGN PORTFOLIO 2013

**DANIEL
WOODS**
**INDUSTRIAL
DESIGNER**



C.V. // Design Process

Wood

Plastic

Metal

Mixed Media



Curriculum Vitae



GENERAL INFORMATION



215.964.8272



Website:
www.dcwoodsdesign.com



Email Address:
hello@dcwoodsdesign.com

EDUCATION

2010 - 2013 **B.S. {3.6} Industrial Design**
Art Institute of Philadelphia

Studied all aspects of Industrial Design including: product design, furniture design, metal / plastic / wood studios, model making, fabrication techniques, presentation drawing, manufacturing techniques, environmental design, packaging design, human factors and ergonomics.

APPLICATION SOFTWARE



Rhino
4.0/5.0



SolidWorks
2013



Illustrator
CS6



Keyshot 4



3D Studio
Max



Sketchbook
Pro



AutoCAD
2013

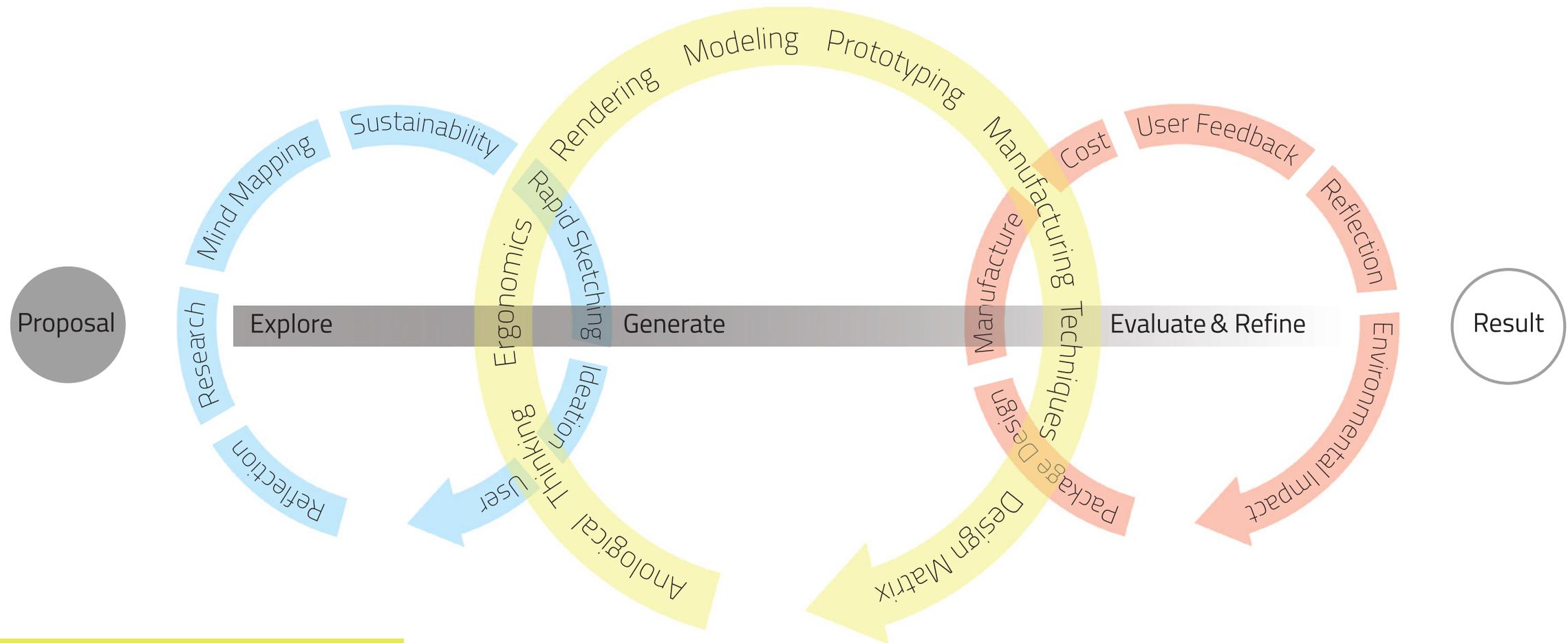


Photoshop
CS6

■ Primary Applications ■ Secondary Applications



Design Process



“ Over the course of my student career I have completed many projects of various caliber. In all instances, I have continued to follow and improve my methodology and approach. ”



Flat Pack Desk & Chair



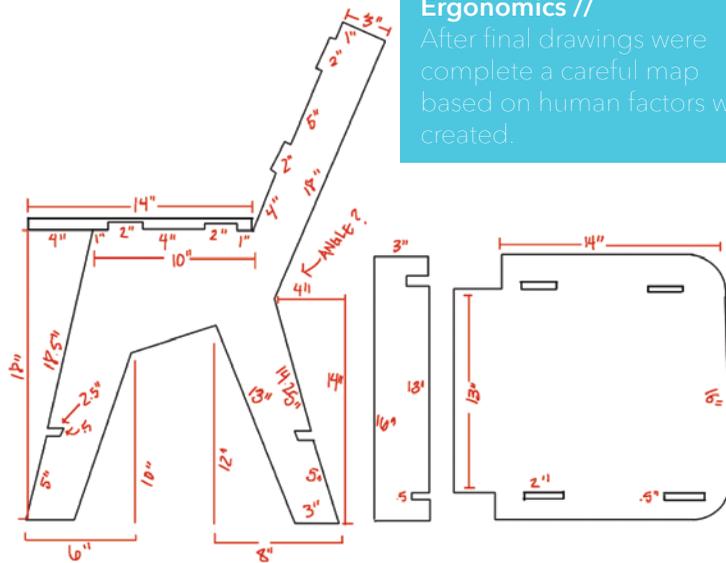


Flat Pack Desk & Chair

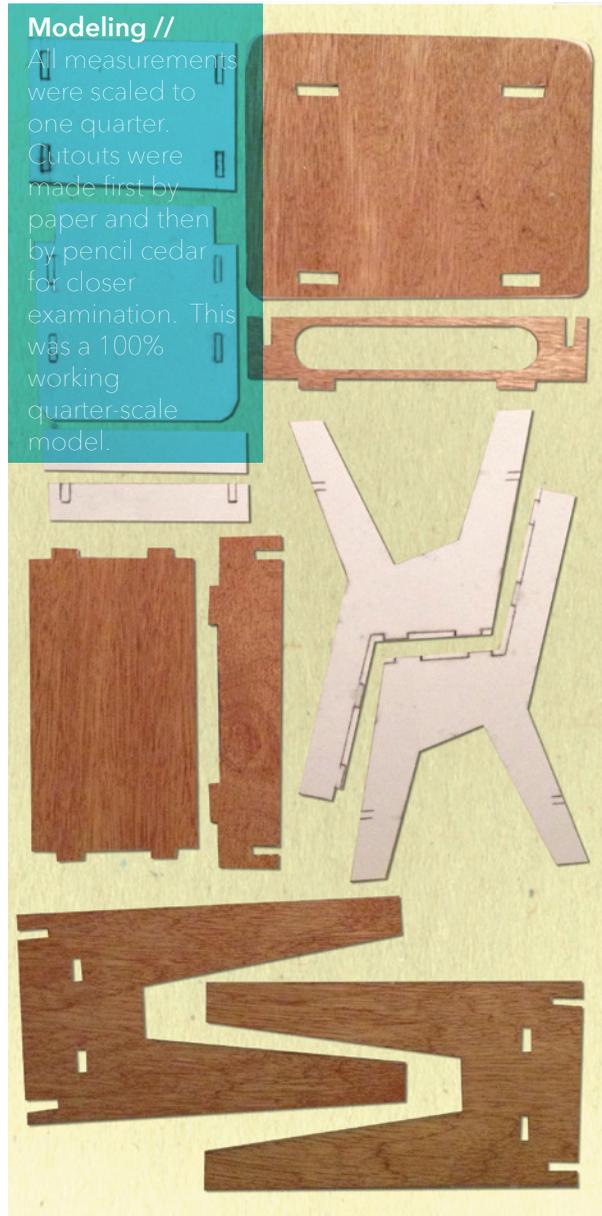
Ideation //
A final technical drawing done by hand, then transferred into Sketchbook Pro 6 for finalization.



Ergonomics //
After final drawings were complete a careful map based on human factors was created.



Modeling //
All measurements were scaled to one quarter. Cutouts were made first by paper and then by pencil cedar for closer examination. This was a 100% working quarter-scale model.



