

TACTICAL CROSSBODY BAG

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ENGINEERING R&D — 2021

01.

DEFINE

& EXPLORE

PROBLEM DEFINITION:
TACTICAL BAG

INITIAL GOAL:

CREATE A BAG FUNCTIONAL
ENOUGH FOR THE
APOCALYPSE AND
FASHIONABLE ENOUGH FOR
EVERYDAY LIFE.

PRIMARY FUNCTIONALITIES:

1. HOLD OBJECTS
2. DURABLE
3. COMFORT/LONGEVITY
4. MOBILE/WEARABLE

SECONDARY FUNCTIONALITIES:

1. VARIETY OF COMPARTMENT
TYPES & MECHANISMS
2. ADJUSTABLE
3. AESTHETICS & DETAILING
(MILITARY/INDUSTRIAL)

CONSTRAINTS:

SIZE: Must be wearable and not interfere with being able to walk comfortably, the bag type will be determined by how much time I have to create final product, bag can be anything from a backpack, to a crossbody bag, and anything between

WEIGHT/TENSION: Must be able to hold a full bags worth of items and still maintain its intended shape

MATERIALS: Preferable want to source as much as I can in my immediate environment, but may need to get materials from external sources for the sake of not compromising quality

TOM SACHS - NIKE Craft: Exploding Poncho (\$500)

OVERVIEW:

1. Doubles as a poncho
2. Slightly larger than a typical fanny pack
3. Storage pouch
4. Three-layer waterproof and breathable fabric

PROS:

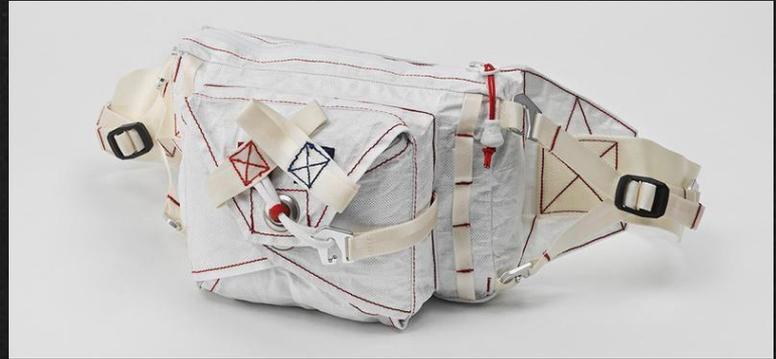
1. Super creative mechanism
2. Compact
3. Adjustable
4. Aesthetics/design gives military/astronaut feel
5. Storage pouch

CONS:

1. Only one pouch (disorganized, less variety of carryable items)
2. Poncho mechanism takes up most of the real estate

TAKEAWAYS:

1. Minimalism is an aesthetic and not a necessity
2. Tension is important in maintaining bags shape
3. Experiment with mechanisms



A COLD WALL - Canvas Utility/Holster Bag (\$600)

OVERVIEW:

1. Materials: (Canvas, Nylon)
2. Adjustable strap
3. 1 primary pouch, 2 sub pouches
4. Purse-like design

PROS:

1. Adjustable
2. Avant-garde design, versatile in it's aesthetic
3. Variety of storage, organized
4. Compact/mobile

CONS:

1. Small, can't carry larger items
2. More fashionable rather than practical

TAKEAWAYS:

1. You don't need boujee materials to make high fashion accessories
2. Experiment with placement



HAMCUS - PMU Holster V2 Ghost (\$359)

OVERVIEW:

1. Materials: (Nylon, Polyester, Ethylene-Vinyl
2. Acetate Copolymer)
3. Adjustable strap
4. Detachable buckle
5. Waterproof
6. 1 primary pocket, 2 side pockets, 2 sub pockets

PROS:

1. Adjustable
2. Military/utilitarian/futuristic aesthetic
3. Variety of storage, organized
4. Compact/mobile

CONS:

1. Aesthetic makes it not as fashionably versatile

TAKEAWAYS:

1. Experiment with unconventional shapes
2. Experiment with textures/surfaces
3. Bags can be functional yet experimental in design



TAKEAWAY SUMMARY/THOUGHTS

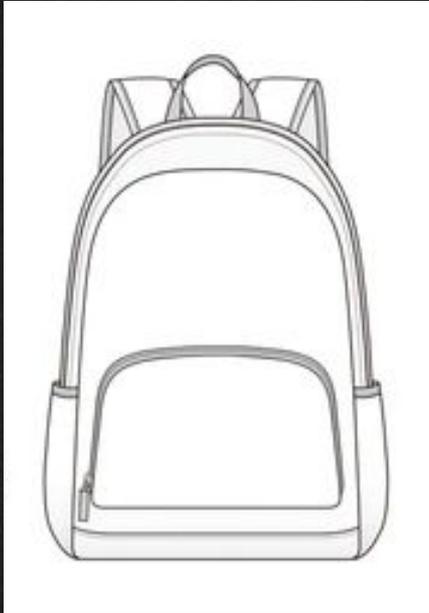
1. A lot of the bags which design I like are usually upwards of \$300 - So if I can make a bag that looks like a \$300+ bag just using immediate/low budget materials, there's some money to be made
2. Primary materials will probably end of being canvas and nylon
3. I have a few ideas of how I can integrate old army surplus products into my design
4. Use old military duffle bags as the source of the primary material
5. Use old tactical belts for the strap(s) of the bag
6. I need to set realistic goals and set the scope even further of what kind of features I want the bag to have (1 primary pocket, 2 clip pouches, loops for carabiner clip, 2 side slip pockets e.g.)
7. The only thing I'm certain I'll end up spending money on are clips/buckles.
8. Need to start compiling a list of video I can reference while I'm sewing so that way I'm using the correct type of stitches for what I'm trying to do.

02.

IDEATE

& DESIGN

KEY FEATURE (A)——BAG BODY



KNOWN:

N/A (this is the feature I can experiment the most with)

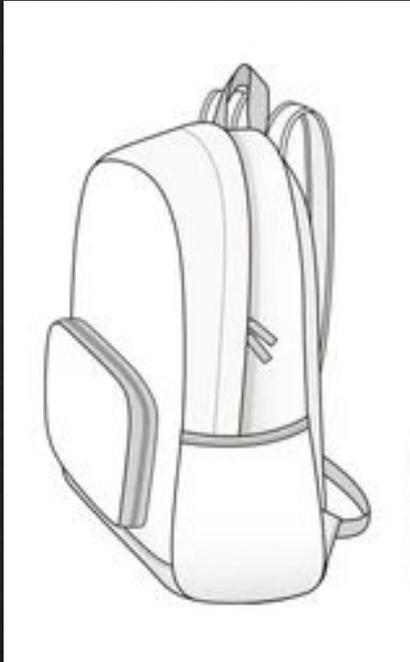
UNKNOWN:

1. **SHAPE/STYLE:** Backpack, Crossbody, Messenger, Fanny, Purse, Tote, Duffle, Shoulder Holster, Chest Rig
2. **MATERIAL:** Canvas (New, repurposed old military duffle bags, waxed), Nylon (Sleeping bags, windbreakers), Rugged Twill

NOTES:

1. The bag style will depend on the amount of time I have to make the final bag
2. I don't want the quality of the bag to be limited by what I have lying around my house so I might end up getting materials I can use

KEY FEATURES (B)——COMPARTMENTS



KNOWN:

1. Used to hold objects
2. Opens & closes
3. The amount and types of compartments I include will be dependent on the type of bag I choose to make
4. Want to have variety of compartments to lean into utilitarian aesthetic

