


**Ben Grundwerg**  
*industrial designer*

# Ben Grundwerg

*industrial designer*

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grundwbr@outlook.com  
www.bengdesign.com

## Experience

### 66 Design Studios

#### Program Manager & Contract Industrial Designer

June 2015- Present

Greater NYC Area & Cleveland, OH

Manage projects for various clients including developing concepts, CAD files, and sourcing/ production needs. Develop business models, make new business partners, pursue new clients and help structure 66 Design Studios' overall business strategy.

### Nottingham Spirk

Industrial Design co-op

Fall 2014

Cleveland, OH

*Assisted on a number of projects for a diverse range of clients.*

*Responsibilities included:* sketching, brainstorming, research, sourcing, sketch level and presentation level CAD models (Alias and SolidWorks), and Photoshop renders for client facing presentations.

### Crosman Corporation

Industrial Design co-op

Winter 2014 & Summer 2013

Bloomfield, NY

*Lead Industrial designer on several projects, and involved in several other projects throughout multiple phases. Two of the projects that I was lead designer on are now on market (targeted for Walmart sales).*

*Responsibilities included:* taking a project from the initial project statement to developing a final design and CAD model, generating sketches and ideas, and model making /rapid prototyping concepts, and working smoothly with other departments (marketing, engineering, manufacturing, finance).

### Livewell Collaborative

Sponsored Studio

Spring 2014

Cincinnati, OH

*As a student of the University of Cincinnati, I participated in a sponsored studio hosted by Livewell Collaborative where I was part of a team that, through Livewell's process, developed a new product for the world's largest multinational consumer goods company.*

### MRTA Design

Industrial Designer

Fall 2012

New York, NY

*Lead small design team to develop a product for launch on Kickstarter.com*

## Education

University of Cincinnati: College of Design, Architecture, Art, and Planning

Bachelor of Science in Industrial Design

## Skills

Design thinking, solidworks, alias, rhino, keyshot, adobe creative suite, sketchbook pro, sketching, modelmaking, rapid prototyping, microsoft office suite, design for manufacturing, knowledge of manufacturing techniques, and a bit of SEO

## Activities & interests

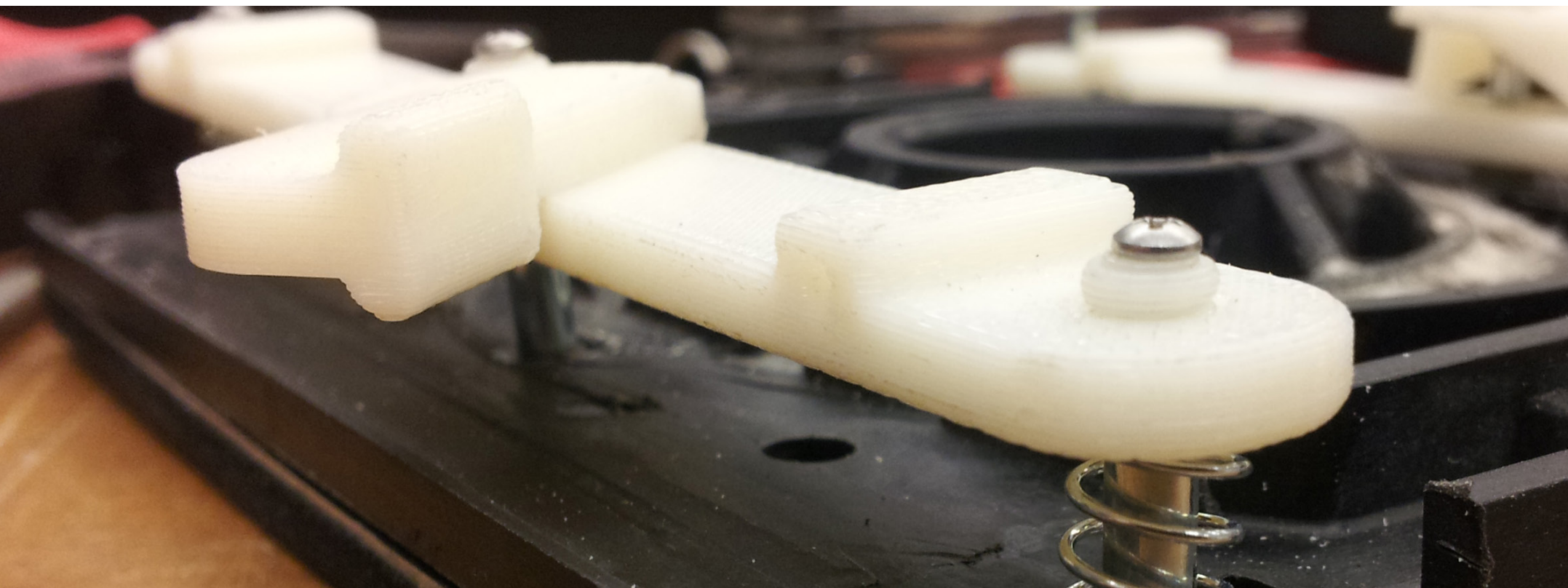
Alpha Epsilon Pi, maker, home cook, gamer, geek, aspiring gear-head.

## Fun facts about me?

Well I've touched the Moon (NASA has it in Florida), my dream car is a late 60's IH Scout 800 (preferably one that I built), and I've flown a plane

*"Keep it simple, stupid"*

-Kelly Johnson, Lockheed Martin Skunk Works



(This was a design excersice, not a sponsored project for Milwaukee®)

Branding  
&  
Mechanism  
Redesign



One of these things is not like the others...

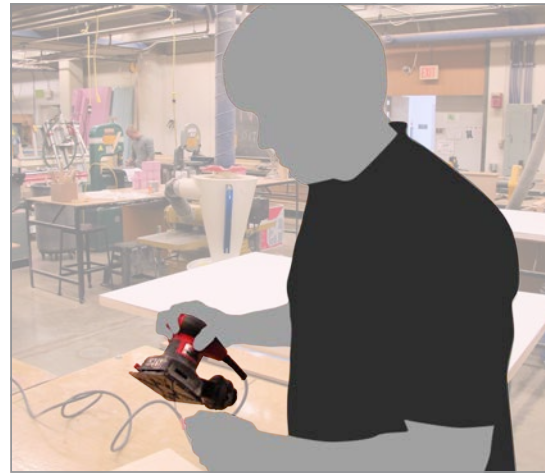




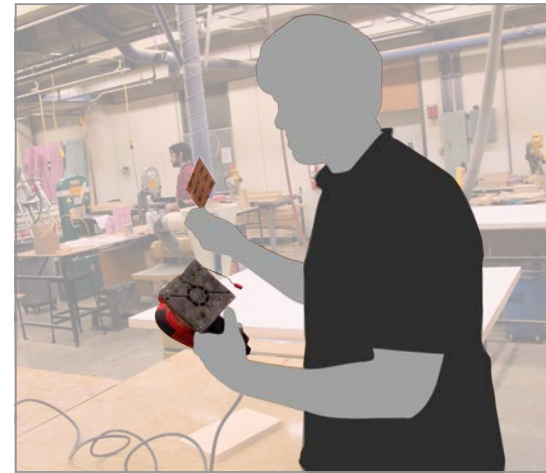
And the main interaction can go something like this



