

emmanuel
CARRILLO

education

University of Cincinnati, OH
College of Design, Architecture, Art, and Planning
B.S. Industrial Design, Expected Graduation 2012
GAP: 3.7/4.0 [Deans List]

Dr. John Horn High School: Dallas, TX
Graduated with Honors May 2007
GAP: 3.8/4.0

experience

(ELEVEN): Boston, MA | Winter 2011
Design intern. Worked on all aspect of the design process. From initial ideation to final CAD creation. Client work included Reebok, Under Armour, P&G, and EuroPro.

Priority Designs: Columbus, OH | Spring 2011
Design intern. Worked with designers and engineers in a fast paced design consultancy. Supported multiple client projects at all stages of the design process from initial brainstorming/ideation to CAD content creation.

K-Swiss: Los Angeles, CA | Winter 2010
Design Intern. Designed performance and lifestyle footwear under a specific brand identity. Completed sketches, renderings, tech packages, blueprints, and revisions. Developed shoes from initial sketches to photo samples.

Dick's Sporting Goods: Pittsburgh, PA | Spring 2010
Design intern in the Hard-Lines department. Responsible for ideation and concept development for sporting goods and consumer products. Developed products for Slazenger Tennis and Umbro Soccer.

Fisher-Price, Inc.: Buffalo, NY | Spring & Winter 2009
Design intern in the Baby Gear department, was responsible for developing a new low cost booster. I was responsible for presenting my work at weekly meetings and worked directly with the Marketing, Packaging and Engineering departments.

organization & awards

IDSA Student Chapter:
Prsedent of UC's student chapter

Student Merit Award:
Mid-East district student merit award winner.

skills

Adobe Creative Suite; Solid works; HTML & CS2; Maxwell;
Keys hot; Time Travel; Physical Prototyping; Thermoforming;
Engine Lathe; Basic Shop Tools; Proficient in Spanish.

interests

Can solve a Rubik's cube in under a minute.
Playing and watching soccer. Vamos Barca.
Self proclaimed burger and sweet tea aficionado.
Riding and building bicycles.
DIY and Hacker culture



CAN WE GET MORE PEOPLE
TO **COMMUTE** TO WORK?



TEN WEEKS AND SIX TEAM MEMBERS

This was a group based project. Due to the scale of this project we were split up into groups at the beginning of the quarter. The group of 6 was the largest in the class and while it did present some challenges, it also let us work more efficiently. We were able to push the final design to the next level, as each group member was able to bring in a bit of their expertise into the final product.

WHAT EXACTLY IS AN E-BIKE?

Thanks to the class sponsor FUJI, the studio was given six electric bicycles to ride and benchmark. These were great as they gave us first hand experience with electric bicycles. This allowed us experience first hand what it was like to use an electric bicycle on a daily basis.



1. BATTERY PACK

Provides the power for everything. Typical range is 10 miles per charge. This is the most costly of the components.



2. CONTROLLER

This is the brain behind the entire system. Every component is wired and connected to the controller.



3. USER CONTROLS

Power, Throttle, and brakes all easily within reach. Display shows battery life, mileage and the current time.



4. ELECTRIC HUB

The "motor" of the system. This can be rear or front wheel drive. These range in power from 250w to 500w

DIVE INTO OUR RESEARCH

[HTTP://EMMANUELCARRILLO.COM/BIKE_RESEARCH.PDF](http://EMMANUELCARRILLO.COM/BIKE_RESEARCH.PDF)

This is just a quick overview of our research phase. If you'd like to look deeper into this step of the process. You can download a PDF of the complete research online.



PHYSICAL ERGONOMICS

A poorly fit bicycle makes a cyclist more vulnerable to rear motion injuries and bicycle-related pain, particularly in the motion and neck.

The rider contacts the bicycle at three points: the seat, the handlebars, and the pedals. In the most basic sense, making a bicycle fit involves adjusting these points in relation to each other. A cyclist's weight is divided between the seat and the handlebars.

BICYCLING IMPROVES YOUR HEALTH

New bicycle commuters can expect to lose 15 pounds their first year of bicycle commuting.

Behind tobacco, leading cause of death among adults: sedentary lifestyle.

Number one strategy for reducing inactive-related diseases: shifting from auto trips to walking and bicycling.

BICYCLING MAKES FINANCIAL SENSE

Per mile, a 10-foot wide bike path costs about 9% as much as a 10-foot wide road to construct.

Including cost of repairs, insurance, etc. **Trimming one vehicle from your household saves you \$240/month.**

If you were to commute just 5 miles to work by bicycle, in one month you would have:

216
MILES RIDDEN

10,152
CALORIES BURNED

32.40
GAS MONEY SAVED

210
LBS OF CO2 REDUCED

BICYCLING MAKES ENVIRONMENTAL SENSE

Air pollution fatalities internationally now exceed traffic fatalities by 3 to 1.

It is estimated that 70% of the emissions in a 7-mile trip are generated in the first mile, before the engine warms up. Switching to a bicycle for these short trips, would greatly reduce CO2 emissions.

BENEFITS OF CYCLING

HELMETS SAVE LIVES

Head injuries accounted for 34.6 percent of bicycle fatalities.

Ninety-nine percent of bicyclists killed in 2008 reportedly weren't wearing helmets.

Helmets use among those bicyclists with serious injuries was 13%.



MIRRORS MAKE YOU A SAFER CYCLIST

When changing lanes in heavy traffic conditions, knowledge of traffic conditions to the rear is usually essential.

Using mirrors allows the cyclist turn his head only to 20 degrees and experience no blindspots.

Mirrors empower cyclist and make them feel less vulnerable.

TOP TUBE LENGTH

The top tube length is responsible for how upright the rider sits on the bike.

RAKE

The rake determines the handling and stability of the bike at different speeds.

HEADTUBE

which also raises the head tube length and angle, plays a big role in steering and stability.

CHAINSTAY LENGTH

The length of the chainstay which plays a role in the bicycle's acceleration and its responsiveness.

WHEELBASE

Wheelbase plays a role in a bike's steering and stability.

WHEEL SIZE

Wheel size affects the bike's ability to maintain speed.



PHYSICAL ERGONOMICS

AVG. BICYCLE COST

\$ = 500,500,000

EST. CONSUMERS LOSS

ANTI-THEFT PRACTICES

Increased knowledge of appropriate ways to lock a bicycle is the best way to decrease the number of bikes stolen per year. With a traditional "D" lock there are 180 possible locking configurations on a standard lock of which 30 are considered good or received. Informing consumers of how to secure their bikes and providing them with the proper gear is the first step in decreasing theft.

WORST THEFT CITIES

1. Philadelphia, PA
2. Chicago, IL
3. New York City, NY
4. San Francisco, CA
5. Tucson, AZ (tie)
6. Portland, OR (tie)
7. Denver, CO
8. New Haven, CT
9. Cambridge, MA
10. Austin, TX

SAFETY ON THE BIKE

When changing lanes or functions, always use mirrors, flashing messages, etc.)