Furniture Design //

For this project we had to design a piece of furniture that could be packed flat, convertible or transform into a secondary function.

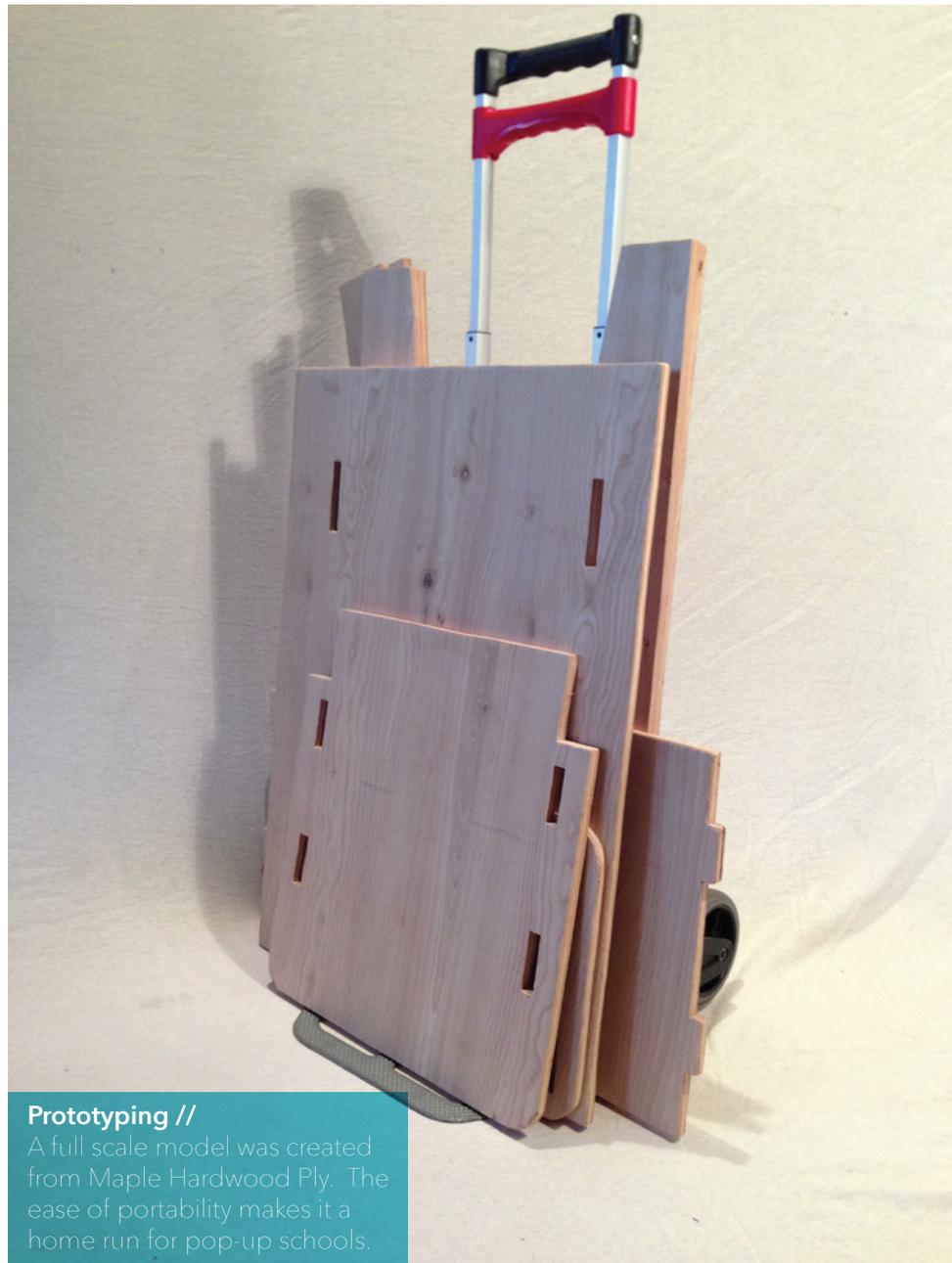
The Idea & Process //

After playing with multiple ideas and narrowing down several sketches, I decided to proceed with a design that had a conscious. After a lot of problem-solving, I decided to make a flat-pack pupil's desk and chair that could be air dropped or easily shipped into developing or war-torn countries. This would enable a authentic classroom setting and a professional educational experience in pop-up schools, despite what was happening outside the classroom doors. The entire piece would be cut from a single 4' x 8' sheet of ply. With the flat pack method, this piece could be shipped with maximum efficiency. Every component would be slotted allowing for easy on-site assembly with no tools.

The model to the left represents how the pieces would fit together cut out of a 4' x 8' piece of ply.



Flat Pack Desk & Chair



Prototyping //
A full scale model was created from Maple Hardwood Ply. The ease of portability makes it a home run for pop-up schools.



Prototyping //
A simple 4'x8' piece of ply creates a healthy work environment for an aspiring student.



Prototyping //
Once laser-cut from the 4'x8' wood panel, the desk and chair could easily be removed from their supports and assembled without the use of tools.

Final Full Scale Aspen Pine Model ■ 3D Rendering of 4' x 8' Laser-Cut Plywood



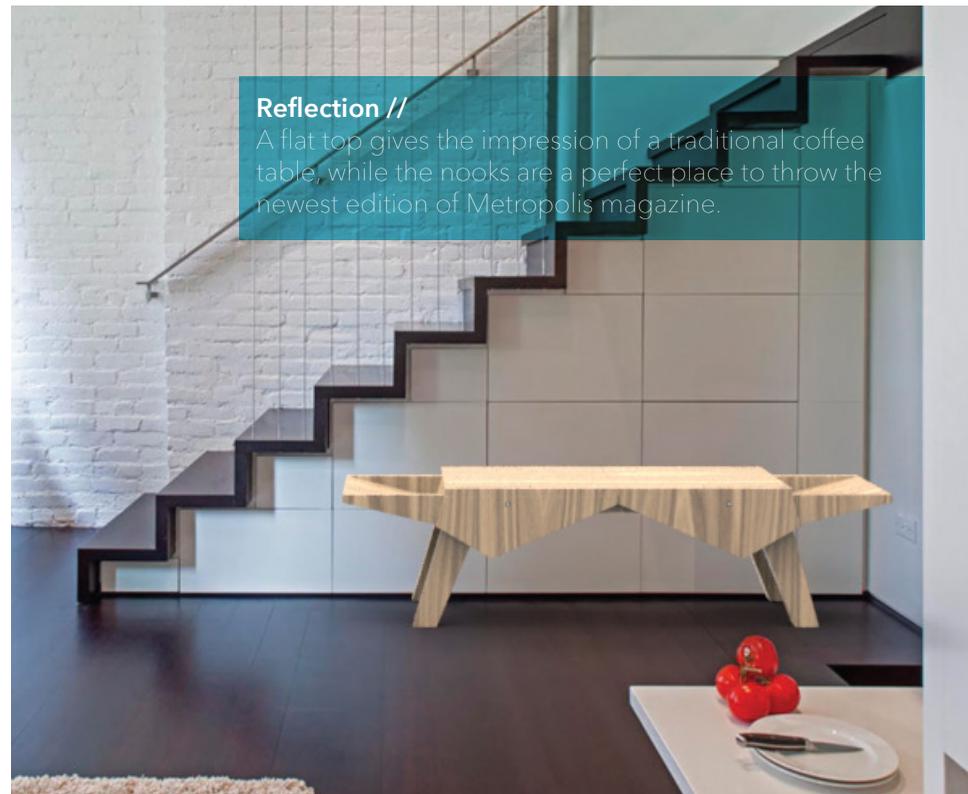
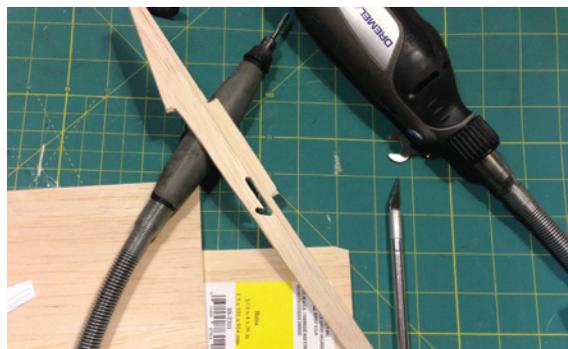
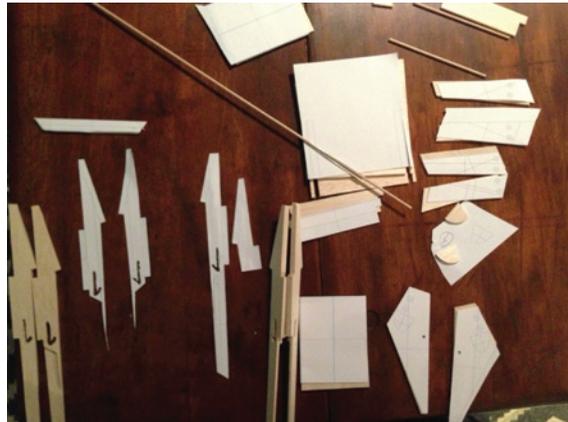
Transforming Coffee Table



Balsa Wood 1/4 Scale Model ■ Rhino 5 ■ KeyShot 4



Transforming Coffee Table



Reflection //

A flat top gives the impression of a traditional coffee table, while the nooks are a perfect place to throw the newest edition of Metropolis magazine.