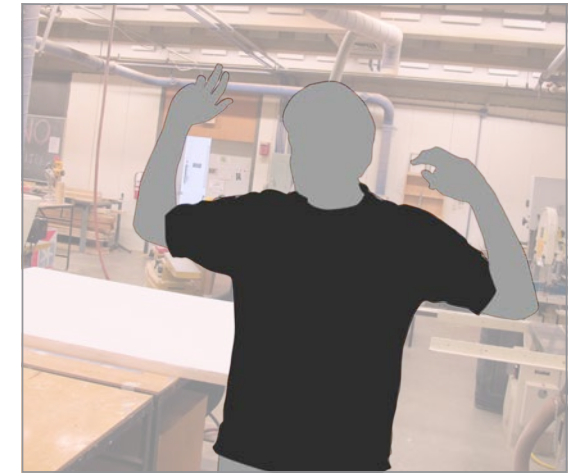
Wear out the sandpaper



Fumble with wireform  
clamps to remove  
sandpaper



Become confused about  
how to attach new sandpaper



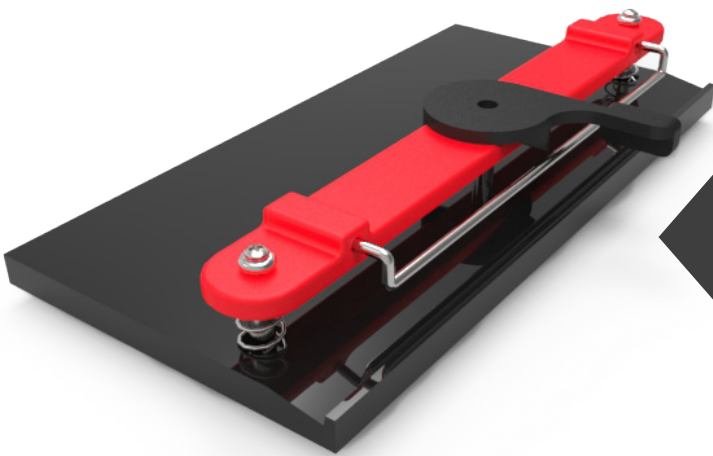
Get frustrated by cheap  
and un-intuitive mechanism

So whats the goal?



## Rebranding

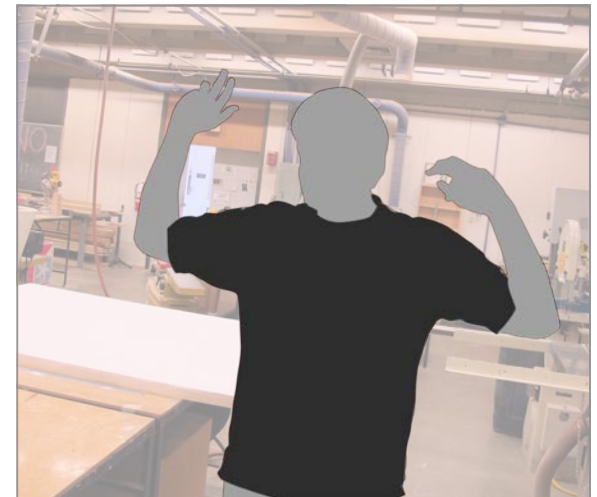
The current quarter sheet sander need to be **updated** to match the **aesthetic** of the rest of the brand. This would be a more angular form, and should integrate the lightning bolt shape found in all other Milwaukee® products.



## Fixing the user interaction

Changing a piece of sandpaper **shouldnt** be **difficult & frustrating**. Especially when its critical to a decive's primary function.

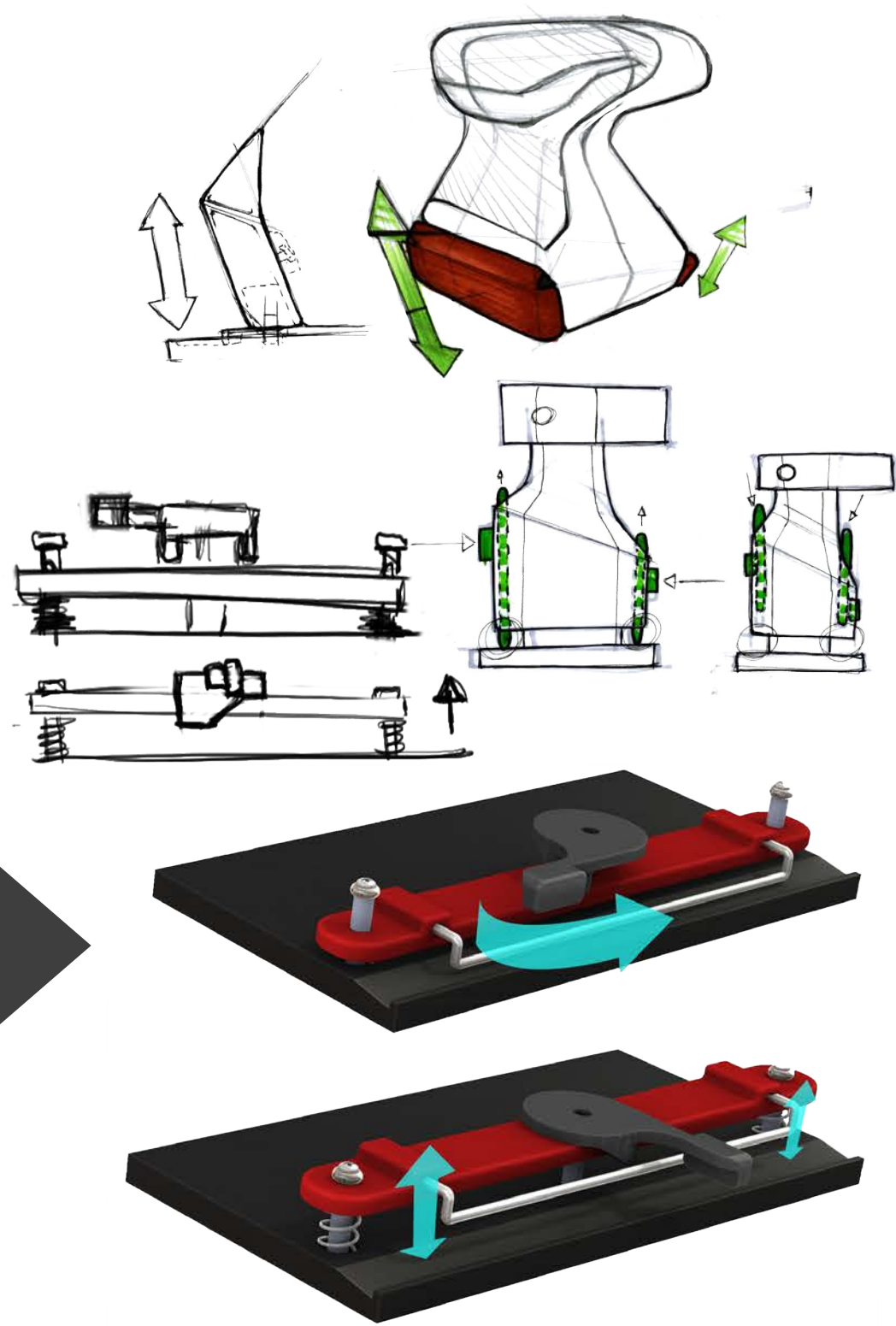
I want to take this **~40 second** process down to a far less frustrating **sub 10 second** time, increasing productivity, decreasing frustration, and **making an overall better product**.





Rebranding

Mechanism







Simplified mechanism that allows for **quick and easy** changes.



Angular form matches brand identity, and **fits current** internals.

Iconic Milwaukee® lightning bolt that appears on **all current** products.