"Yellow" = caution "Green" = Go)

Visual ergonomics: levels of intensity per screen

VISUAL ERGONOMICS

WHAT WE LEARNED FROM OUR RESEARCH



WEEKEND WARRIOR

"An electric bike should be different. It should look different. Kind of like the hybrid car. No one seemed to care about them until the Prius came out because it looked so different. I think an electric bike should be the same. It shouldn't just look like a normal bike. Someone should be able to say hey that's different."



COMMUTER

"I like to take my time when I ride. To me it's about the healthy lifestyle and having some fun. I wouldn't want an electric bike to get rid of that experience, that feeling. But I think that I might like it for commuting. Some of the hills around here are massive and its part of the reason I don't consider commuting to work."

DESIGN REQUIREMENTS



RECREATIONAL RIDER

"I don't mind the workout, I just already fit that into my schedule. It's more of a time inconvenience to me. I don't want to have to get up earlier, make sure the bike is in working condition, worrying about the riding conditions all just to get to work. I rather enjoy rolling out of bed and being there in 15 minutes."



Make the rider visible to motorists

Not only do lights make you visible to motorists they also let you see potholes and gravel. Cyclists are nearly four times more likely to be injured riding in non-daylight hours than during the daytime.



Keep the rider clean

Riders still need to be presentable for work after commuting. Sweat, dirt, and puddles are all problems commuters encounter.



Allow the rider to easily carry cargo

During the summer many consider a cargo rack in order to reduce sweat between the bag and back.



Keep it maintenance free and durable

Commuters want a reliable bike that requires very little up keep. Nothing ruins a commute quicker than unexpected bike problems.

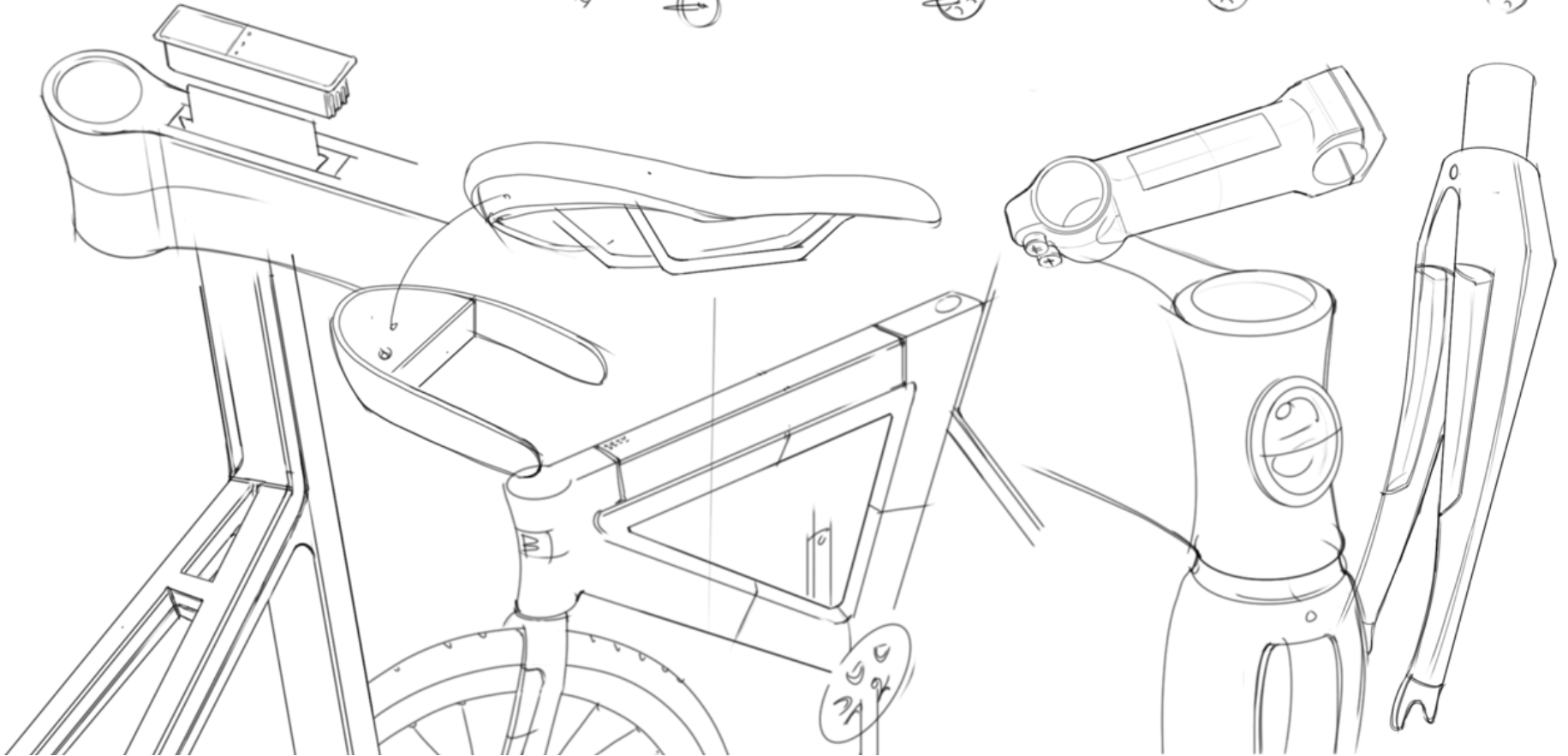
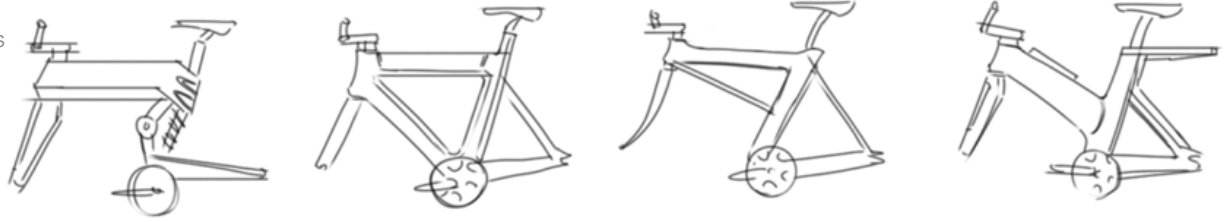


Keep the rider comfortable

The rider contacts the bicycle at three points: the seat, the handlebars, and the pedals. Attention to these areas will make the ride much more enjoyable.

A GLIMPSE INTO MY SKETCHBOOK

This sketch phase focused on generating ideas and concepts that would believe would bring out the potential value of an electric bicycle. Our group then took everyone individual ideas and crafted three directions around them.



