



Trash Bag Packaging Revamp

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EXPLORATION

EXPLORATION

Initial Discoveries

Problem

Trash bags are sold in single packages, requiring individuals to purchase more than one box at a time if they wish to outfit their entire home with different sizes. Having multiple, separate packages causes clutter and frustration in the home where storage is limited. The packages in which trash bags are stored are notoriously difficult to keep under control when trying to grab just one bag.

Solution

Our proposed solution would involve combining the most popular types and sizes of trash bags purchased together into one package. The goal of a single package is to eliminate clutter and provide an easier dispensing experience when refilling multiple bags at a time.

Cluttered, disorganized packages cannot be accessed simultaneously.



EXPLORATION

The Brand

Product Background

Trash bags were introduced in the late 1960's by the Union Carbide Company, known to many of us as Glad. These began as thick polyethylene bags which had little ability to be composted. In the late 70's bags were introduced which could be biodegraded in sunlight, much like the bags we have today. Despite trash bag technology changing significantly through the years, the packaging has remained relatively stagnant. A cardboard box with a closing flap which houses the roll. We saw an opportunity to bring additional utility and organizational capability to an otherwise plain experience.

Brand Vision

A commitment to better serving the space needs of the customer by combining the most popular items into one convenient package. While continuing to reduce waste in both production and consumption.

Product Objectives

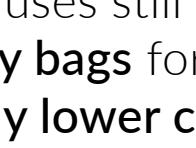
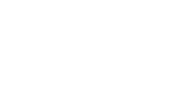
- Improve purchasing economy with multiple sizes in one package
- Eliminate feeling of overbuying
- Improve presence of Glad trash bags on shelving

Let's take a stronger stand **against waste**

EXPLORATION

Competition

Glad is positioned
with **higher tech bags** 
but at a **higher cost**.

Company	Customers	Market Share	Price per 40 bags	Packaging
Glad	112.2M	32.9%	\$7.99	
Hefty	117.05M	34.4%	\$6.98	
Store Brand	111.82M	32.6%	\$5.00	



Store brands emphasize
decent quality bags for
a much lower price.

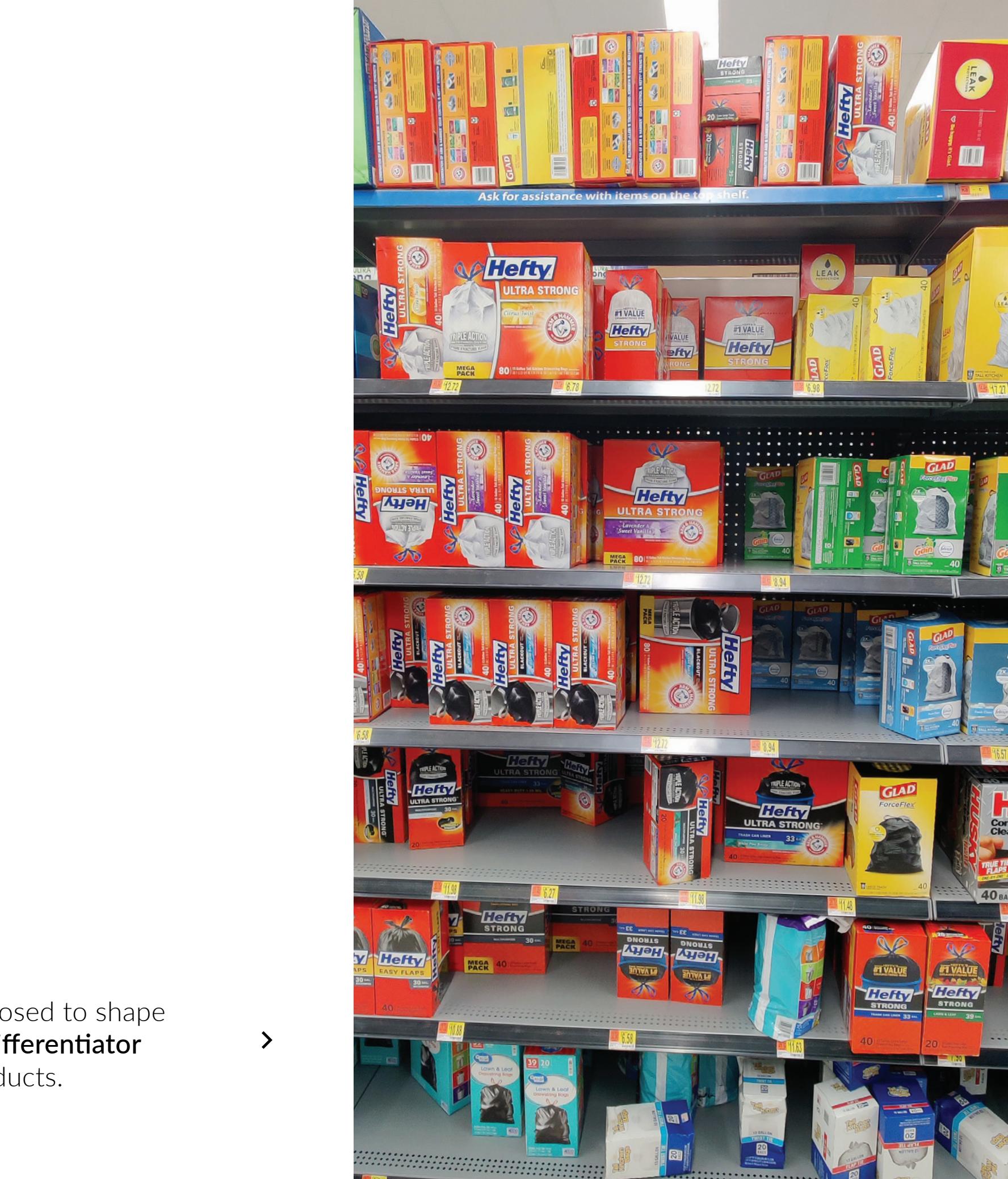
EXPLORATION

Shelf Presence

On-Shelf Presence

Trash bag boxes all take nearly identical shapes on store shelves. The sea of rectangular prisms is differentiated solely by color choice which varies wildly by brand. Hefty chooses bright orange, Glad; yellow and store brands; blue or green. We realized brand loyalty played a massive part in user selection. Changing of too many elements would be detrimental to brand recognition.