Proposal //

Design a transforming piece of furniture that will coincide with the strict spacial requirements of the "micro apartments" found in NYC, San Francisco, Tokyo, Hong Kong and London.

Research //

As the environment gains momentum within society's collective consciousness, micro-apartments are becoming more and more of a widely accepted idea. Less space means a smaller footprint when the Earth's population is spiraling out of control.

Process //

Necessity for new ideas in small spaces is becoming a trend in the design world. I decided that I would find a way to reinvent two separate pieces of utilitarian furniture in a way so they would become one. Thus, a coffee table (or dinner table depending on your micro-apartment) becomes a set of two chairs when guests arrive. There is no need to find a place to store extra seating. When one function isn't in use, it's quietly hidden. Three separate furniture items, that would take up close to twenty square feet, re-appropriate themselves at half the requirement. Through the use of innovative hardware and thoughtfully shaped wood, you can enjoy full functionality without sacrificing beauty and design aesthetic.

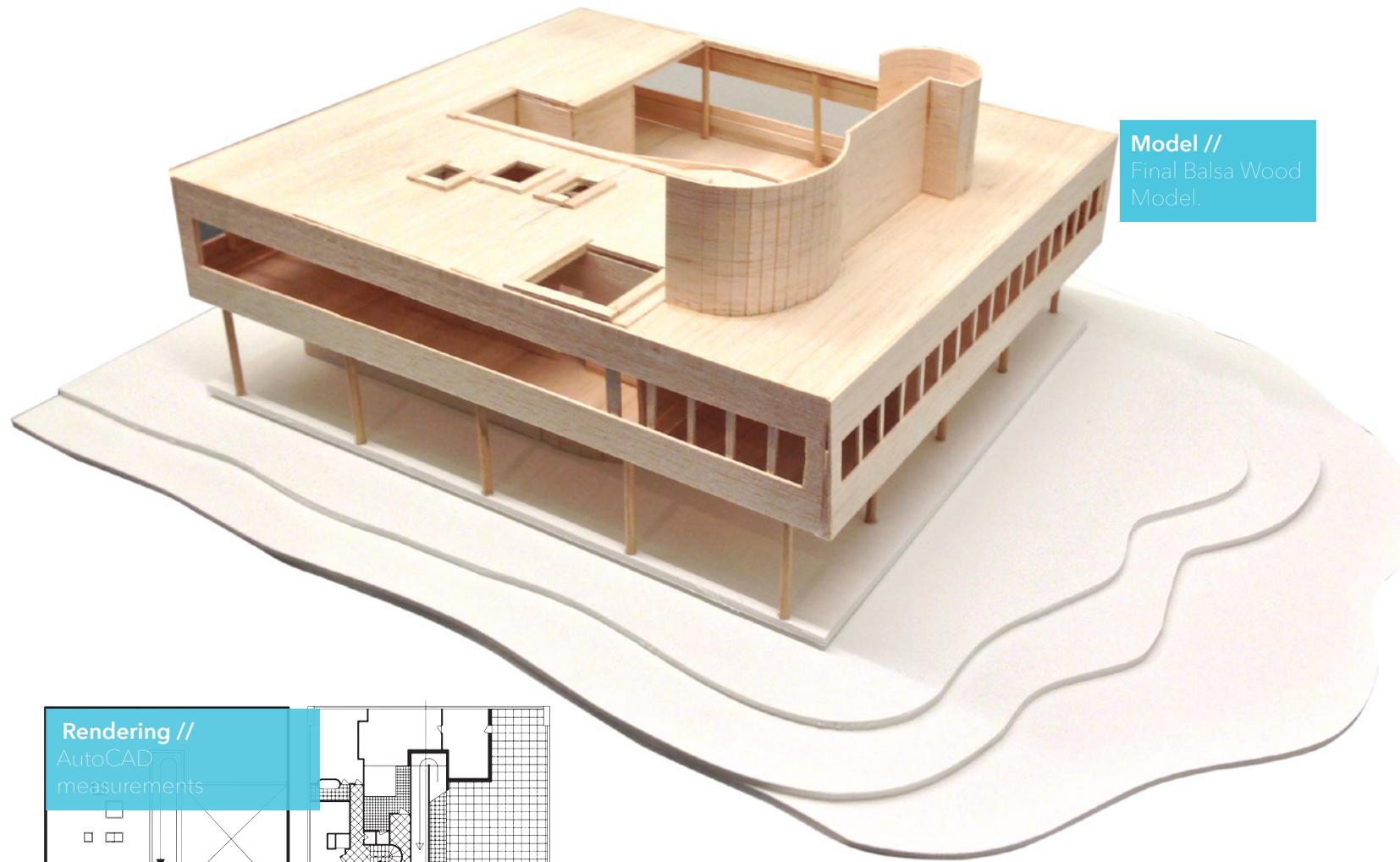


Final Design //

An open frame with exposed hardware and two-tone wood shows exactly how the two chairs interlock.



Villa Savoye



Model //
Final Balsa Wood Model.



Rendering //
AutoCAD measurements

Proposal //

Map out and build a perfect 1/100th scale model of a personal favorite piece of architecture.