REFINING DESIGNS

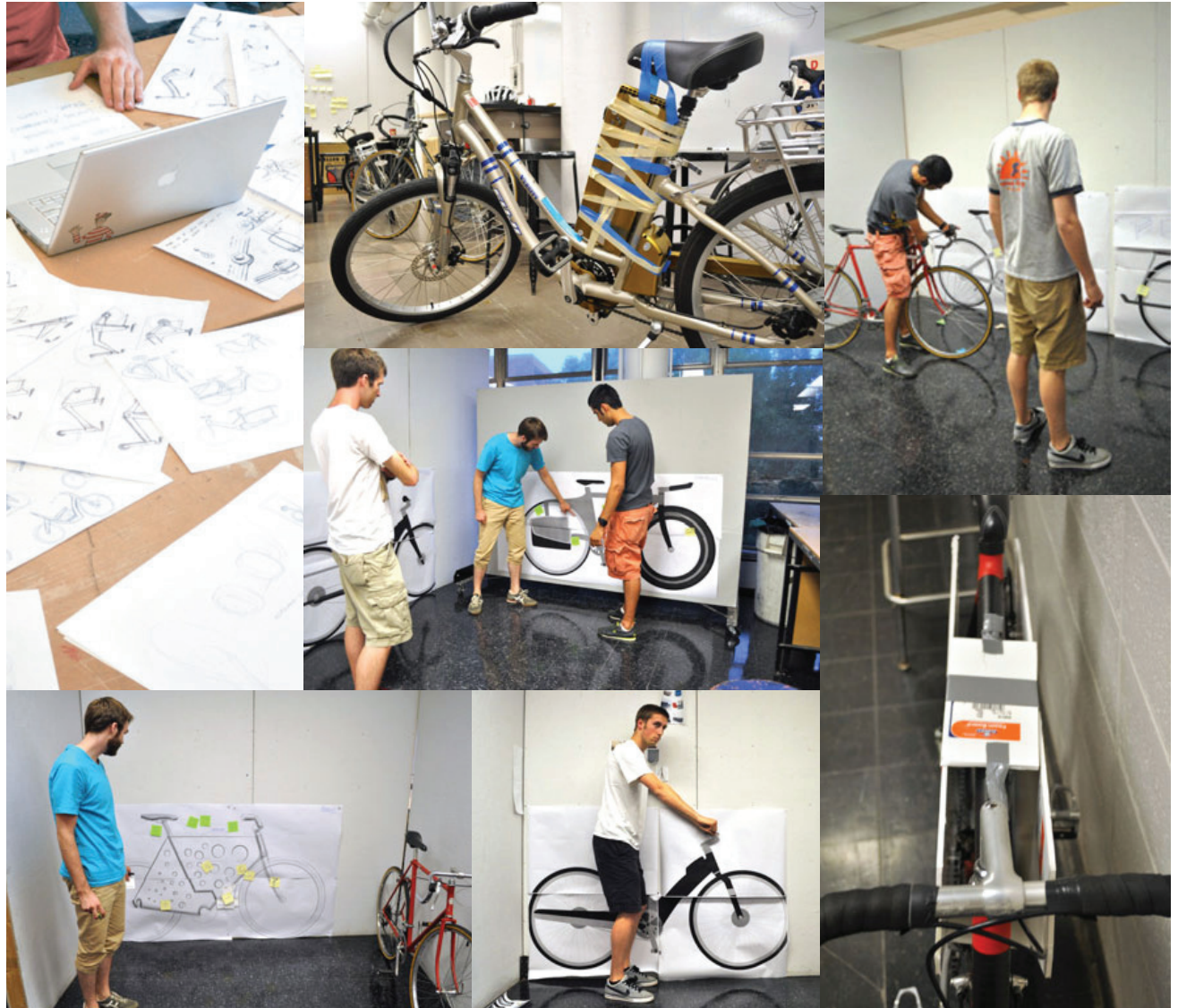
Sketching concepts was our main form of design communication. As a group we would take the three final concepts and sit down to sketch out the details, changes, and any other modifications we were looking to make along the way. We also took this opportunity to redraw concepts that our validators were having trouble understanding.

SKETCH MODELS

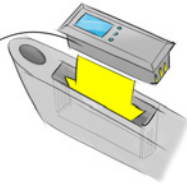
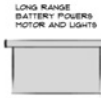
For some of the concepts, merely sketching was not allowing us to fully explore the concept. At that point we decided to make sketch models. We would use materials like foam core to construct crude models of our designs. This allowed us to view ideas full scale and also get a bit more hands on with our design process.

FULL SCALE PLOTS

One of the most important processes we did during the project was periodically take our sketches and plot them full scale. We are able to assess spacing, tube sizes, and every little detail. Having a drawing full scale points out flaws that someone might not catch otherwise.

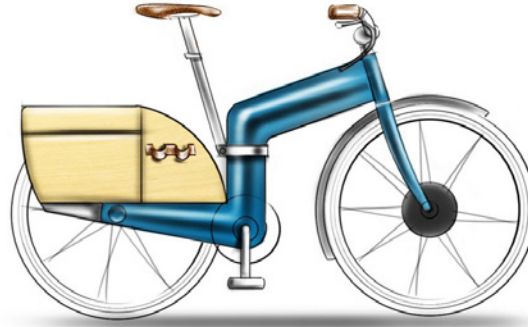


FINAL GROUP CONCEPTS



1. MODULAR SYSTEM

- + Integrated lights
- + Rear lights are a nice aesthetic
- + Modular System
- + Turn signals imply that this is a vehicle
- Visual Weight
- Masculine
- Battery Size
- Storage Space



2. GROCERY GETTER

- + Frame shape is highly appealing
- + Internal battery/controller
- + Storage possibilities
- + Integrated racks
- Weight of rack
- Lack of lights
- Length of bike
- Strength of frame



3. BUILT IN SECURITY

- + Messenger bag
- + Integrated Lights
- + Unique Lock Concept
- + Branding/color possibilities
- Lock mechanism is limiting
- Bag's size is small
- Standing over the top tubes
- Rear lights less visible



 **BOROUGH**
BICYCLES

STORAGE:

ALWAYS HAVE A REPAIR KIT WITH YOU

There is a storage box built into the top tube. This is a perfect place to keep a multi-tool, spare tube, and all your small personal belongings.



LIGHTS:

SEE AND BE SEEN

Brake lights give the rider more presence on the road. Lights in the front fork also make the rider more visible to oncoming traffic as well as allow the rider see the road better.



BATTERY:

BETTER WEIGHT DISTRIBUTION

Placing the battery directly under the rider, lowers the bike's center of gravity and allows the bike to respond quicker. This translates to a smoother ride as the rider does not have to wrestle around a top-heavy bike.



FRAME:

CARRY THE BIKE EASILY

When you remove the battery, the frame can easily rest on your shoulder. This makes it easier to carry your bike up stairs in case you should need to.



OR



MODULAR:

ELECTRIC OR NOT.

Easily change out the motorized front wheel for a standard wheel and have a traditional bicycle for those days that you do not want the electric assist.



SECURITY:

ALWAYS HAVE A LOCK WITH YOU

are more secure than cable locks. However, they are a big hassle to carry around. The lock easily stores into the rack so that it's always there when you need it.