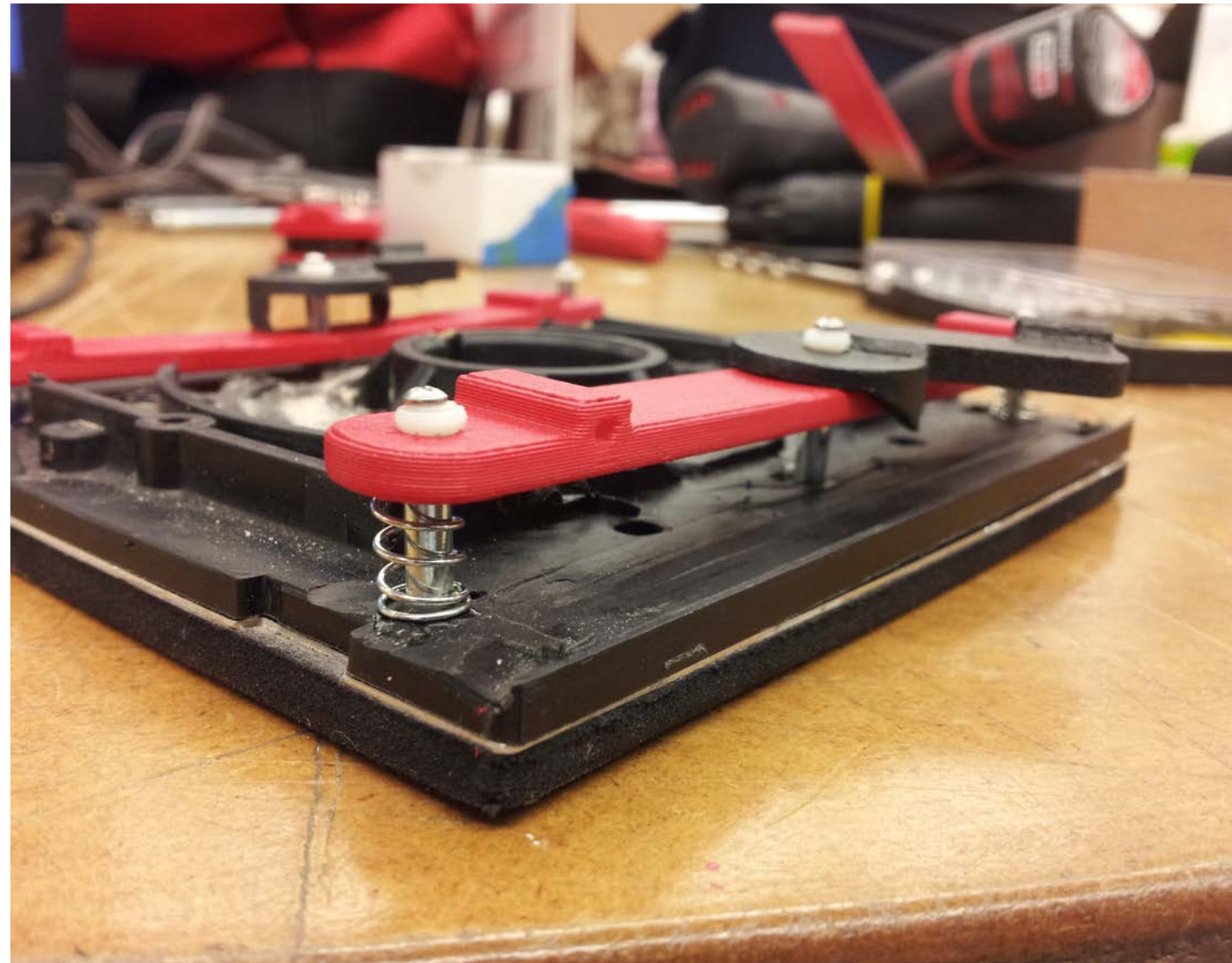


Aggressive branding area for Milwaukee® and **required legalise**.





Various details in the model making process make the prototype seem all the more realistic. This means screw heads, warning labels, a real dust collector, a working mockup of the next gen sandpaper clamp, and a power cord.













# Consulting design work: Smart planter

I was hired by MRTA to take an idea through the initial Industrial design phases to be ready for a Kickstarter launch managed by my employer. I developed a number of concepts, the one that made it onto Kickstarter was the one chosen by my employer.





Caring for house plants is something that requires care and attention, and that can be difficult in today's busy world.

But what if there was a way to make a **'smart' plant**? One that the owner can **have a more tangible interaction** with?

So how can plants be less analogue, and instead be **brought into the 21st century**?

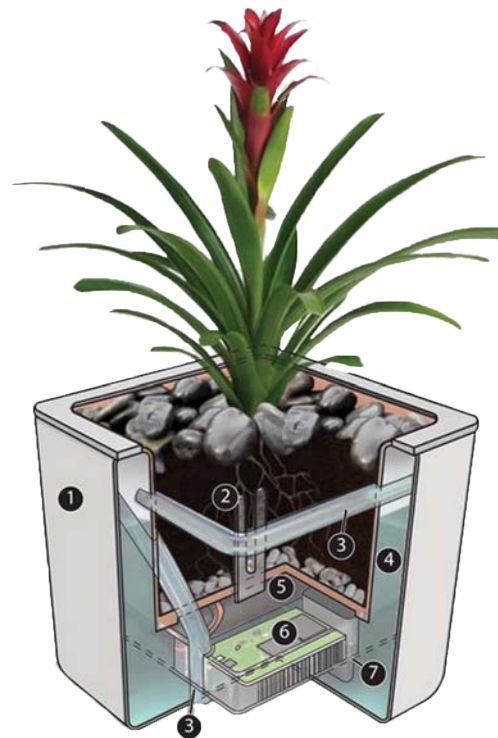
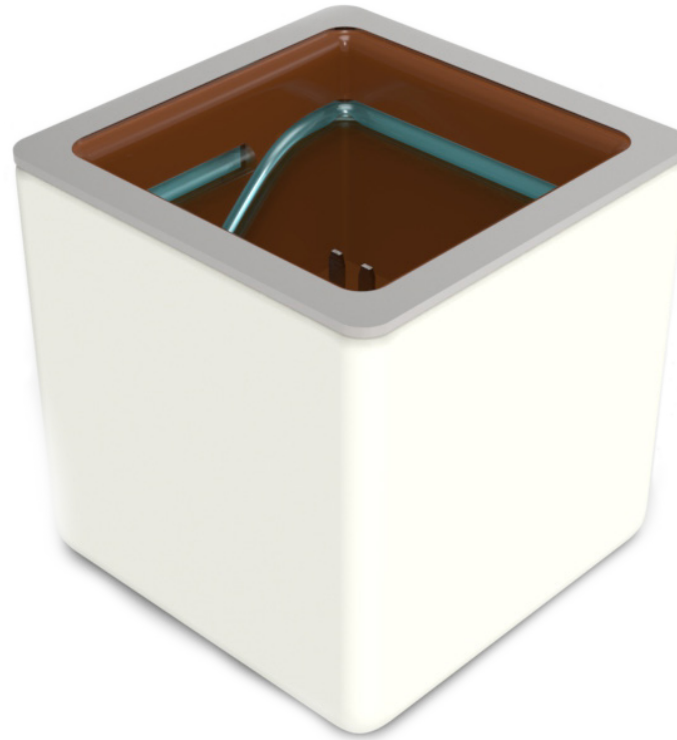




The final design **chosen by MRTA** featured a modular system that allows the end user to use their own pot for the plant (providing that it was at 6"x6"x6"). This allows a degree of user customization.