Research //

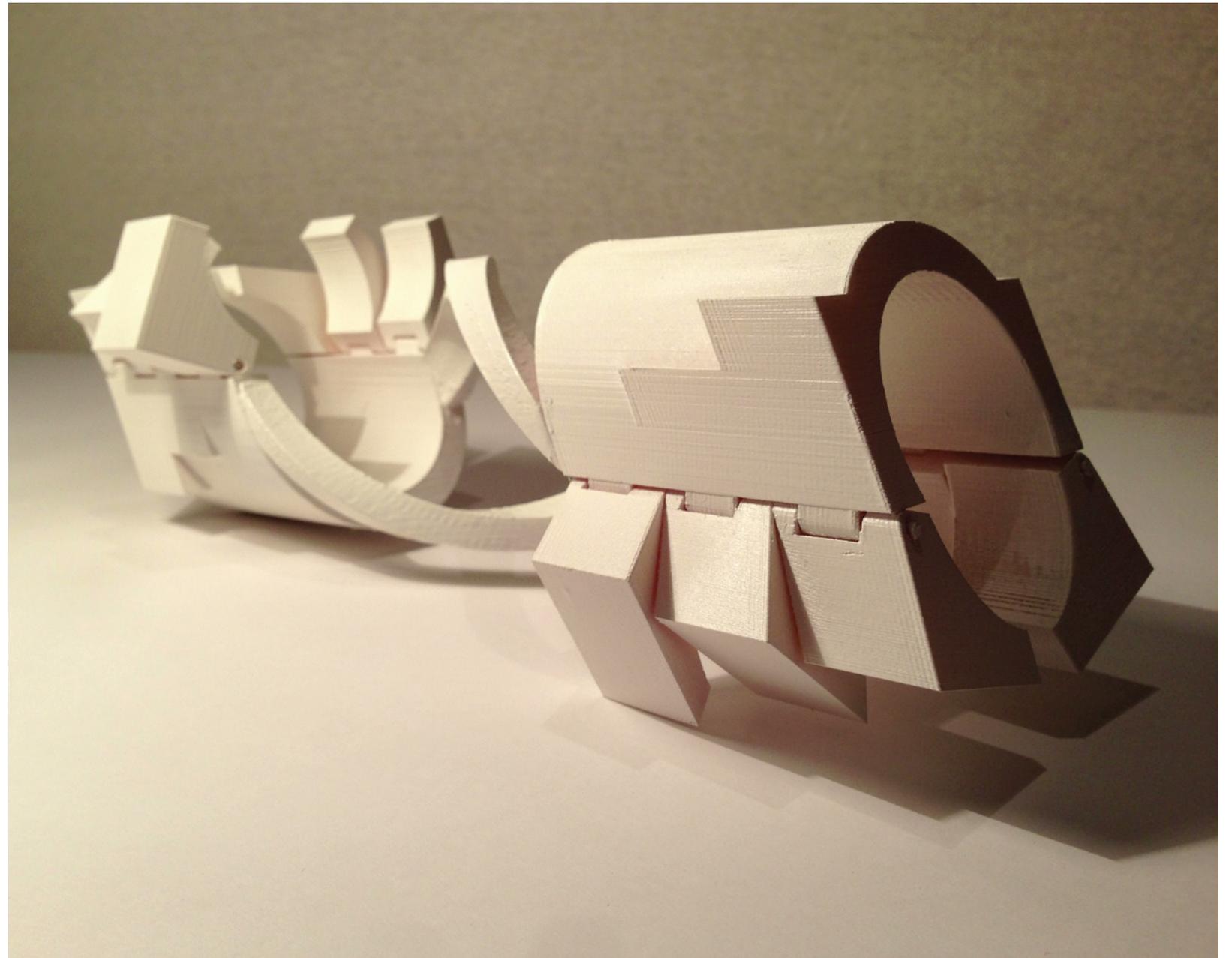
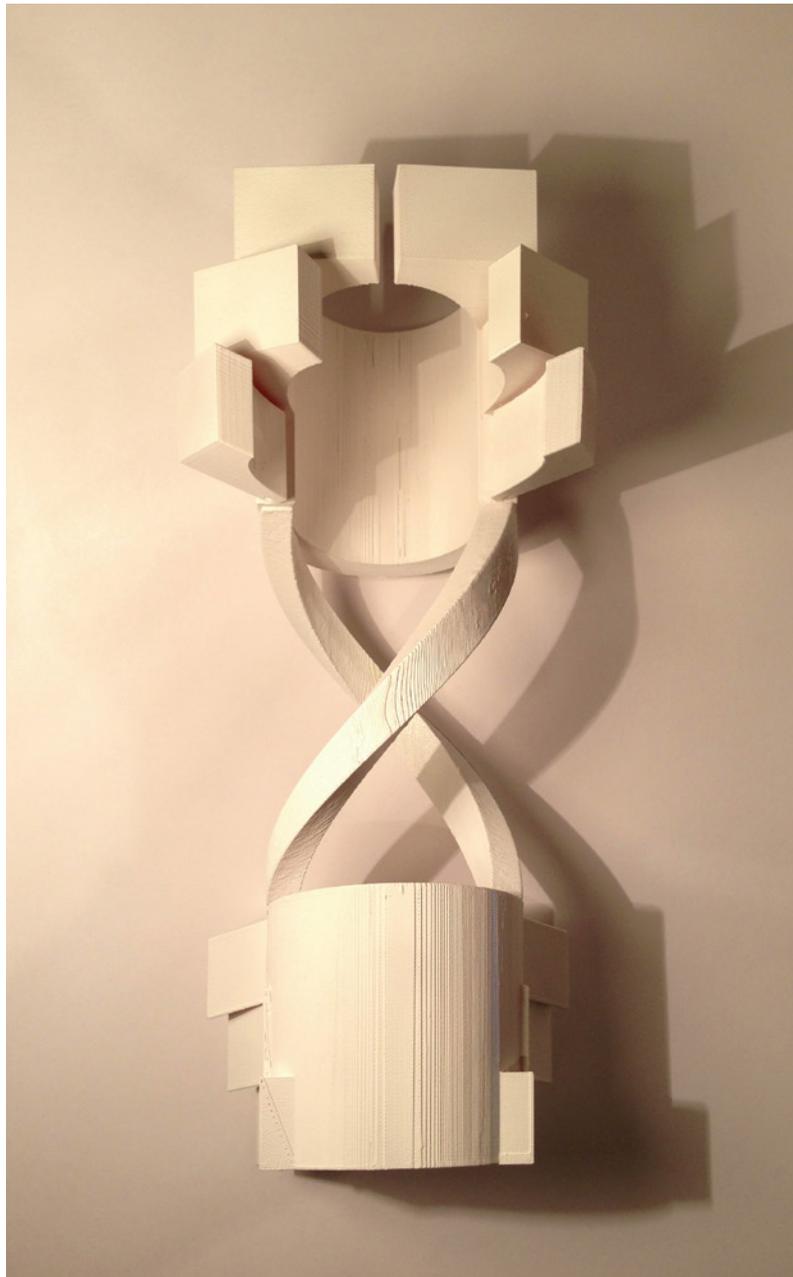
Le Corbusier, for me and a lot of other designers, is a personal favorite. Not only was he an incredible designer, but a groundbreaking architect. I've always enjoyed his work, so when this assignment arose, it was a natural choice to pick Villa Savoye.

Process //

Upon finding plans for the house, I modeled out a simple AutoCAD floor plan, dividing the measurements down to 1/100th scale. I then cutout a template for the larger parts of the house, and used the plans as a guide for the smaller. As my construction material, I chose to use balsa wood. It is a very thin, easily cut wood, specifically made for model making. I also chose this material because it provided the desired aesthetic. The model was then placed onto 3 separate levels of foam-core as a base.



MTA Cleaning Robot



Final Model Prototype ■ ABS 3D Print



MTA Cleaning Robot

Product Design • High Tech - High Touch //

High technology design that utilizes emerging technologies was the basis of this project. While this product was primarily from the imagination, it had to be “possible” within the next decade. The end goal being high tech and high touch that evokes a reaction through technology.