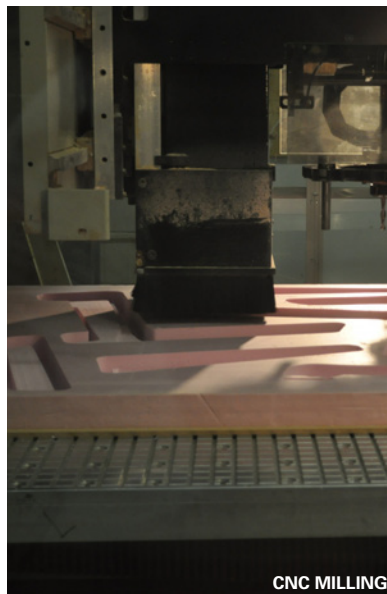
BUILDING THE PROTOTYPE

Lots of lessons were learned during this phase: Fiberglassing is not as easy as it sounds. Always build your own paint jig. Bondo will fix anything and everything takes twice as long as you initially plan for.

BUILDING FRAME JIG



DON'T LOOK AT THE LIGHT



CNC MILLING



HAZMAT SUITS!



FIBERGLASSING FAIL



LET'S FIX IT WITH BONDO



SWEET PAINTING JIG



FINISHING TOUCHES



FULLY RIDEABLE PROTOTYPE

At the end of this entire process we had a fully rideable bike with working lights. If you are interested in looking at our project a bit more in depth, feel free to download our process book.

[HTTP://EMMANUEL Carrillo.COM/BIKE_PROCESS.PDF](http://emmanuelcarrillo.com/bike_process.pdf)



HOW DO YOU BRING AN **ANALOG**
ICON INTO THE **DIGITAL AGE?**



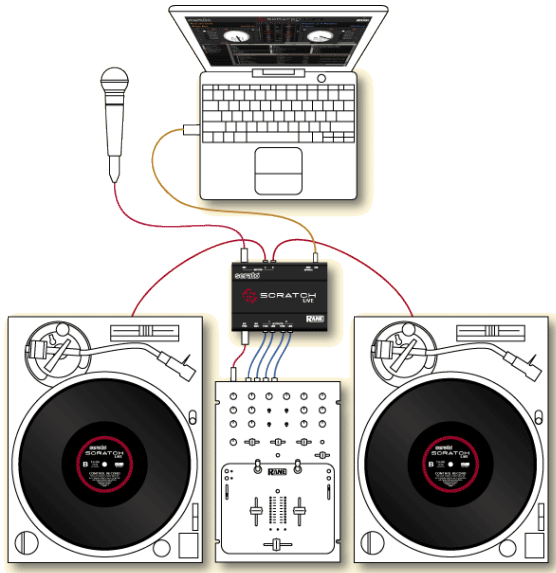
THERE IS A FORMAT WAR WITHIN THE DJ COMMUNITY

VINYL VS. DIGITAL



THEY EACH HAVE THEIR DISADVANTAGES.

Vinyl systems are bulky and Digital controllers feel like toys.



WHAT IF WE COMBINED THE BEST OF BOTH FORMATS?



+



INTRODUCING THE PIONEER REVOLUTION



DESIGNED FOR THE TRAVELING DJ.

BUILT IN ARMOR

The entire system folds compact to minimize potential damage when transferring between venues. The rigid construction reduces the need for additional travel cases.



ALWAYS HAVE A STABLE PLATFORM

DETACHABLE LEGS

Detachable legs allows the user to set up the system even when there is not a stable table provided.

FULLY ADJUSTABLE

Legs are fully adjustable in order to accommodate a wide range of users and mixing styles.



INPUTS AND OUTPUTS

ANY DIGITAL MEDIA

The memory bays accept most major forms of digital media. This allows you to easily update your music library and even play music provided by your guest.



SOUNDS QUALITY MATTERS

Supports all outputs of a traditional mixer, including master audio outputs, booth outputs as well as headphones.



SPEAKERS COMPLETE THE SYSTEM

MATCHING STUDIO MONITORS

These speakers are not only designed to match the aesthetic language of the Revolution system. They also pack a serious punch with their 8" Neodymium Woofer and 4" compression drive tweeter.

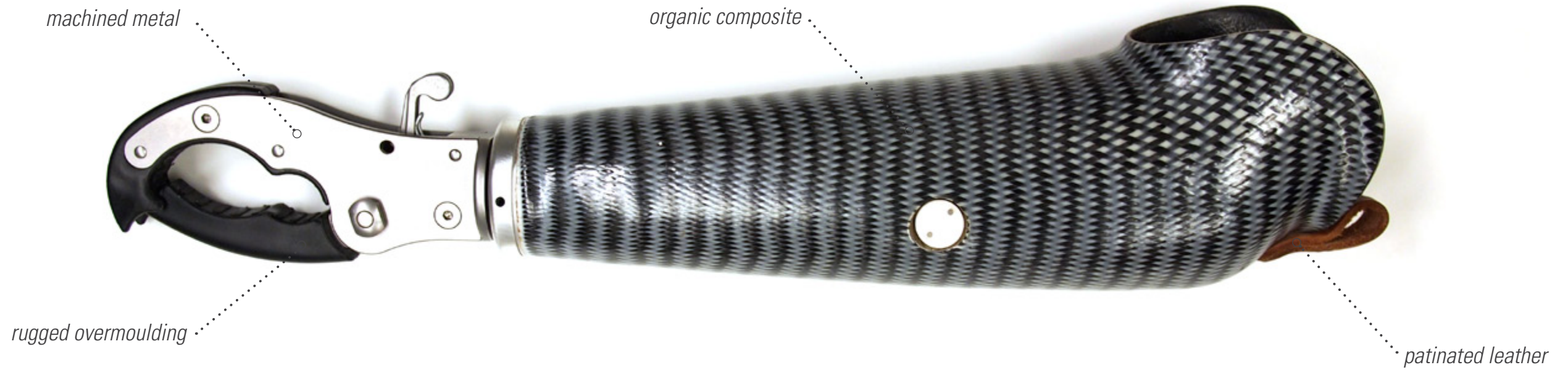




DESIGN A **CHAIR** THAT HAS AN **EMOTIONAL CONNECTION** AT THE ROOT OF ITS DESIGN.