In **3 months** I spent at MRTA, I produced a **working breadboard** model of the desired planter thanks to SLS printing and Arduino tech.

I also left behind a 100+ page packet documenting the entirety of the project, including: initial sketching, market research, prototyping methods, a **preliminary bill of materials**, and the scripts and contact info needed for a Kickstarter campaign (including tooling vendors to contact post-campaign).



Click the images to link to the Kickstarter and Youtube pages

Since working at MRTA I have developed this concept **as I would have designed it** for myself.

This design doesn't focus on being modular, instead, its **designed for manufacturing**, and being an **emotive form**.





I settled on an exaggerated cube shape as being both **familiar, and emotional**.

The shape also allows for **easy placement** of the electronic components and **natural draft** for injection molding.



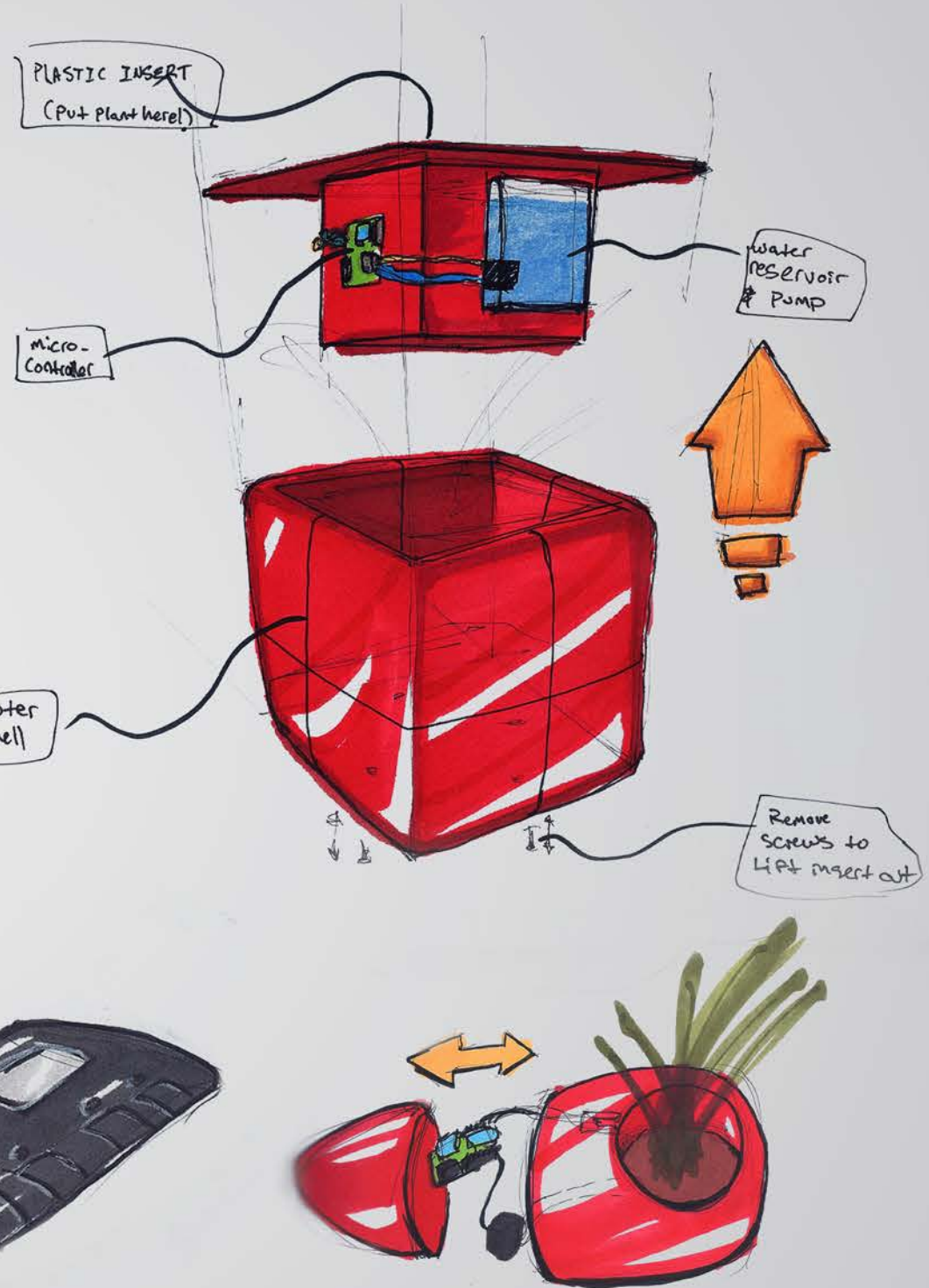
outer shell

PLASTIC INSERT  
(Put plant here!)

Micro-Controller

Water Reservoir & Pump

Remove screws to lift insert out





This part **houses the plant**, and has a slot for the **moisture sensor**. The corners on the bottom are **rounded off** to allow **for easy cleaning**.

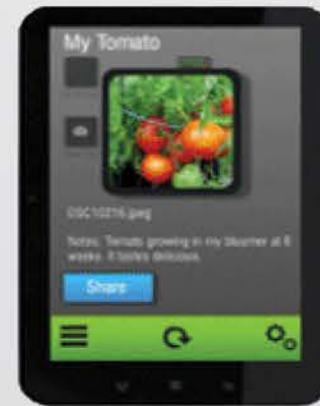
The center divider is the key component to making this design work. Its **solvent bonded** into the bottom component to make the **watertight resevoir**. It allows for a **cheap and easy waterproof** system.

The lower component completes the form, and also has **natural draft** on it.

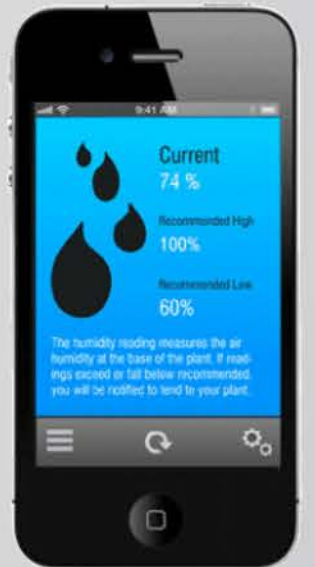


To make a modern 'smart' product, it naturally has to be able to interact with the rest of our smart devices via **app or website**.

The beauty of a smart pot is that **every plant has its own needs** profile, and the pot can remotely configured to work with your specific plant.



With its wireless connectivity, you can **always keep up to date** on your plant's status. You know right away what you're doing right, and what you need to change.



Since plastic is such a familiar material, colors and finishes can easily be tweaked for the desired appearance.







5	10	15	20	25	30	35	40
6	12	18	24	30	36	42	48
7	14	21	28	35	42	49	56
8	16	24	32	40	48	56	64
9	18	27	36	45	54	63	72
10	20	30	40	50	60	70	80



AMERICAN DESIGNED AND BUILT  
**SCOUT**  
E.D.C  
est. 2015  
CINCINNATI OHIO



**SCOUT** is a lifestyle brand of products that is centered around a line of watches that highlight both classic inspiration from both watch and car culture, and emerging style trends in the watch industry.



# Finding The Trends of 2015

**The end of 2014 saw a number of distinct emerging trends in lifestyle fashion.**

The key to building a viable brand for a capstone is ensuring that there is a market and a demographic that has a need for your product, especially if this need is not being met. With the initial idea for what SCOUT E.D.C was going to be formed, I set out to find a niche that my brand could not only fit it, but thrive in, and make genuinely cool products for it.