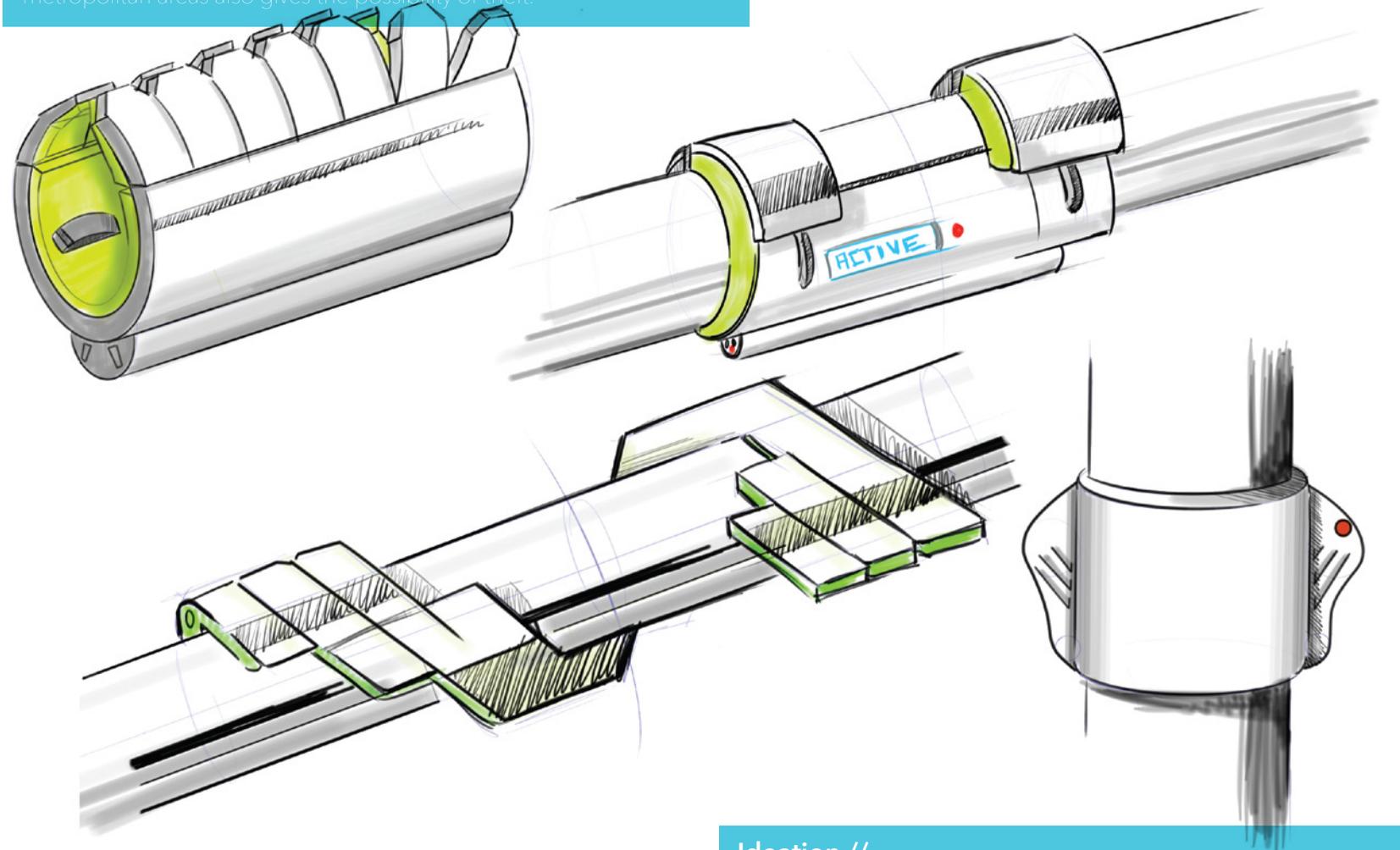
The Idea & Process //

Being on the subway daily can be a daunting task. Not only are navigation, train line closures and over-crowding all daily problems, but there is a silent threat in germs and infection. Any city dweller with access to public transit understands you often have no choice but to touch surfaces that others have touched over and over. Think about it, how many handrails, door handles and buttons do you touch in one day?

My inspiration came directly from the NYC Subway System. The MTA is a beautiful thing, but at times cleanliness can be less than desired. Introducing the MTAnimal. This self-docking automated subway hand-rail cleaning robot utilizes ultraviolet light technology coupled with textured cleaning pads to solve the issue of left behind dirt and grime.

Problem Identity //

Creating a robot that can maneuver around perpendicular pole joints while maintaining motion and a good grip. Having high technology in metropolitan areas also gives the possibility of theft.



Ideation //

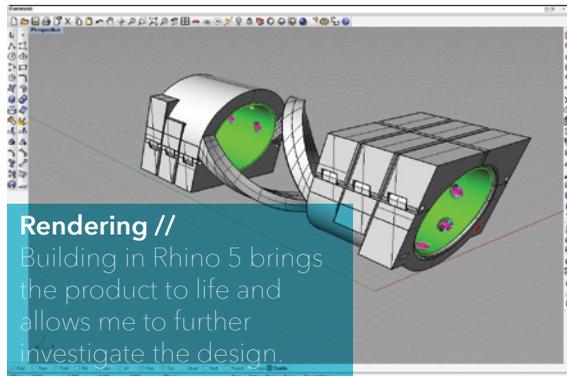
Four main designs were realized after analyzing basic thumbnail sketches, .



MTA Cleaning Robot

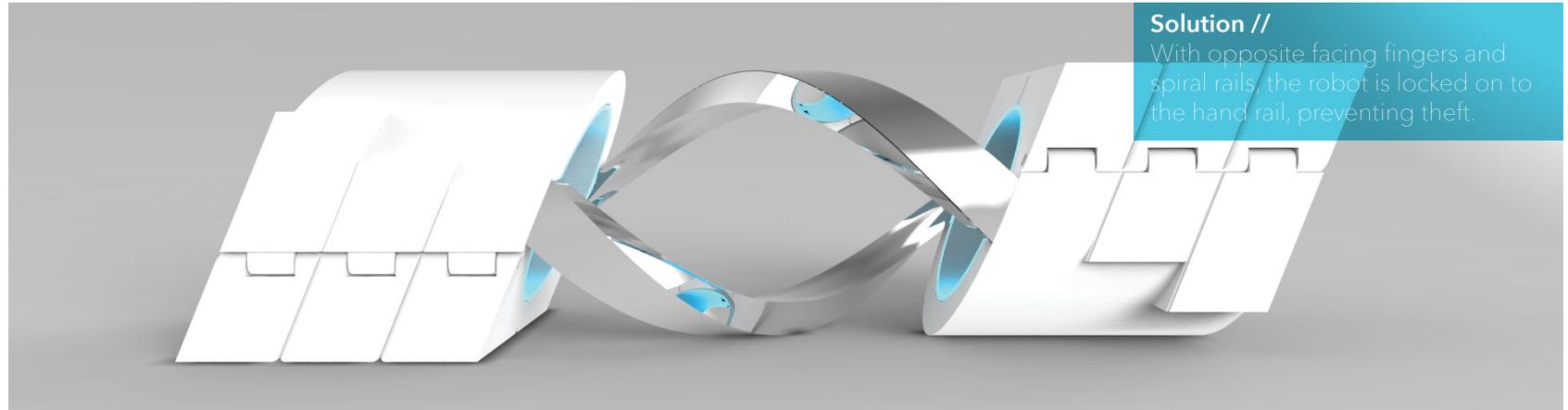
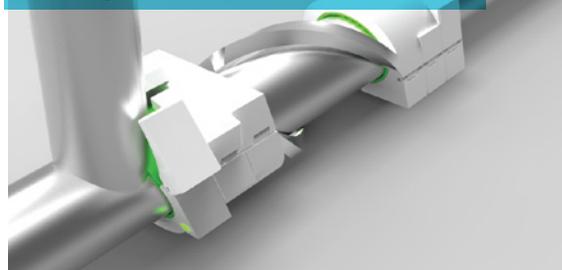


Problem //
To design a robot that can maneuver around perpendicular pole joints.



Rendering //
Building in Rhino 5 brings the product to life and allows me to further investigate the design.

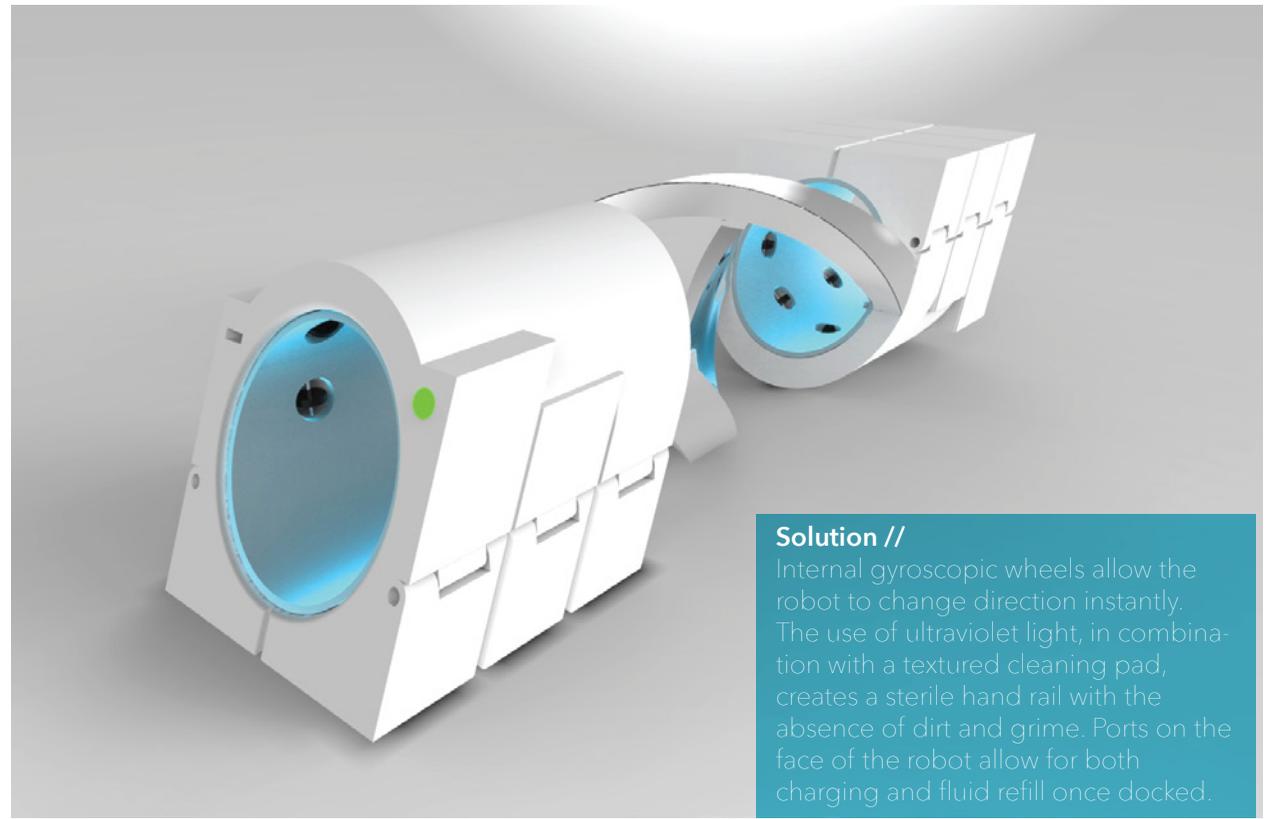
Solution //
Mechanical "fingers" open and close allowing the robot to pass by the joint.