THIS IS MY PERSONAL PROSTHETIC

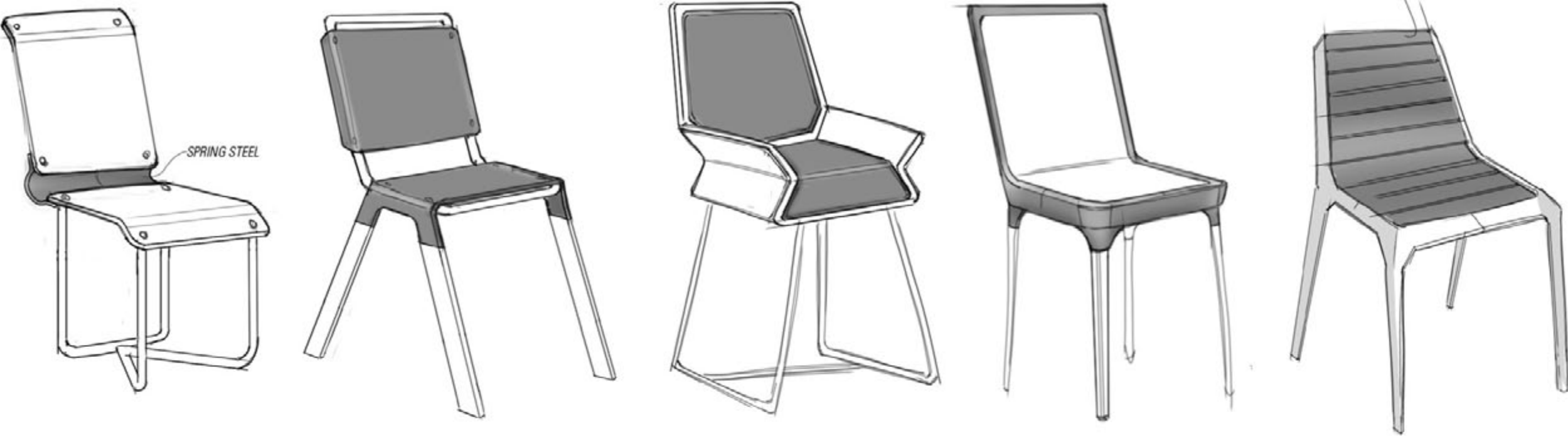
WHAT MATERIAL AND FORM INSPIRATION CAN I GATHER FROM IT?



WITH MY PROSTHETIC AS INSPIRATION, I CONSTRUCTED A TABLE TOP CULTURE
THAT REPRESENTED THE MATERIALITY AND FORMS I WANTED THE DESIGN TO EMBODY



AND WITH THAT BEGAN IDEATION



THEN REFINING





POWDER COATED STEEL SEAT PAN

FIBERGLASS BASE

.....TURNED BIRCH LEGS

..... INTERCHANGEABLE
CARBON FIBER LEG



AFTER SOME REFINEMENT

WE HAVE A CAD MODEL OF THE FINAL DESIGN.



PROTOTYPE CONSTRUCTION:



prototype construction:

- METAL SEATPAN**
WATER JET CUT AND POWDER COATED
- SEAT GROMMET**
1/4" X 1/2" HIGH DENSITY WEATHER STRIPPING
- FIBERGLASS SHELL**
CARBON FIBER OR FIBERGLASS LAYUP
- RUBBER GROMMET**
1/4" RUBBER SHEET LASER CUT
- WOODEN LEGS**
TURNED MAPLE NATURAL FINISH

BUILDING THE PROTOTYPE

Lots of lessons were learned during this phase: Fiberglassing is easier the second time around. Bondo will still fix anything and everything cost twice as much as you were hoping.

MILLING REN PARTS

A LOT OF CLAMPING

IT'S COMING TOGETHER

BONDO TO PERFECTION

FIBERGLASS PLUG READY

FIBERGLASS MOLD AND PULL

FIBERGLASS PIECE CUT

CARBON FIBER LAY UP

TURNED SOME LEGS

VACBAG TRIUMPH!

BENT PLY SEAT PAN

READY TO BE ASSEMBLED

THE TRES CHAIR







CAN EXTRICATIONS BE **FASTER,**
QUICKER AND MORE **EFFECTIVE?**

WHAT ARE OBSTACLES FACED DURING AN EXTRICATION?

Limited handle options lead to awkward grips

There are only two main grips on these tools. The D ring located on the body and the control handle in the rear. This causes the operator at times to sacrifice comfort in order to get the tool into the needed space and position.

Controls are very cumbersome to operate

The cutter and spreaders are currently operated by rotating the thumb lever on the rear handle. This lever sometimes can be difficult to actuate, especially when the tool is required to be in an unnatural position. Operators are also often wearing protective gloves, which limits thumb dexterity as well.

Blade guards obstruct view and grip

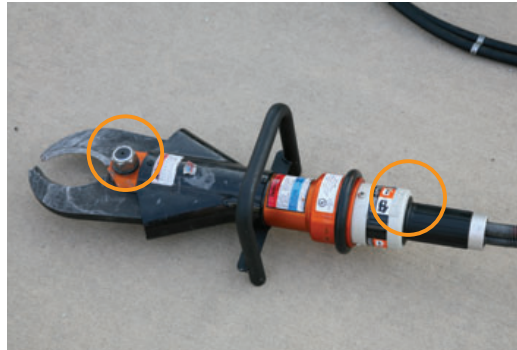
Depending on the orientation of the tool the blade guards at times can interfere with the grip of the operator. They can also obstruct the operator from having a clear view of what is being cut.

Handles are not ergonomic

These tools are engineered to be bulletproof, they are heavy duty equipment and are expected to last for many years. Because of this the ergonomics of these tools has been put in the back seat.

Position of handles makes it difficult to turn cutter 180 degrees

These tools are heavy weighing around 50 lbs. The handles are positioned to help distribute and balance the weight of the cutter below the handles. However, this makes it difficult for operators to turn the cutter 180 degrees and cut vertically.



INITIAL IDEATION

Can the blade guards double as an additional grip?

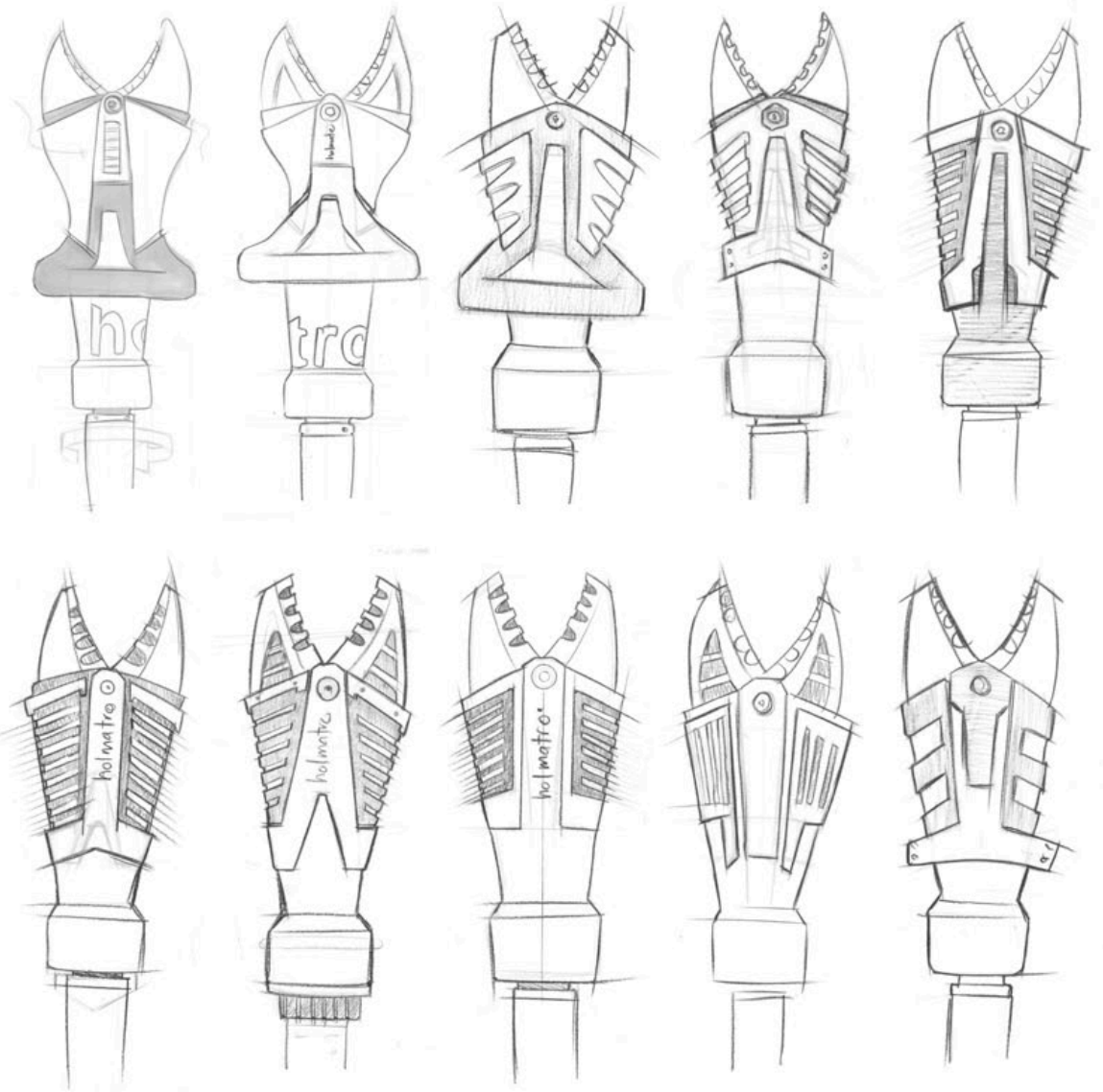
Focused on how to integrate the blade guards as additional grips. Allowing for more precise control.