This lead me to discover some rather interesting trends that some say are emerging now, and others say have been around forever, either way, they are being recognized in the media as gaining more widespread acceptance now than in the early 2000's.

This re-emerging trend has been labeled (this time) as the 'Lumbersexual', which is essentially an embracing of overt masculine traits and dress in a rejection of the 'metro' style from the last decade.



WRITTEN BY: Ben Grundwerg  
PHOTOGRAPHY BY: gearjunkie.com

Combining comfort and style, today's trends are leaning more 'rustic' than 'urban'

“ Being authentic is about being comfortable with your identity -- knowing who you are, owning it consistently, and not trying too hard.

-<http://www.mediapost.com/publications/article/203540/unlocking-the-power-of-authenticity-with-millennia.html>



TRENDS RESEARCH

After scouring dozens of available sources, one current trend really jumped out as a potential cornerstone for the SCOUT E.D.C brand. Some of the key takeaway quotes are as follows:

“Today, the metrosexual is a disappearing breed being quickly replaced by men more concerned with existing in the outdoors, or the pseudo-outdoors, than meticulous grooming habits.”

“He looks like a hardened outdoorsman but his flannel feels soft to the touch. He will open your beer with an omni-present Buck knife. He is a master of the retro Instagram filter. His flannel is coated with a waterproof DWR coating. His laid back style has been honed with more effort than he would like you to know.”

“recognition that outdoor gear is just more comfortable, functional and durable”

While there were a number of potential avenues to

pursue for a product that would be on trend with today’s audiences, the field that’s showing a large resurgence, and allows for a ton of product life longevity is the watch industry.

After identifying that, current watch trends were researched and analyzed and showed growth in the ‘American watch’ segment (both in style and in manufacturing). Taking this idea, and applying it to the ‘rugged’, ‘authentic’, and ‘functional’ aspects of current fashion trends lead to the creation of the SCOUT E.D.C style.



1 <http://i.huffpost.com/gen/1286439/thumbs/o-HIPSTER-BEARD-facebook.jpg>

2 <http://gearjunkie.com/the-rise-of-the-lumbersexual>

3 <http://gearjunkie.com/the-rise-of-the-lumbersexual>

The “Vermont” retro-mountaineering glasses are among the best selling models from Julbo this year

SuperStock / Alamy

Employees at the actual Nerderly



# CRAFTING AN IDENTITY FOR A TARGET MARKET

The idea of unique and customizable products is a growing market trend that resonates well with the maker crowd, and the crowd that traditionally values ‘authentic’ products. A good example of this is Motorola’s BV X. Motorola’s current flagship phone has a strong image as an American built product that can be tailored to the individual. This fits in with the market, and helped Motorola recover faltering sales.

This idea of a semi-custom product, that becomes more and more unique the more you wear it resonates well with the original Hot Rod and Rat Rod inspiration.

It also meshes with the growing maker culture that is happening here in the USA. Middle aged and older generations are embracing the return of self reliance for making things, and younger generations are at least embracing the appearance of the ability to be self reliant. This leads to the desire for a brand that is domestic, featuring core values such as: practicality, high degrees of customization, functional minimalism, ingenuity, and



increasing patina.

This designing for authenticity is for two target markets. The primary market would be the builder and tinkerer crowd, and also the ever present ‘hipster’ market that gravitates to rough and authentic themed products.

“ The themes this season are a collection of renewed freshness in accessories, with designers pushing the boundaries more and more.

-<http://www.pinkstudio.nl/frontpage/accessories-womens-mens-trends-ss-2015-fashion-snoops/>



## The Grease Monkey

This is the guy who’s been wrenching for nearly as long as he can remember, he started as a fan of car culture, but now it’s more of a lifestyle. If he isn’t making a living working on cars, he’s got a few project cars going at home to keep him busy. Every project gets its own personal flavor, and no two are ever alike. With a lifetime of working with mechanical objects, he respects fine craftsmanship, and understands the value of a quality tool, and always likes to know where his parts come from.



## The Loud & Classic

This is the young guy who feels ‘I like my stuff to be different, but not stray too far from the classics’. He’s gone through one or two entry level cars trying to find one that fits his just outside of the norm style, but he wants to stick with something that’s still got a degree of practicality. Since he’s done his online research, he’s familiar with how things should look, and what brands are known for what, and the real goal for him is the company that keeps things classic, but makes them interesting enough to get noticed.



## The Classic With a Twist

This is the guy who wrenched a bit in his early days, but has broadened his talents to tweaking and modifying whatever project happens to be happening at the moment. A jack of all trades and a master of quite a few as well, any watch he’d wear would have to be as versatile. It would need to have enough classic watch DNA to disappear with a button up and a blazer, but still be comfortable with jeans and a tee shirt. Additionally, it’d need to be funky or unique enough to catch his interest, and functional enough to warrant wearing every day.



## The Hotrod

This is the man who worked his way up from wrenching on big rigs, to adding his personal design flavor to anything that crosses his desk; if you need someone to make something cool and clean, he’s the go to guy. Over the years, he’s worked on just about anything you’d care to imagine, but it’s the really classic unique stuff that catches his interest. Whether its cars, music, toolboxes, or watches, the thing that matters most to him is that the object has character, and stands a bit apart from the norm (so long as that doesn’t compromise the integrity of the original purpose that is).



## The Adventurer

This guy is a recreational tinkerer, and regular adventurer. Now this doesn’t necessarily mean he goes on regular trips so much as he often takes the path in life that doesn’t always have a known outcome. Trying a new sport, making an ad-libbed fix on his bike, or trying that dive bar down the street from work, anything that adds a little something new to his life is a welcome addition. As such, he likes products that grow and change with the experiences they gather, but not necessarily give out, rather, something that can take whatever life throws at it, and keep ticking. If whatever tags along picks up some new scratches along the way, well then those are just stories from another adventure.





## BRANDING



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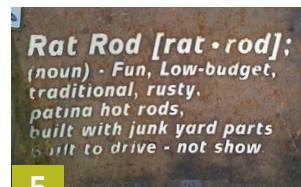
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8



1 bexsonn.com, Omega Speedmaster Professional 42mm & scotch

Invented by M. Goventosa de Udine in 1931, the one wheeled motorcycle.

3 flickr.com, front fascia of a 1967 Ford Mustang

4 myrareguitars.com, faded classic Fender Telecaster Sunburst

5 thefancy.com, a brief definition of a Rat Rod

6 shinola.com, Shinola Runwell 41mm limited edition

7 1950's era military gauge

8 youtube.com, interior of a project truck

9 scotchxsoda.tumblr.com, VW Bug Hot Rod

10 motortrend.com, 2015 Indian Scout



9



10

## BUILDING A STYLE

The goal of this brand is to have an authentic feeling with strong overtures of classic American design. Classic American design is bold, iconic, and instantly recognizable. Strong forms, with a bit of curvature and a lot of character are part of what make this look so iconic. Inspiration was taken from Hot Rod culture, the

modding and Rat Rod communities, 1940-1970's gauge clusters, and classically styled watches (both foreign, and the new pop up American brands that are gaining mainstream popularity). The final direction would be a 1960's inspired American watch company which is about authentic designs with character that become unique to the user.



“ Building off the feel from images in the style guide really informed the aesthetics of the logo.