Solution //
With opposite facing fingers and spiral rails, the robot is locked on to the hand rail, preventing theft.



Spiral rails allow the unit to spin around a joint, enabling the robot to pass through it effortlessly.



Solution //
Internal gyrosopic wheels allow the robot to change direction instantly. The use of ultraviolet light, in combination with a textured cleaning pad, creates a sterile hand rail with the absence of dirt and grime. Ports on the face of the robot allow for both charging and fluid refill once docked.



Pampers Package Design

Problem //

An outdated, inconvenient package design that needs updating for contemporary design-conscious parents.



Ideation //

Initial sketches of bottle designs.



Process //

Clay model for Vacu-form positive.



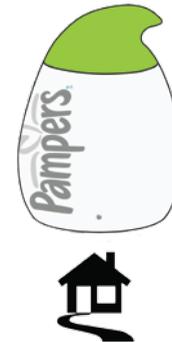
Prototyping //

I created a vacuum-form using styrene, which was then sealed, sanded and painted. The prototype was used for ergonomic analysis.



Home //

Main container for the home. This is part one of a two part modular unit, all of which combine to make a third travel option.



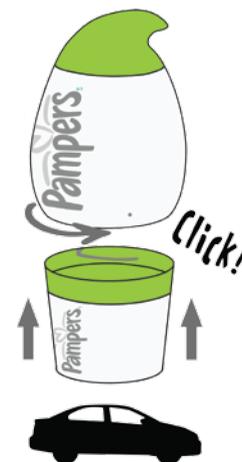
Travel //

Travel container which would be FAA rated. Compact and easy to throw in any bag. This is part 2 of a 3 part system.



Car //

The home and travel containers combine for this mobile unit. The top of the travel lid screws into a small track on the bottom of the home container. This creates a third option as an accessible car version that fits in any car's cup-holder for ease of access.



Packaging //

This assignment sent me to a grocery store to find examples of badly designed packaging. I then had to revive the package and brand with a new display.

The Idea & Process //

I chose baby wipes because of a package design that not only created a deterioration of the product within, but also user error. Aesthetically, the original was dull, boring, and outdated. In addition, after interviewing parents, I found the dispenser had many flaws not initially detected by package design alone. The form factor of the container was clunky and ergonomically unfriendly, which made it very difficult to travel with. Parents complained about lack of accessibility when traveling in a car.

After research and numerous sketches, I proceeded with an ergonomic, environmentally friendly, modular design. This design would incorporate 2 separate bottles, one for travel, and one for daily use. These could combine to create an automobile travel kit that would allow parents to have ease of access while held in a cup-holder during emergencies in the car.



Volkswagen Key Fob

Proposal //

I was tasked with redesigning the key-less entry unit on any modern car brand that I personally appreciated aesthetically. The goal was to fit the "look" of not only the car, but the manufacturer's identity. Once complete, I had to 3D print the remote, add a finish and assemble. It also had to either have aligned screw holes and bosses, or snap fit together.

Research //

I have always appreciated the aesthetic of the VW brand. I own a Jetta Sportwagen TDI, so VW was the most logical choice. I examined the key-less entry unit (or key fob) extensively and came to the conclusion that it was outdated and the design had remained the same for nearly 10 years.

Process //

I examined the angles and contour lines of the TDI. I sketched out very basic shapes with a photo of the car as my underlay. From there, I sketched more than 20 key fobs. I tested several different manufacturer's keys and investigated users' likes and dis-likes. The main complaint was user error concerning the panic button. Once accidentally pressed, it is very hard to stop. After completing my research, my final design is an ergonomic, contemporary key that any Volkswagen owner would appreciate. It features four main buttons (instead of three), a recessed panic switch and a brushed nickel bezel for a modern contrast.



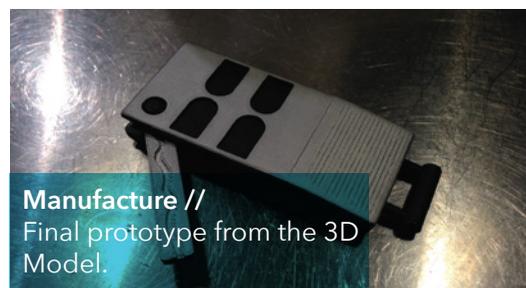
Problem //
An outdated design.



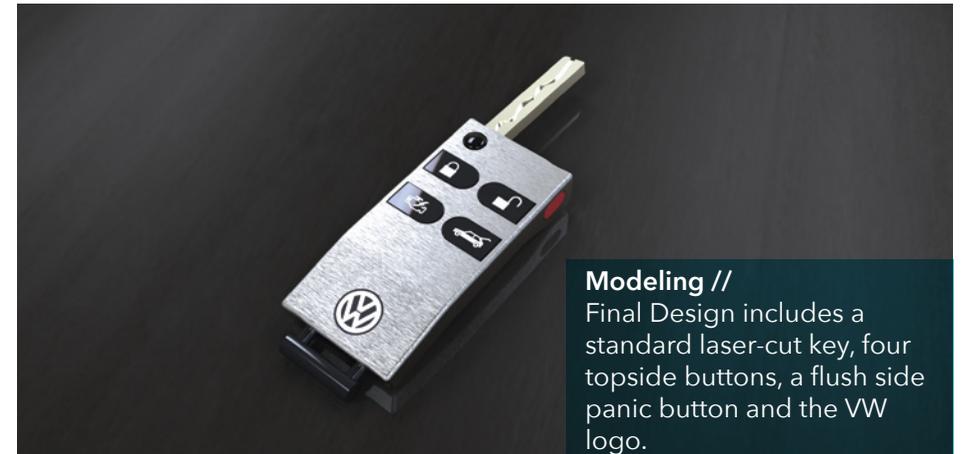
Research //
Original Inspiration - a 2010 VW Sportwagen TDI



Design Matrix //
One of many sketches that led to the final design.



Manufacture //
Final prototype from the 3D Model.



Modeling //
Final Design includes a standard laser-cut key, four topside buttons, a flush side panic button and the VW logo.



Ergonomics //
Not only does the fob feel good in your hand, but it doesn't jab you once in a pocket.

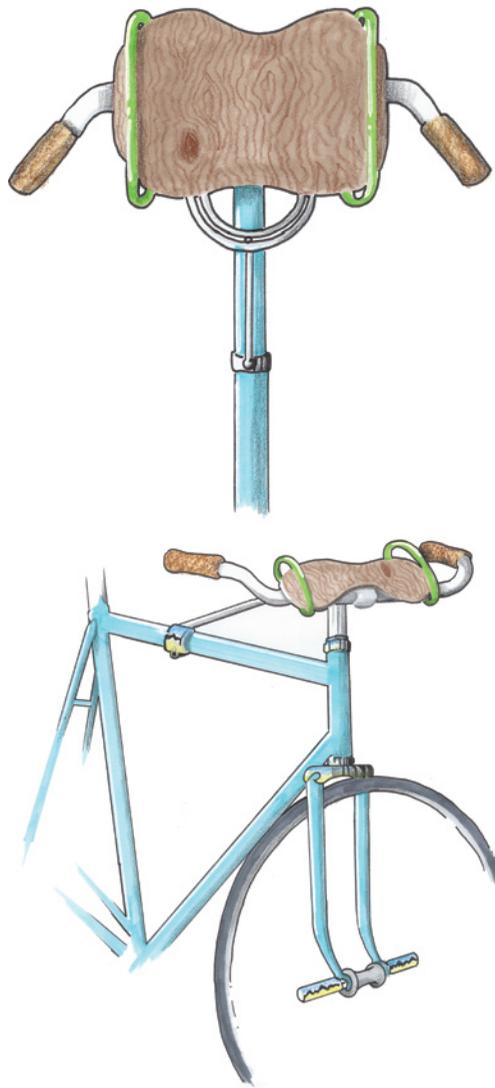


Buddy Seat





Buddy Seat



Low Tech, High Touch //

No batteries, no electronics, no fancy computer-modeled 3D renderings. This is back to basics. Every school kid, of varying ages, ethnicities and household incomes have either given or received a ride on the handlebars of a bicycle once in their lives. For some, this becomes a means of transportation. The Buddy Seat is meant to touch, inspire and bring a sense of nostalgia to both the viewer and user.