How do we change out worn out grips?

Explored different ways to construct the main housing in order to easily facilitate the change of the worn out grips.

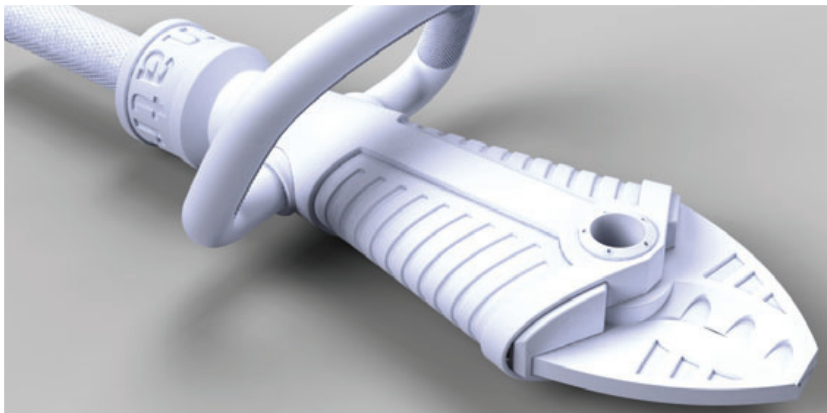
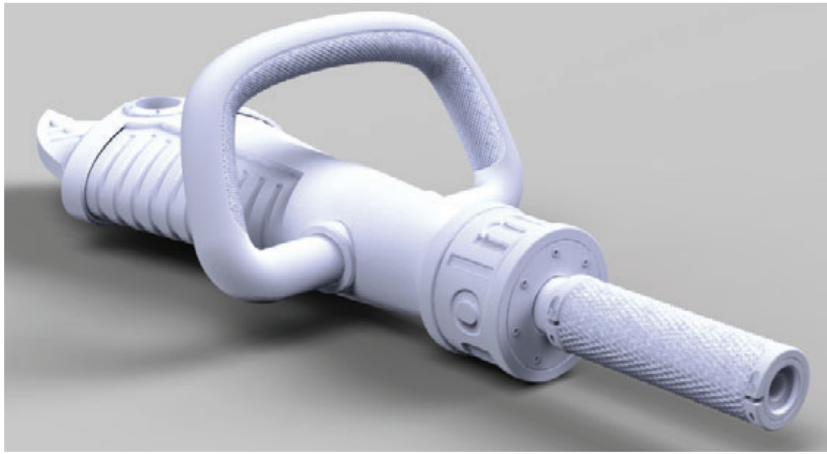
Can we slim down the torque nut profile?

Explored different ways to slim down the torque nut profile. This would allow the tool to potentially get into smaller spaces and could help with routine maintenance.



FURTHER CONCEPT REFINEMENT

The top concepts were taken into CAD and roughly modeled out. This allowed for ergonomic studies to easily be prototyped and refinements to be quickly implemented and tested. Once proper ergonomics and proportions were established it was easy to begin modeling the final surfaces.



MEET THE NEW HOLMATRO CUTTER.

The final solution combines many features designed to eliminate the main issues observed during the initial task analysis. These new features should assist rescuers during an extrication.



EXTRA GRIP

Blade guards double as additional grips.

EASILY CHANGE GRIPS

Clamp collars allow grip to be easily changed when worn



GAS-THRU HANDLE

Pneumatic hoses pass through handle in order to make tool more mobile.

MEET THE NEW HOLMATRO CUTTER.

The final solution combines many features designed to eliminate the main issues observed during the initial task analysis. These new features should assist rescuers during an extrication.

SLIM PROFILE TORQUE BOLT

New torque bolt design keeps bolt from backing off over time.

MORE GRIP

Rubber diamond pattern knurling provides optimal grip

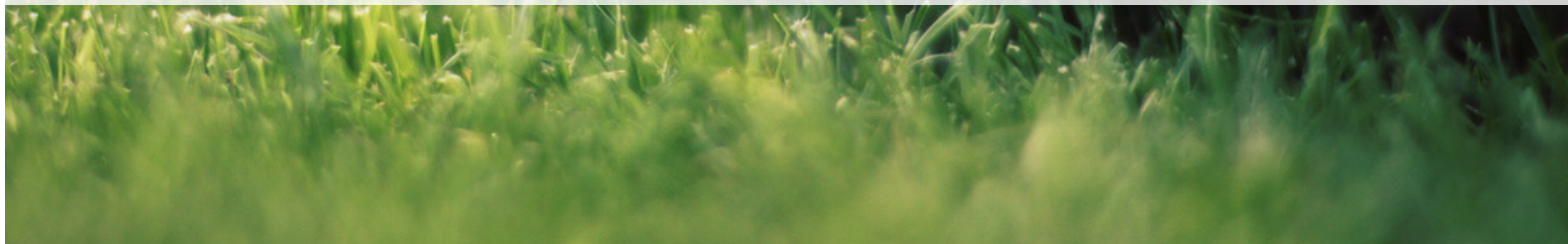
OPTIMIZED BLADE SHAPE

New blade design allows for a slimmer profile and for a wider cutting profile.





DESIGN A **BACKPACK** FOR SOCCER WITH A UNIQUE
APPROACH TO **SECURING** A SOCCER BALL.