## COMING UP WITH THE LOGO

Taking influence from both truly retro logos, and retro inspired logos, form, type and layout was explored to create a logo that would accurately convey the message of the brand visually and immediately. The name Scout was chosen as homage the International Scout, the rough and tumble and infinitely customizable icon. It also evokes the idea of going anywhere, doing anything, without having to worry. The idea of the journey over the destination. For ideation for the logo, first basic forms were explored, then various typefaces where tried and modified to fit the forms. Point size, kerning, shape and direction were all modified until the desired effect was achieved. The final logo was then taken into Photoshop and textured to add a gritty and unique look to it.



When the brand was expanded to a lifestyle brand rather than a watch-only brand, a new tagline was needed. Some of the ideas included:scout life, scout lifestyle, scout inc, scout incorporated, scout national, scout international, scout daily, scout carry,

scout edc, scout e.d.c, scout brands, scout lyfe, scout life, scout materials, scout products, scout stuff, scout LLC

*The final logo adheres to fairly classic designs, allowing for either a clean bold look, or a weathered classic look fairly easily through the application of some basic Photoshop techniques.*



DESIGN PHASE

# SCOUT I

Learning the ins and outs of making a watch



The goal for this watch was to make a design that could take a beating, and develop a patina based on the wear and tear its owner subjects it to on a daily basis. As this was the first watch I'd ever designed, there was a steep learning curve, from materials selection, to manufacturing concerns. Since I saw this design all the way through to a functioning prototype, I learned a ton about what it takes to make a sleek functional watch. Also, the knowledge of how to make a watch ready for manufacturing allowed me more design freedom in the later watches, as I was able to work out the mechanics as a background thought process rather than having to

worry about it the whole time.

This watch was successful in making a chunky, American pilots style watch, and had some nice surfacing detail on the lower case, but there was certainly room for improvement.



## BUILDING A FUNCTIONAL PROTOTYPE

To make this a functioning, wearable watch, I had to experiment with a few unconventional techniques, mixing crafts from model making and watch making. It started with filing and sanding down a Shapeways stainless steel 3D print to a good fit and finish. The parts were then sandblasted to leave an even surface with good pitting to allow for paint adhesion. The matte paint was then buffed and slightly distressed to

reach the desired finish. The watch face was then painted and detailed, and then assembled together with the movement and watch hands (with plenty of glue). All the remaining pieces were then assembled into the case. The handmade straps were then attached, and the model was ready to go.

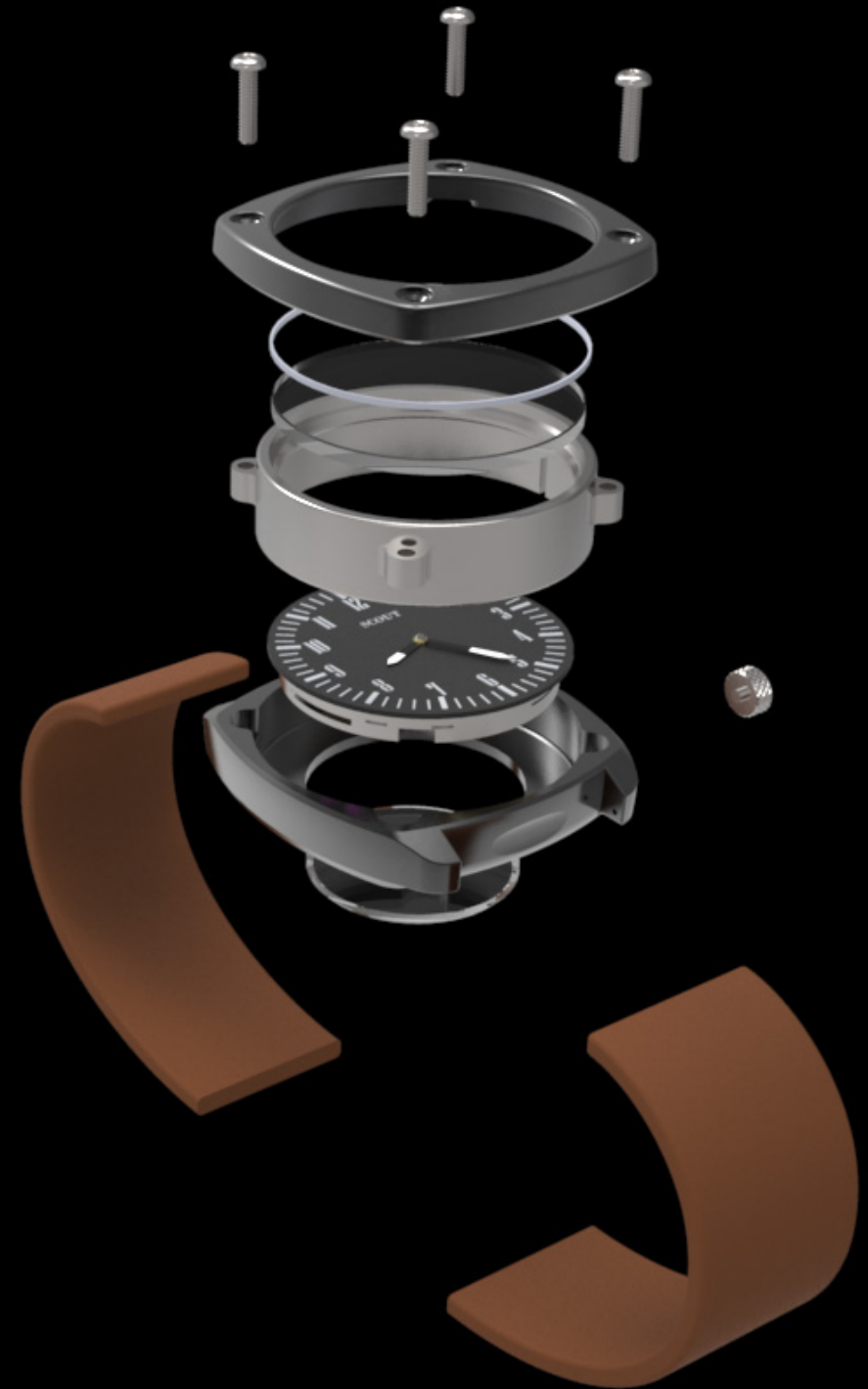




## FIRST PASS DESIGN

Using everything I had learned over the semester, I designed and built a prototype watch to see what it would be like to go through the process. It's one thing to read about setting a movement and paint a watch face, its an entirely other experience to actually do it. This experience rounded off my understanding of just which dimensions are critical in a physical model vs a CAD model, and how much of a difference a quarter of a millimeter means in reality. This process also taught me that some materials and technologies are better in theory for watchmaking rather than in practice.

I used this knowledge and experience to design a far better watch in the months that followed.



## The ‘Adventurer’ Scout II

Based on the Adventurer persona, this Scout II is all about functionality in a rough environment, and building character through wear and tear on the finish without affecting the mechanical properties of the watch.



This Scout II is ready for anything you can throw at it, and the worst that will happen is that it becomes a bit more uniquely yours. With its Cerakoted steel case, any scratch in the resilient coating won't affect the longevity of the watch itself, it'll just add some character, allowing the watch to grow with its owner.



## The ‘Relaxed’ Scout II

Based on the Relaxed persona, this Scout II is all about nonchalant class. This is a watch that knows exactly what it is, and what it does, and it does it well, with a relaxed confidence that comes from decades of experience.



Add a big, familiar shape with some not so familiar surfacing, and a bold sheen together, and you get this Scout II, which has all the right pop without getting too crazy. Its polished 316L Stainless case protects the already solid quartz movement for a reliable and statement-making timepiece.