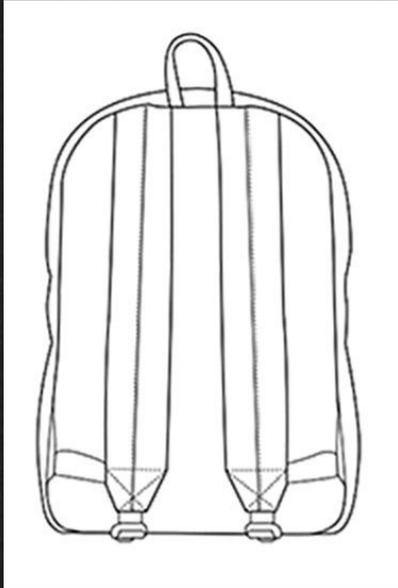
UNKNOWN:

1. Compartment Types: Wide primary compartment, Sub compartments, Slip pocket, Clippable straps, Hook-on loops
2. Contraptions: Zippers, Velcro, Side Release Buckle, Cam Buckle, Draw String, Snap Buttons, Buttons

NOTES:

1. Want to be experimental with contraptions and where they lay on bag
2. Maybe somehow kill two birds with one stone and make these contraptions a part of what helps sustain tension in keeping the bag's shape

KEY FEATURES (C)——TANGIBLES (STRAPS, HANDLES, ETC.)



KNOWN:

1. Used to hold bag
2. Tangible type will be dependent on bag type
3. Needs to be adjustable

UNKNOWN:

1. Whether the tangibles will be held with hands or hung over shoulders
2. Length of tangibles
3. Material: Nylon, Leather

NOTES:

1. Need to find a way to implement comfortability without drawing too much visually in its design

KEY FEATURES—APPROACH

A



MATERIAL:

1. Canvas (Jansports, Fabric Sheets, Repurposed Military Duffle Bags)
2. Nylon (Sleeping Bags, Windbreakers, Tarps)

SIZE:

1. Crossbody Bag
2. 6in x 7in x 2.5in

NOTES/TAKEAWAYS:

1. My main concern is the durability of my improvised materials
2. I'm considering doing a redesign of the bag's body to instead be a miniature duffle bag the size of a crossbody bag.
3. Want to find ways to incorporate the use of multiple materials (Jun Takahashi Scabbing Technique?)

B



COMPARTMENT TYPES:

1. Primary Compartment
2. 2 Sub Compartments
3. Slip Pocket
4. Side Nylon Strap Loops

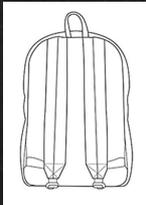
SEEL METHODS:

1. Zipper (Primary Compartment)
2. Velcro (Sub Compartments)

NOTES/TAKEAWAYS:

1. This Key Feature will be the primary platform for experimentation
2. Don't want to just stick compartments on the bag body but would instead rather have the compartments impact the bag's overall shape
3. Want to find creative ways of incorporating more compartments

C



TANGIBLE TYPE:

1. Nylon Strap (Repurposed military belt, backpack straps)

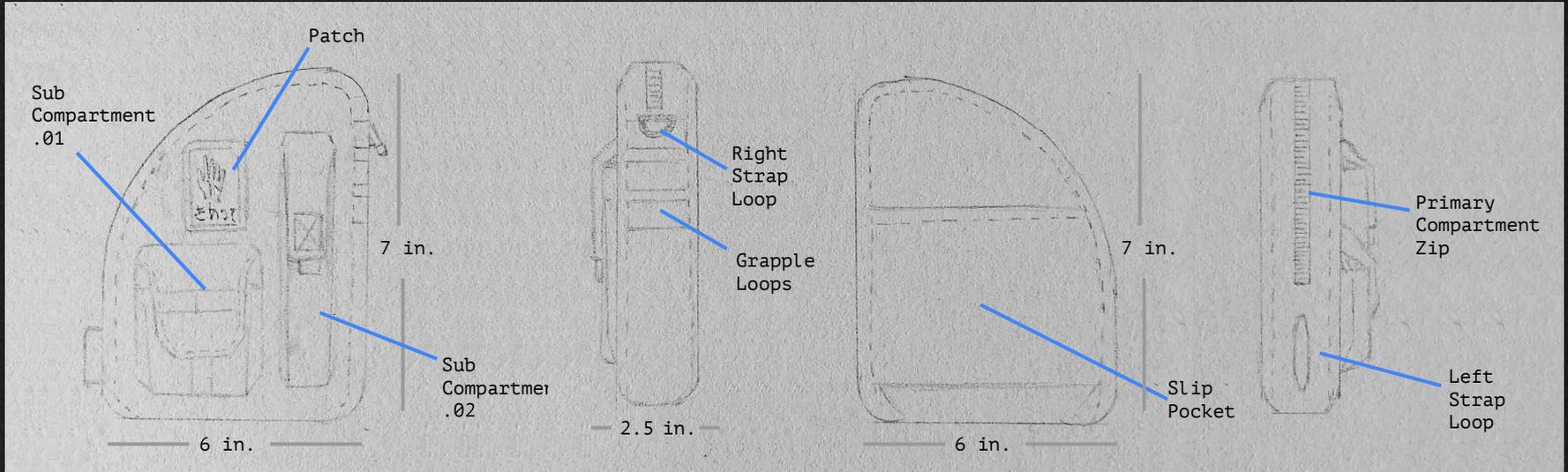
TANGIBLE FEATURES:

1. Adjustable Buckle
2. Detachable Clip Ends
3. Fabric Shoulder Comforter

NOTES/TAKEAWAYS:

1. Length of strap will be determined later (too much > too little scenario)
2. Could have a section of the strap be a chain

PROTOTYPE DESIGN



PROTOTYPE GOAL: Figure out bag size

APPROACH: Prototype will only be construct bag body, excluding exterior compartments. Length of strap (tangible) is unimportant as of now due to it being adjustable.

MATERIALS: Cardstock, Masking Tape

03.

BUILD

TEST

EVALUATE

PROTOTYPE

PROTOTYPE BUILD

APPROACH:

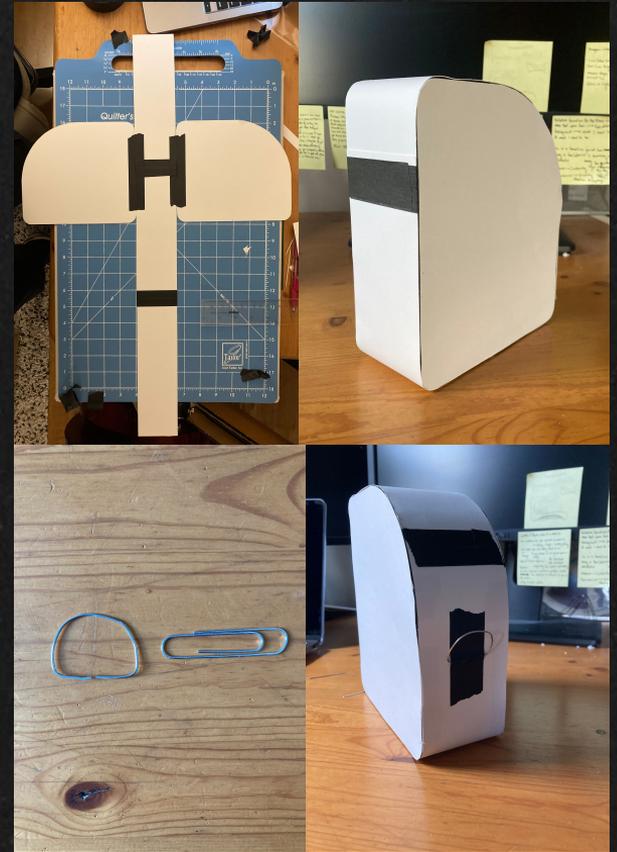
1. Materials: Cardstock, Painters Tape, Paper Clips
2. Measured and cut out surfaces according to prototype sketch (Front, Back, Edge/Width)
3. Aligned and taped surfaces together along the interior to hide as much tape as possible
4. Bent paper clips to create strap loops and taped them on sides of the bag

SOMETHING I LIKED:

1. How clean/streamlined my prototype build was
2. Used common office/household materials

SOMETHING I WILL NOT DO AGAIN:

1. Though taping the prototype from the interior allowed for a cleaner look, it was unnecessary and more difficult than it needed to be compared to if I would have taped from the exterior



PROTOTYPE TEST

TEST OBJECTIVE:

1. Get a feel for bag's size and how it sits/hangs

TEST METHOD:

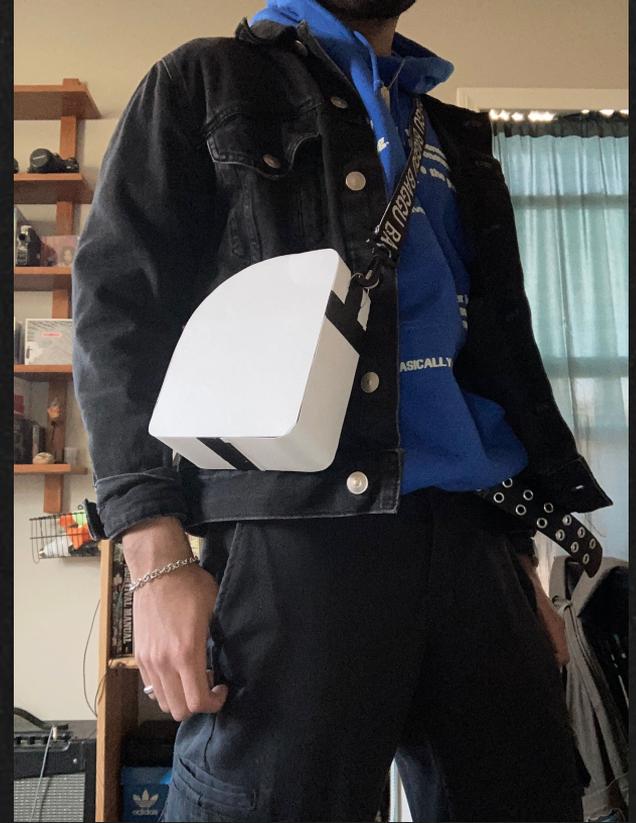
1. User/Visual Testing: Using a strap from a crossbody bag I already had, I wanted to emulate how my bag would feel while in use. I also wanted to see whether or not having the curved top edge would look visually pleasing.

TEST CRITERIA FOR SUCCESS:

1. Bag's shape isn't too much of an eye sore in contrast to outfits
2. Sits comfortably while in use
3. Size of bag feels right

EVIDENCE:

1. Shape didn't look like too much of an eye sore while in use
2. Didn't feel uncomfortable or off in any way
3. Though the prototype looks too wide, the bag will flatten out when I use fabric for my final deliverable



PHASE .01

PROTOTYPE EVALUATION

ASPECTS OF MY PROTOTYPE THAT I LIKE:

1. Having the top curved edge allows for my shoulder to be used as an anchor while unzipping meaning I'd only need to use one hand to open bag
2. Feel like I nailed the proportions of the bag

ASPECTS OF MY PROTOTYPE THAT I DID NOT LIKE:

1. The bag design I have now is safe/realistic in terms of my ability in being able to make it but I would still like to more interesting ways to be experimental/avantgarde with it's design.

IMPROVEMENTS FOR MY NEXT ITERATIONS:

1. Need to be mindful of exactly where I'm place the left strap loop because if it's placed too low, it would cause the bag to tilt/spin while in use



04.

FINAL

DRAFT

FINAL DESIGN

INTRO:

Between my prototype design and final design, there wasn't much that had changed. The utilitarian/punk-industrial aesthetic was something that was maintained throughout the entire process of this project through the use of earth tones w/bold accents (i.e. red stitching, patch), rough textures (thick canvas, metal), and favoring functionality over conventional design. During the prototype phase, I became aware of the importance of the placement of the d-rings. In order for the d-rings to counterbalance the bag's weight, they both must be placed above half of the bag's height—otherwise one d-ring will be supporting the bag's weight significantly more than the other which would also cause the bag to spin (similar to holding a towel from opposite corners).