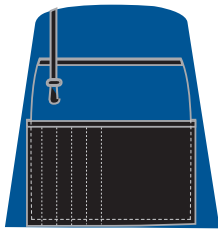


DSG UMBRO BACKPACK - CONCEPT SKETCH



SOFT GOODS TECH PACK

ORGNIZER POCKET - INTERNAL DETAIL



ORGNIZER POCKET

BLUE ZIPPERS

BACK VIEW

EMBROIDERED LOGO

MAIN POCKET

WELDED ZIPPER WITH BLUE LINER

MESH WINDOW SIDE POCKET

BLACK - 420D BOX RIPSTOP NYLON

EXTERIOR WATER BOTTLE POCKET
- WITH ELASTIC TOP BANDING

BLACK - 600D POLY

BLACK - 600D POLY

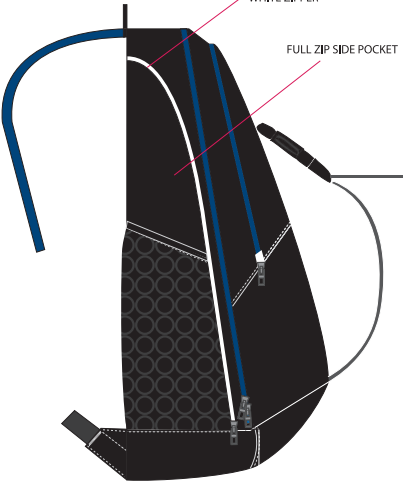
NYLON MESH

MICRO INJECTION PATCH

LEFT SIDE

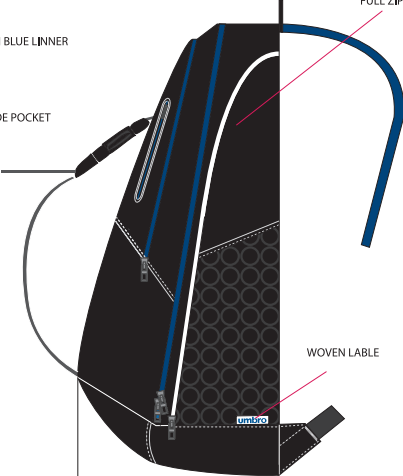
WHITE ZIPPER

FULL ZIP SIDE POCKET



RIGHT SIDE

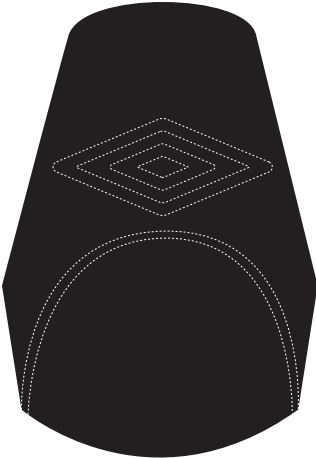
FULL ZIP SIDE POCKET



WOVEN LABEL

9 INCHES

BACK PADDING STITCH PATTERN

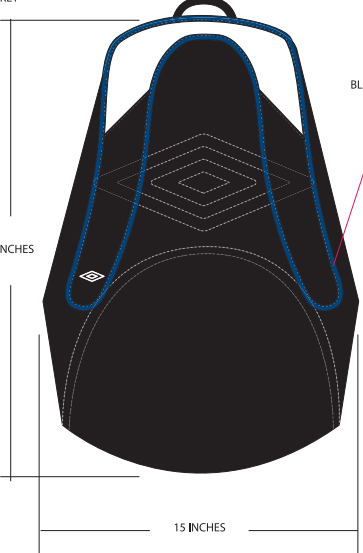


BACK VIEW

19 INCHES

BLUE WELTING

15 INCHES



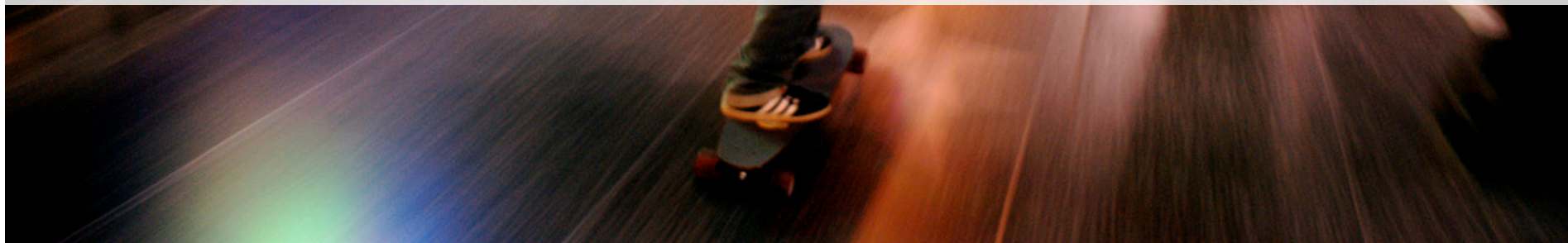
NOTE: BLUE INTERIOR LINER

Fabrics:

- Body - 600D Polyester (Body)
- White - 600D Polyester
- BLUE - PMS RELEX BLUE
- Mesh - M-6