ADVERT



The things you love should never hold you back.

SCOUT

E.D.C.

EST. 2010

CHICAGO, IL

You should be able to express your style anywhere you care to go, without worrying about little scratches and dings holding you back. The Scout II embraces new adventures, and scratches or scuffs in the finish won't affect its function in the least, in fact all it'll do is make the watch more uniquely yours.





## The Transformation

The goal with this watch was to capture the feel and intention behind the change that takes place when making an old car (say a Ford model T) and turning it into a hot rod, and apply that to classic watch design. It was decided that making any part of the watch too literally 'hot rod' could mar this design intent as being 'gimmicky', which is about as far off target for this brand as it gets.



There are a few details that the designer can point to and say “this was directly influenced by this part of the hot rod”, but to any first time viewer, the first reaction had to be “wow, thats a cool looking watch, I don’t know if I’ve ever seen anything quite like it”, because thats how any good hot rod makes you feel.





1

## LOTS OF SKETCHES AND RESEARCH

Over co-op, I decided to take what I had learned, and redesign the watch from the ground up, really trying to distill the ethos of the hot rod movement. I was mentored by my supervisor here at Nottingham Spirk to develop new concepts, really trying to distill just what makes a “rat watch”.

This also was informed by a LOT of new research into style and watch trends over the past year and into the speculations for future trend forecasting. What this image



2



3

does not encapsulate is the hundreds of pages of research and the marketing and branding discussions I’ve had with my business mentor.



4



5

Some of my initial sketch ideation

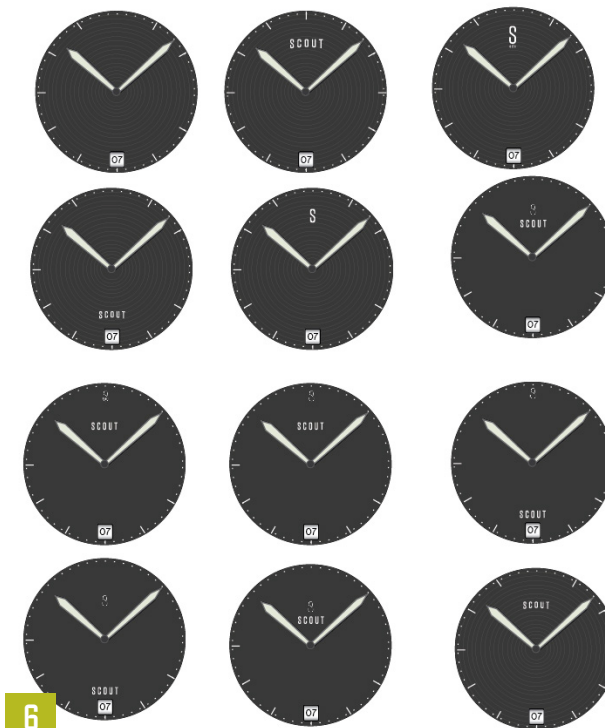
Quickly went to Illustrator sketch render

Initial CAD model for dimension checks

More refined CAD model from illustrator refinements

Lug iterations in Illustrator


Watch face iterations in Illustrator



6


MATERIALS &  
SOURCING

1 39mm Domed Sapphire crystal  
Made in Germany

2  Cerakoted 316L Stainless Steel  
Made in the USA

3 Silver with Lume inserts & Pad printed Steel  
Made in China & Made in the USA 

4 ETA F04.111-9 (modified for 9:00 date)  
Made in Switzerland

5  Polished or Semi-blued 316L Stainless Steel  
Made in the USA

6 23mm springbar  
made in China  
 0-80 x 2mm screw (x6)  
 0-80 x 6mm screw (x2)  
Made in the USA



## How it's made

With a big push to returning to American made products, a majority of the components for both the Scout II and the Scout III will be made in the USA. The pieces for the Scout II are very similar to the III, only with less complex finishing and machining processes, making it less expensive to produce. Both will have cases made out of 316L Stainless Steel, a traditional watchmaking steel, known for its corrosion resistance, luster, and non-magnetic properties. Various finishes are then achieved with either special Cerakote™ coatings, or for the more unique finishes, a heat treatment (similar to the traditional bluing process) is applied. The cases will be cast as rough ingots using the investment casting process, then CNC machined and sanded to the final specs. The majority of the other components are more standard enough to source from existing companies, with parts being sourced from US based companies when realistically possible.







## Scout III

Case size: 42mm

Case Material: 316L Stainless Steel

Height: 8mm

Movement: Modified Hadley-Roma Quartz 12  
crown, 6 date

Crystal: 39mm domed Sapphire

Strap/ Lug size: 23mm

Lume: Hands and tick marks

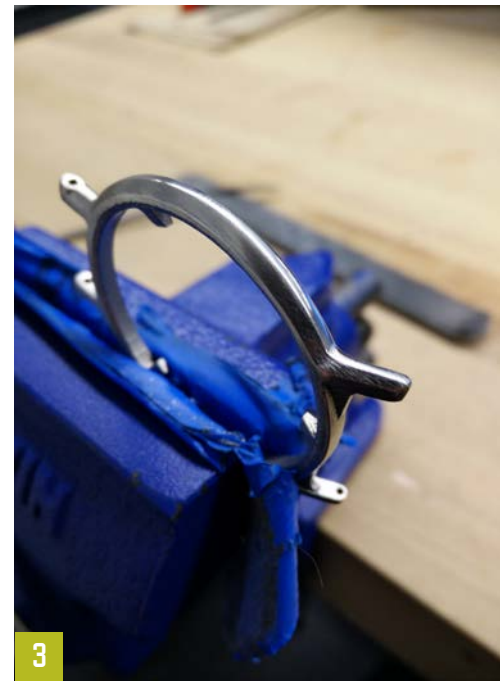
Majority of components made in the U.S.A  
Assembled in the U.S.A

MSRP: \$1,595





## PROTOTYPING



## PROTOTYPING AND MODEL MAKING

Making the final mockups involved the use of several types of really modern rapid prototyping technologies, and a nice amount of classic finishing techniques. Once the file was done, a test print was done in high resolution SLA to ensure that all the pieces were correctly toleranced, and the watch fit on the wrist correctly. Once the model was validated, the pieces that would be clearly metal were printed in DMLS Stainless Steel through Fineline prototyping. Since the surface quality was not up to par for high end jewelry, I proceeded to clamp, rasp, file, sand, and polish the parts to a near mirror finish. Then to make two of the different

colorways, I added a brushed finish to one of the surfaces on one of the parts, and heat treated the other set to make a finish similar to a blued finish. The main body parts were painted SLA pieces, and all the pieces were assembled with a paper mockup of the watchface behind an off the shelf 39mm watch crystal. The bands are affixed with a 22mm springbar, and the models are ready to go.



SLA prototype

Raw steel DMLS print

DMLS print being finished

Quick mockup to test fitment

Acetylene torch for heat treated finish

Heat treated finish before a final buffing



## ADVERTS



The final Scout III lineup is a new take on a fairly classic watch style. It emulates the feel of a hot-rodded object without forgetting the fact that it's a watch first and foremost, and an homage second. This is the watch that appeals to both watch lovers, and gear heads, without making any compromises.

Using premium materials without being ridiculously expensive, and taking advantage of modern machining technologies and practices, the Scout III pushes conventional watchmaking forward in the same spirit as the original hot rod crews did to their Fords.