FINAL DESIGN (W/O SECONDARY FUNCTIONALITIES)



KEY FEATURES

MAIN : Primary Zip Compartment

FRONT: 2 Velcro Sub-Pockets

BACK: Slip Pocket

SIDES: D-rings (Detachable Shoulder Strap), Nylon Loops (Attachables i.e. Carabiners, Additional Pouches)

FINAL DESIGN

But what had the final say in the bag's overall design was the fact that I had to be realistic. This was the first time I had tackled a sewing project as rigorous as this which meant that everything I had designed needed to be able to be created using entry level sewing skills.

I had spent some time designing alternative secondary functionality layouts but ultimately I gave myself the parameters of only having two sub pockets on the front of the bag for the sake of feasibility. As this project has progressed over the past few months, in the context of the fashion industry I began looking at this project as the prototype design to what would be shown on a runway/put up for retail. Once I had that mindset towards this project, it alleviated a lot of the pressure I put on myself.

ALT. SECONDARY FUNCTIONALITIES DESIGNS



FINAL BUILD

APPROACH:

Originally, I was meant to construct the body of the bag first and have it act as a checkpoint for my rough draft. But as I began planning my build process, I realized that I wouldn't be able to attach my secondary functionalities onto a completed bag body. What this meant was that I would have to complete my secondary functionality before the primary functionalities and I wouldn't be able to test my final build/make adjustments after because the work I'd have to do would be too permanent.

STEPS TAKEN:

1. Create templates by sketching panel dimensions onto cardstock
2. Cut fabric panels using templates
3. Sew exterior pockets and attach them onto front/back panels
4. Sew secondary functionalities of top, bottom, and side panels on one long strip of fabric and sew both ends creating a loop
5. Line up front/back panels along the loop and sew edges together inside out
6. Once finished sewing, flip bag right side out to get completed bag



FINAL DESIGN



CHALLENGES:

SEWING CURVES: This was extremely challenging while sewing the front, back, and side panels together. It took me several tries to get it right. The exterior pockets I had sewn onto each of the panels would get in the way while I was sewing and I had to find ways to squeeze all the layers of fabric beneath the foot of my sewing machine.

WHAT WENT WELL:

BEING PRECISE: Taking the time to be tediously precise with marking each measurement was definitely the biggest contributor to the final outcome. It'd be to the point where I'd count the threads in the fabric to figure out where to place my marks.

WHAT DIDN'T GO WELL:

SEWING SIDE PANEL/LOOP: Due to the top curved edge in my bag's design, I wasn't able to measure out the length of the side panel. This made the process take a lot longer compared to if I would've done a bag with a rectangular design. I had to sew the side panel onto the front panel while also sewing the secondary functionalities onto the side panel in order to find where the ends of the loop would meet.

FINAL EVALUATION

WHAT I LIKE ABOUT MY FINAL PROJECT:

1. Was able to maintain utilitarian/punk-industrial aesthetic throughout the entire process of this project without making any sacrifices
2. Looks exactly like my original design sketches from prototype phase
3. I was able to make a crossbody bag on a budget that looks way cooler than 80% of the crossbody bags on the market.

IF YOU COULD DO THIS PROJECT AGAIN WHAT WOULD YOU CHANGE?:

1. Wish I would have used a larger zipper. The zipper I used was an inch too small and so I had to compensate for it by covering the extra inch left behind with extra fabric. I also didn't know that zippers could be cut and that would've been helpful to know when I was gathering materials.

DOES THE FINAL ACCOMPLISH ALL OF YOUR PRIMARY FUNCTIONALITIES?

Yes, my bag is able to hold all my everyday items, is mobile/comfortable to wear, and is durable in that it's semi-waterproof.

DOES THE FINAL ACCOMPLISH ANY OF YOUR SECONDARY FUNCTIONALITIES?

Yes, I was able to include 3 exterior pockets and nylon attachment loops so I could attach carribenears or additional pouches to my bag.