GIVE THE CLASSIC **K-SWISS LIMITED EDITION** STYLE
A NEW AND CONTEMPORARY **COURT-STYLE REFRESH.**

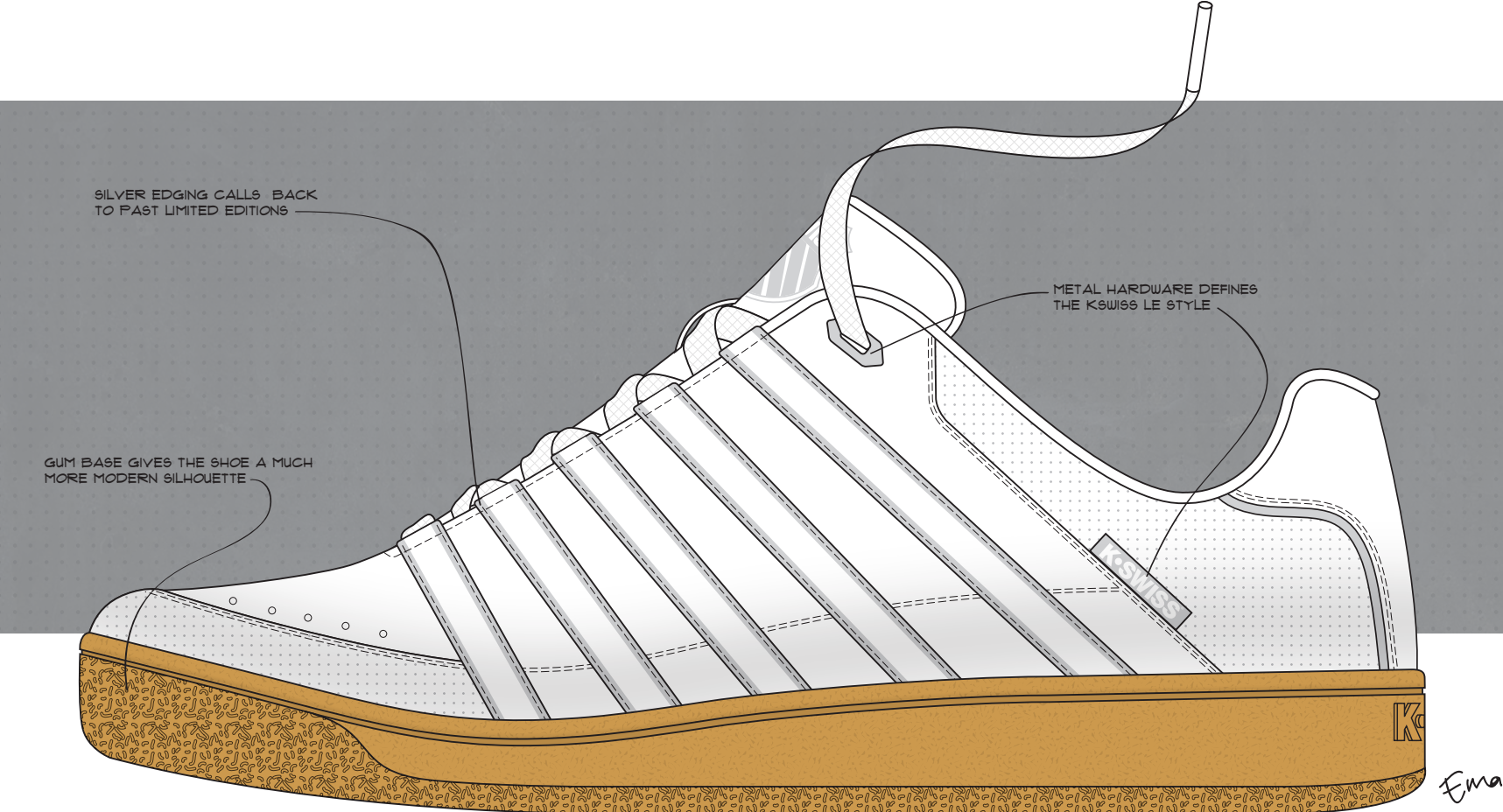


WHAT MAKES A LIMITED EDITION K-SWISS?

KSWISS COURT LE WHITE / SILVER



A NEW TAKE ON A LIMITED EDITION





THE K-SWISS BARKER

The K-Swiss Barker is designed to be versatile enough to compliment many wardrobe combinations. It is simple and classic enough to be worn around town with friends; yet sporty enough to hold up on the courts.

Sample pullover pair



DESIGN AND MAKE **HANDMADE FOOTWEAR**
THE **STREET SMART** CONSUMER.



THERE IS GROWING TREND TOWARDS **DRESSING SMARTER.**



BUT PEOPLE STILL WANT TO APPEAR **LAID BACK AND CASUAL.**



..... CAN THERE BE A SHOE THAT
FITS BOTH OCCASIONS?



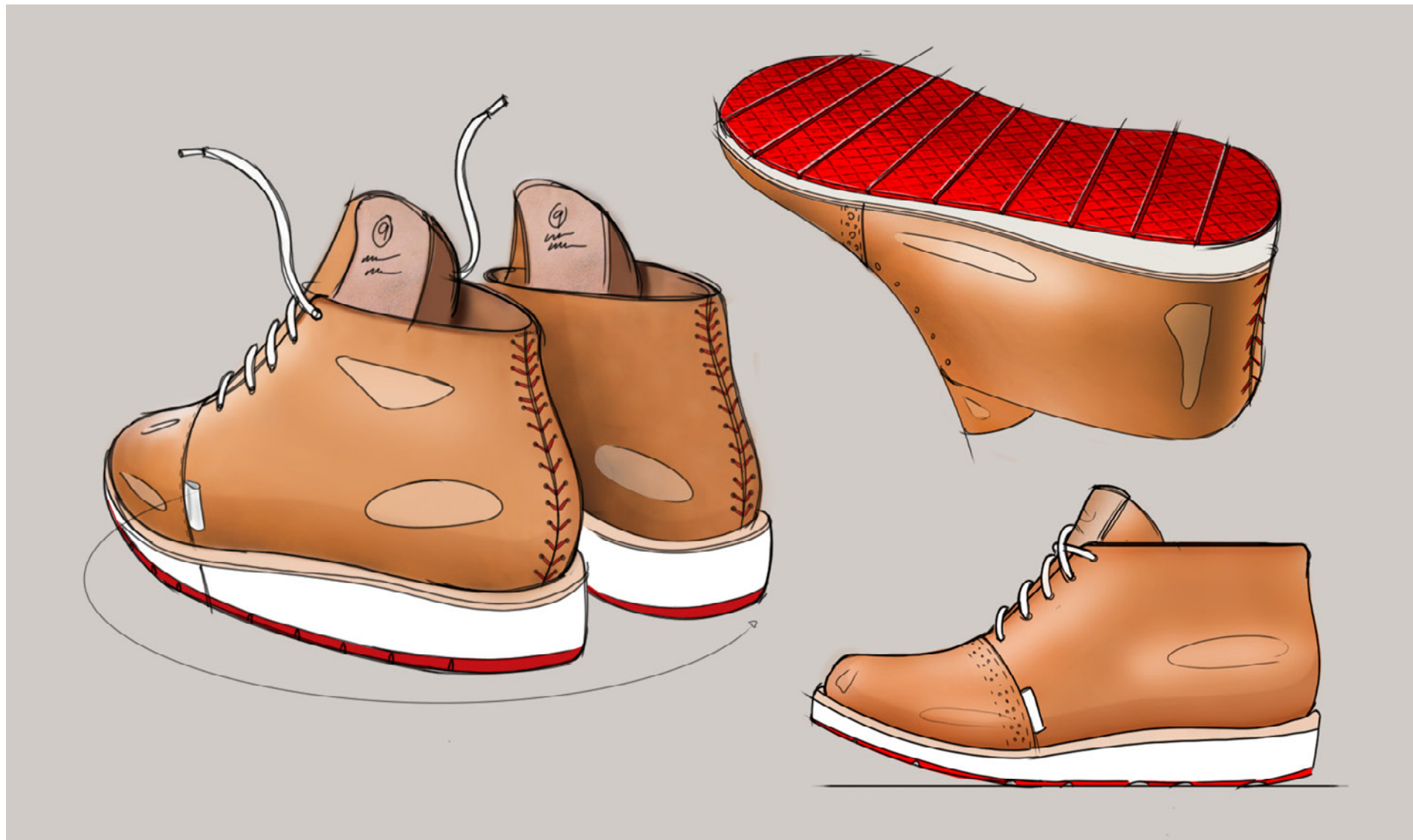


**WHAT QUALITY'S ARE STREET SMART
CONSUMERS LOOKING FOR IN PRODUCTS?**

.....
CHARACTER (RAW LEATHER PATINA)
STRAIGHT FORWARD CONSTRUCTION
UNIQUE MATERIAL APPLICATION
BRIGHT COLOR ACCENTS
QUALITY OVER QUANTITY
BUY FOR A LIFETIME



e





project in progress:
CURRENTLY LASTING THE UPPERS

Thank you for your time.

By the way Waldo is hiding in my portfolio.