With a number of finishing options, this design can be tweaked to target various niche cultures within the car community for potential limited run special editions, all while keeping in line with the original design intent.

This level of detail and uniqueness in a watch, especially a US made one, typically demands a very high price, but by using the robust and accurate Swiss movement, more capital can be directed solely to the domestically manufactured case. All of this together make a watch that, while not cheap, is far less expensive than its contemporaries while still offering a level of refinement befitting an entry level luxury watch.

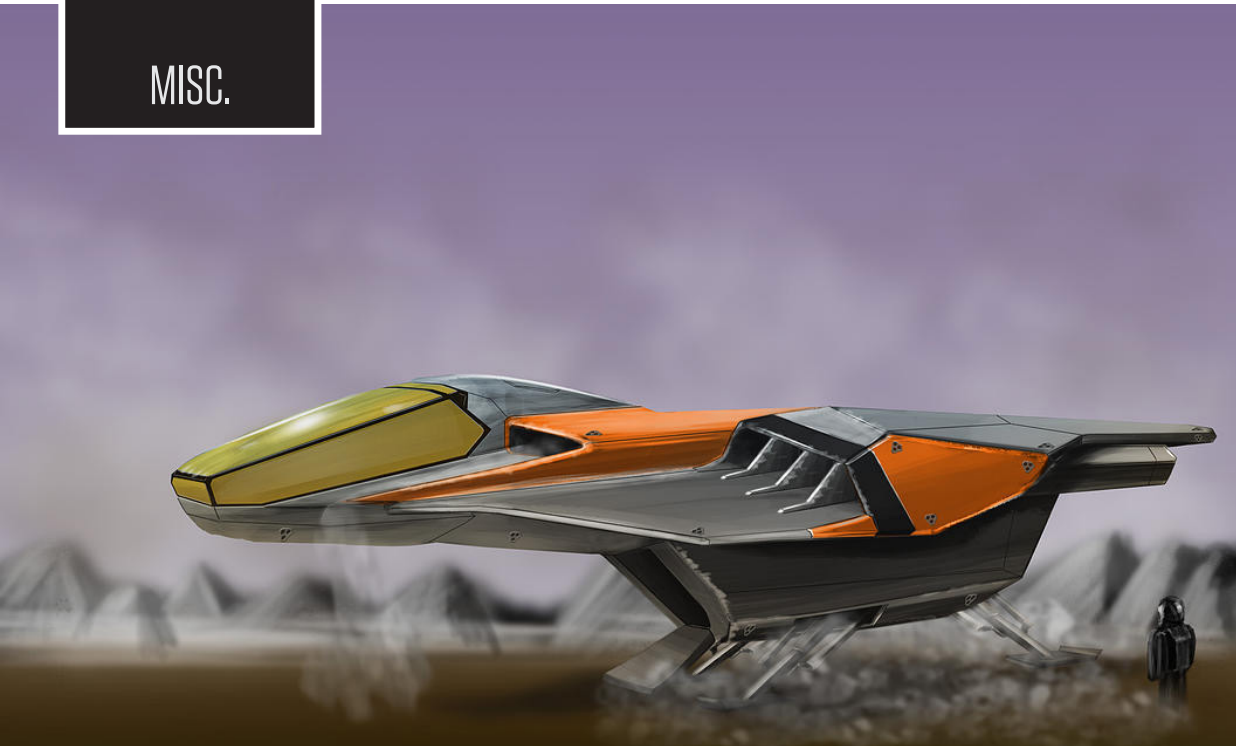


FINAL  
LINEUP





MISC.



Extended shoulder pads distribute weight evenly

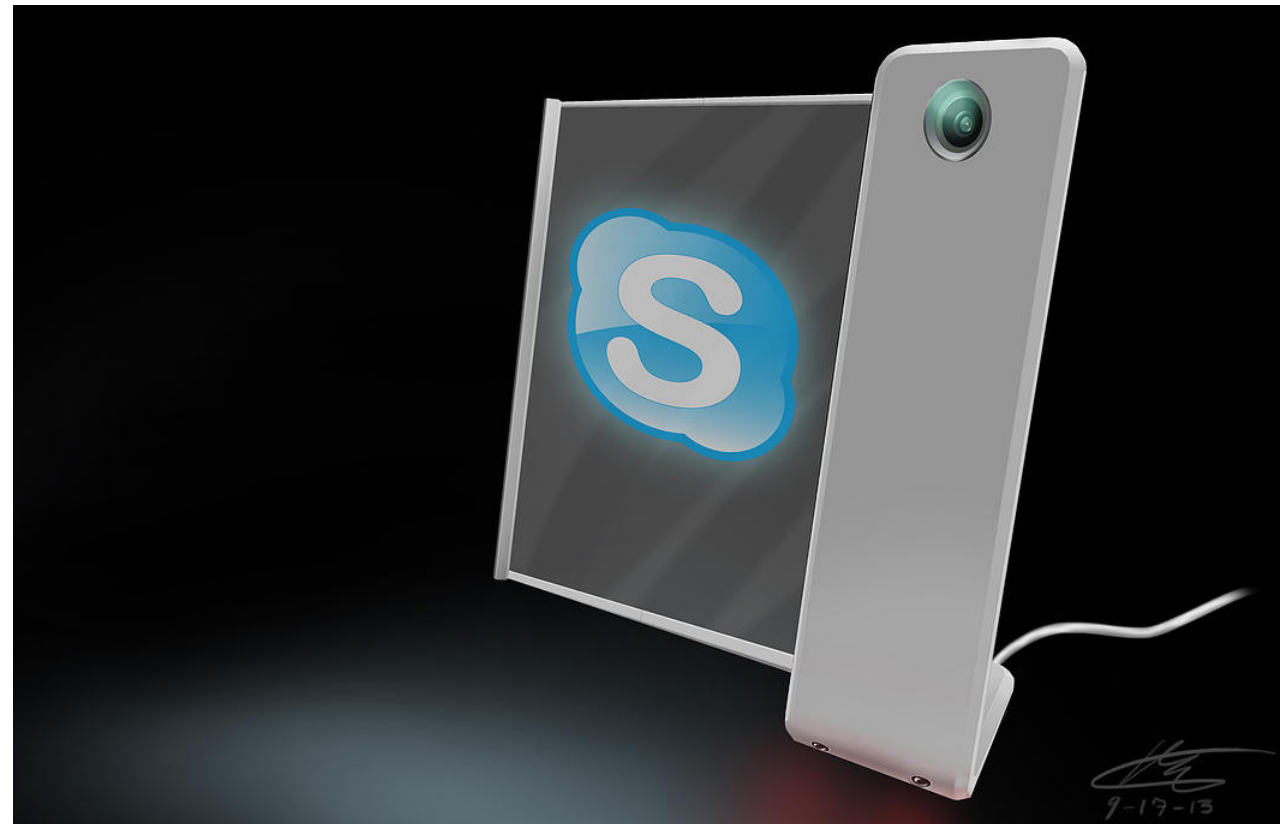
Hardcase top expands out with nylon sidewalls to keep it in line

Breathable mesh back

Attachment loops for gear

Articulated pad for comfort

*[Signature]*  
9-17-13





## Lead Design



Showcased at SHOTShow 2015 & IWA 2015



Showcased at SHOTShow 2015 & IWA 2015

## Design Support



Showcased at SHOTShow 2015



Showcased at SHOTShow 2015



Showcased at SHOTShow 2014



Showcased at SHOTShow 2015 & IWA 2015



Showcased at SHOTShow 2014






Thank You!

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