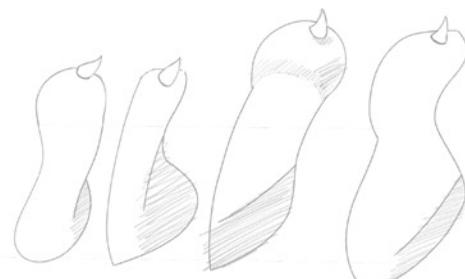
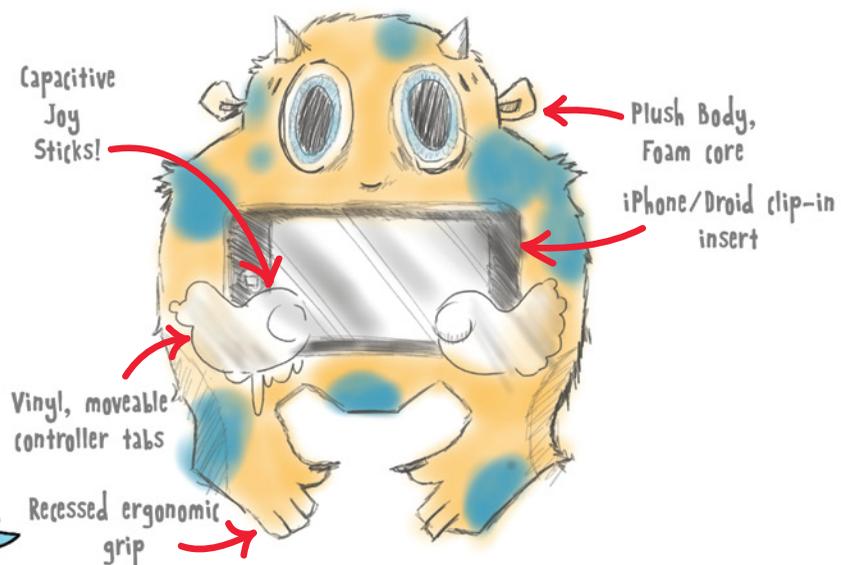
The Story //

A bike messenger, still figuring out his way in life, goes to meet a girl on their first date. He lives in the city, and of course has no money and no car. Riding his bike to the restaurant he's ditched his spandex and cutoffs for a nice pair of jeans and button up shirt. After dinner they decide to take the date elsewhere for a night-closing drink. Approaching his bike, the girl is hesitant about getting on, but he convinces her to take a ride on his handlebars. As they pedal through empty streets filled with broken glass, the sound of her laughter lets him know that not only is she the one, but he has won her over completely. //

Shaped Plywood, Bent and Welded Steel, Machined Bearings



Monster Grip Gaming Accessory



Different three dimensional body shapes

5 Different Monsters Available!

Proposal //

Create a toy based on needs in the market.

Research //

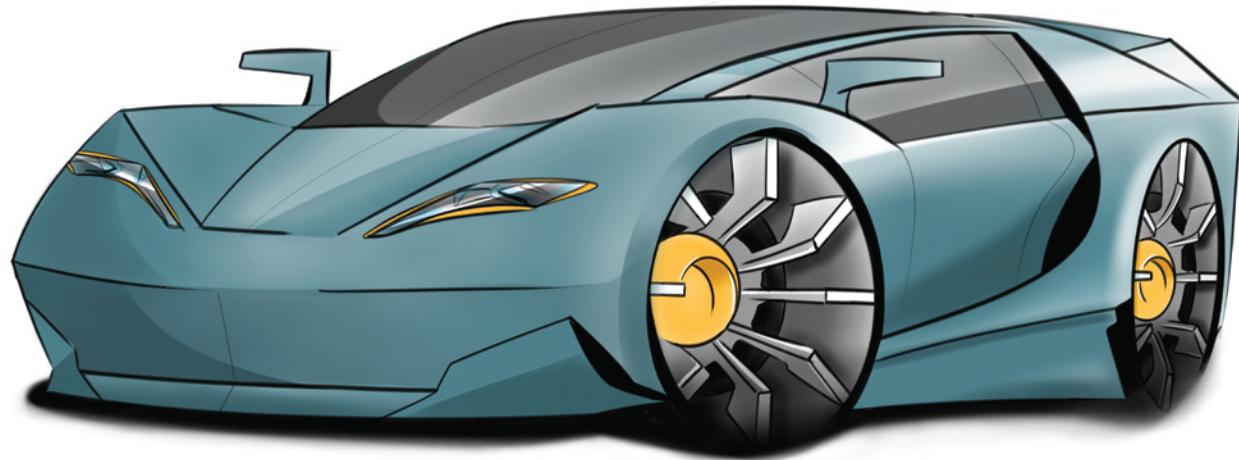
While visiting FAO Schwartz in Manhattan, I examined many different trends. I paid special attention to techy toys, and narrowed my search down to mobile-gaming accessories. I found that most phone and tablet accessories have a very adult feel and are designed to look like something from a sci-fi movie. Sharp edges, glossy hard plastics and poorly designed user interfaces were evident in nearly all designs available. Missing from FAO Schwartz's inventory was a mobile gaming accessory targeted for children.

Monster Grip //

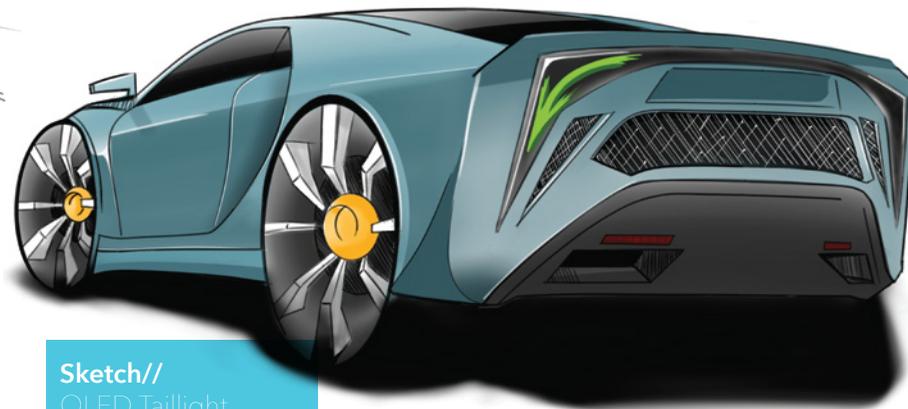
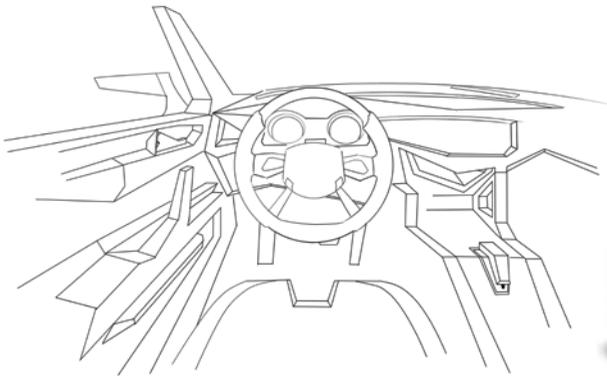
A common mistake that leads to disaster: many parents give children their cell phones as a distraction. I designed a kid friendly gaming accessory that would give parents everywhere relief from cracked iPhone screens. I call it the Monster Grip. This mobile gaming accessory protects the phone with a plush encasement and adds capacitive joysticks to the bottom corners of the screen, creating a "real" game controller feel. The monster's arms become the handles of the controller and the phone case becomes the monster's mouth.



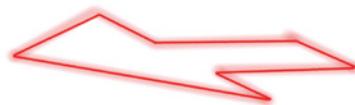
2014 Bizzarrini Manta



Sketch//
Final Design,
hand drawn in SP.



Sketch//
OLED Taillight
shown here with a
laser-based ground
projection



Proposal //

Redesign a vintage automobile using cutting edge technology that could hypothetically be available within the next 5 years.

Research //

Originally conceived by Ital-Design, the Bizzarrini Manta was far ahead of its time. It featured a center-seated cock pit with a passenger seat on each side, a design based on a race car. It debuted in 1969, and then virtually disappeared, until now.

Process //

This project focused on design sketching. I wanted to maintain the key physical features of the car while giving the design an updated, futuristic twist.

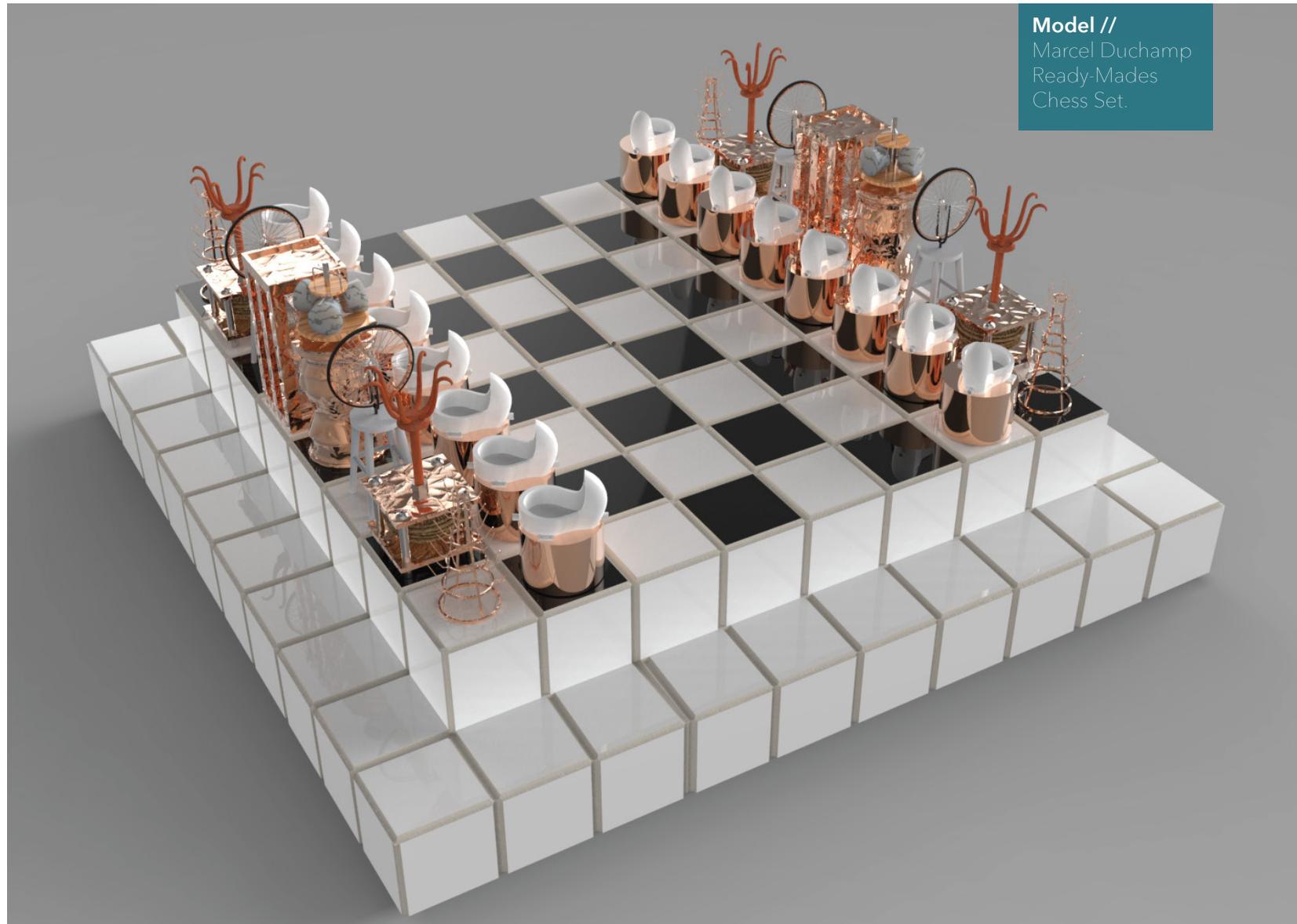
Some of the technology featured is a "Flir" thermo-imaging motion detecting camera that can spot unwanted obstacles (a deer, a child chasing a ball etc...) and update the driver through a holographic head's up display. The use of OLED technology is present in the brake lights, enabling the car to vary brake light and turn signal graphics. The final design is an updated version of the infamous "Ital-design" Bizzarrini Manta and encompasses cutting edge real life-based technology.

Inspiration//
The Original 1969
Bizzarrini Manta.





Duchamp Chess Set



Proposal //

Build a chess board based on an artist you admire. The chess pieces must resemble his works either in the literal sense or from an abstract viewpoint.

Research //

Marcel Duchamp has always been my favorite fine artist. When I was young, punk rock opened doors for me and shortly after so did DADA. Of course I realized they were one in the same, but something about Duchamp gave me goosebumps. He was also infatuated with chess, which I find a bit ironic. His Ready-Mades were ideal and "The Fountain" makes for a perfect pawn.

Process //

I researched and sketched his Ready-Mades, taking trips back and forth the Philadelphia Museum of Art. At the time Rhino was very new to me, and I am still proud of what I accomplished in only my second quarter of computer modeling.



Task Lamp

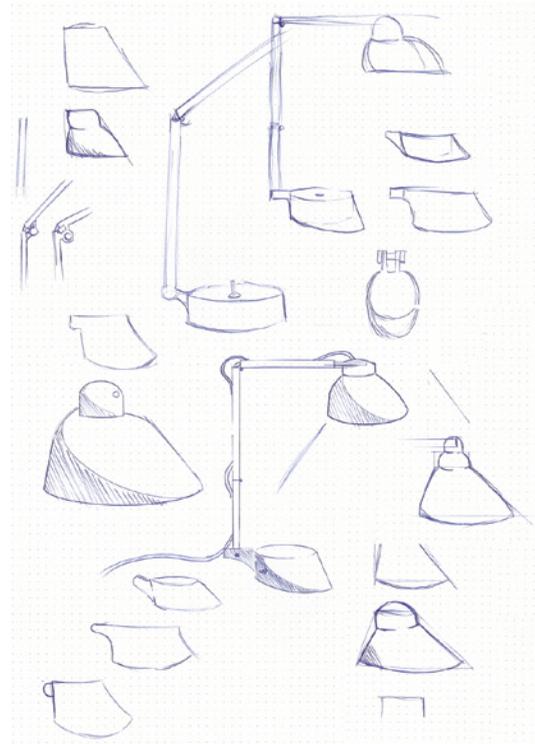
Proposal //

Create a task lamp that is both efficient concerning work flow and aesthetically pleasing in a design view. The arms should adjust with ease and the head should stay in place when moved. Good design always takes our planet into account during the manufacturing process and when choosing materials.

Problem and Exploration //

Revisiting past experiences, I recalled situations when I was both inspired and frustrated by something as simple as a task lamp.

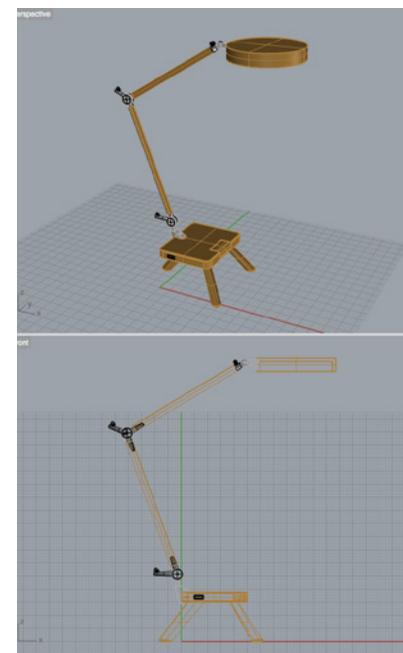
Inspiration came from fluid moving parts and seamless design, where form follows function. Older lamps with the "industrial chic" look lead me to invent a history, or the story that is hidden behind them. My imagination sparked everything from a factory machinist shaping metal to a creative professional burning the midnight oil to perfect a final design. Frustration came from task lamps that are poorly designed and lead to user error and frustration. A well designed lamp can eliminate most user error like tipping and the need to use more than one hand for adjustment.



Thumbnails //
An example from my sketchbook

Final Design //

My final design includes: a base made from plantation grown teak and a USB port for device charging, recycled aluminum and steel hardware, lead-free PVC wiring, LED (low heat/energy) light bulbs and an internal balanced arm.





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Thank you.