Color, as opposed to shape
is the main differentiator
between products.



EXPLORATION

Archetypes

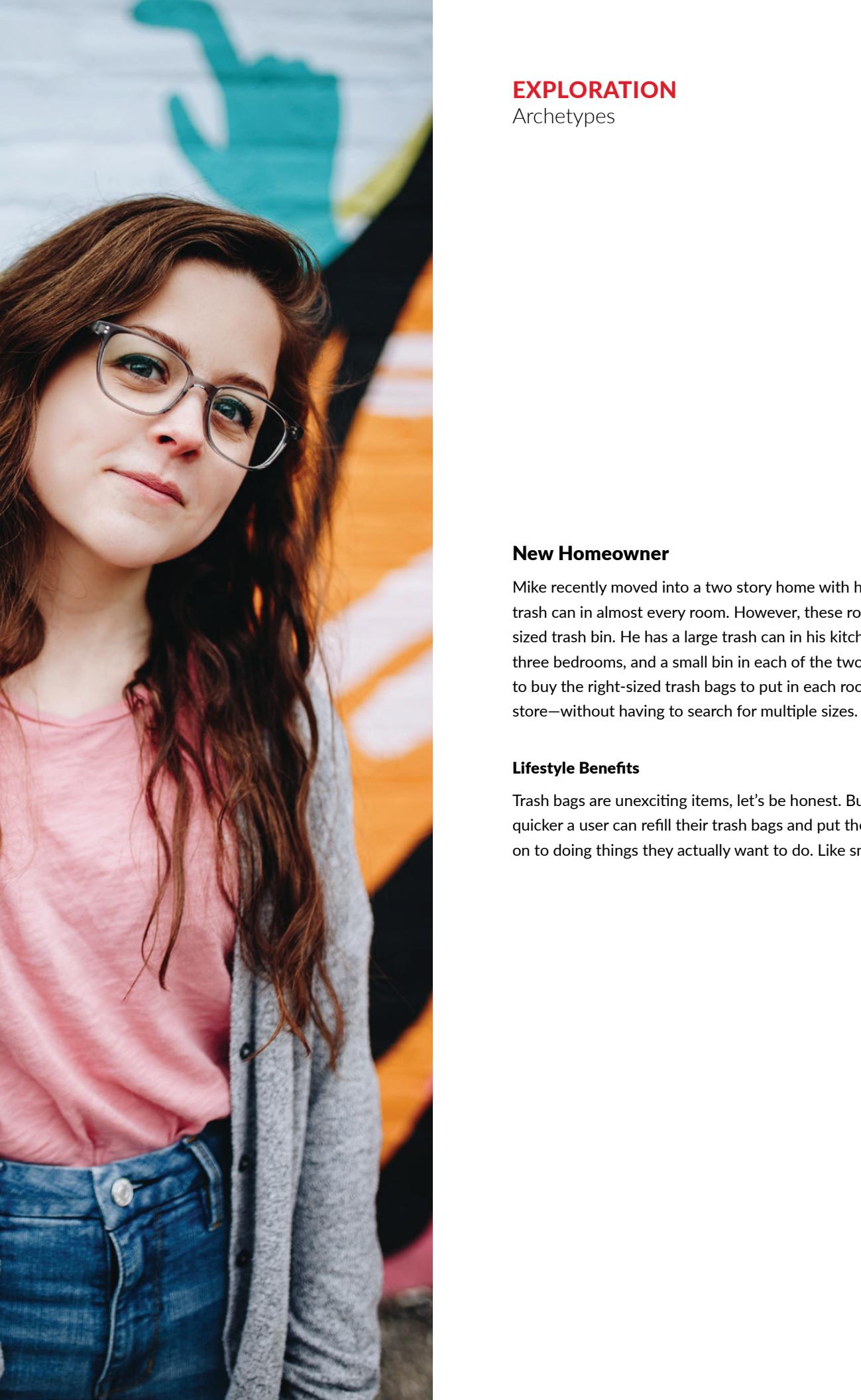
Apartment Renter

Andrea has lived in her two bedroom, one bath apartment for almost three years and finds the amount of necessities in her cupboards has continued to grow. She is a very organized person but does not have space for everything. She finds that if she stacks her different sized trash bag boxes she can save space, but this makes it difficult for her to pull the bags out of the boxes, and she doesn't like the waste caused by so much packaging. Nor does she have the disposable income yet to continually buy a whole bunch of trash bags individually all the time.

Emotional Benefits

A product cannot sell on value alone, it must improve a customers wellbeing for them to consider it a viable addition to their already defined

"I don't have a whole lot of space in my apartment so everything I can do to keep my cupboard nice and organized is a bonus." >



EXPLORATION

Archetypes

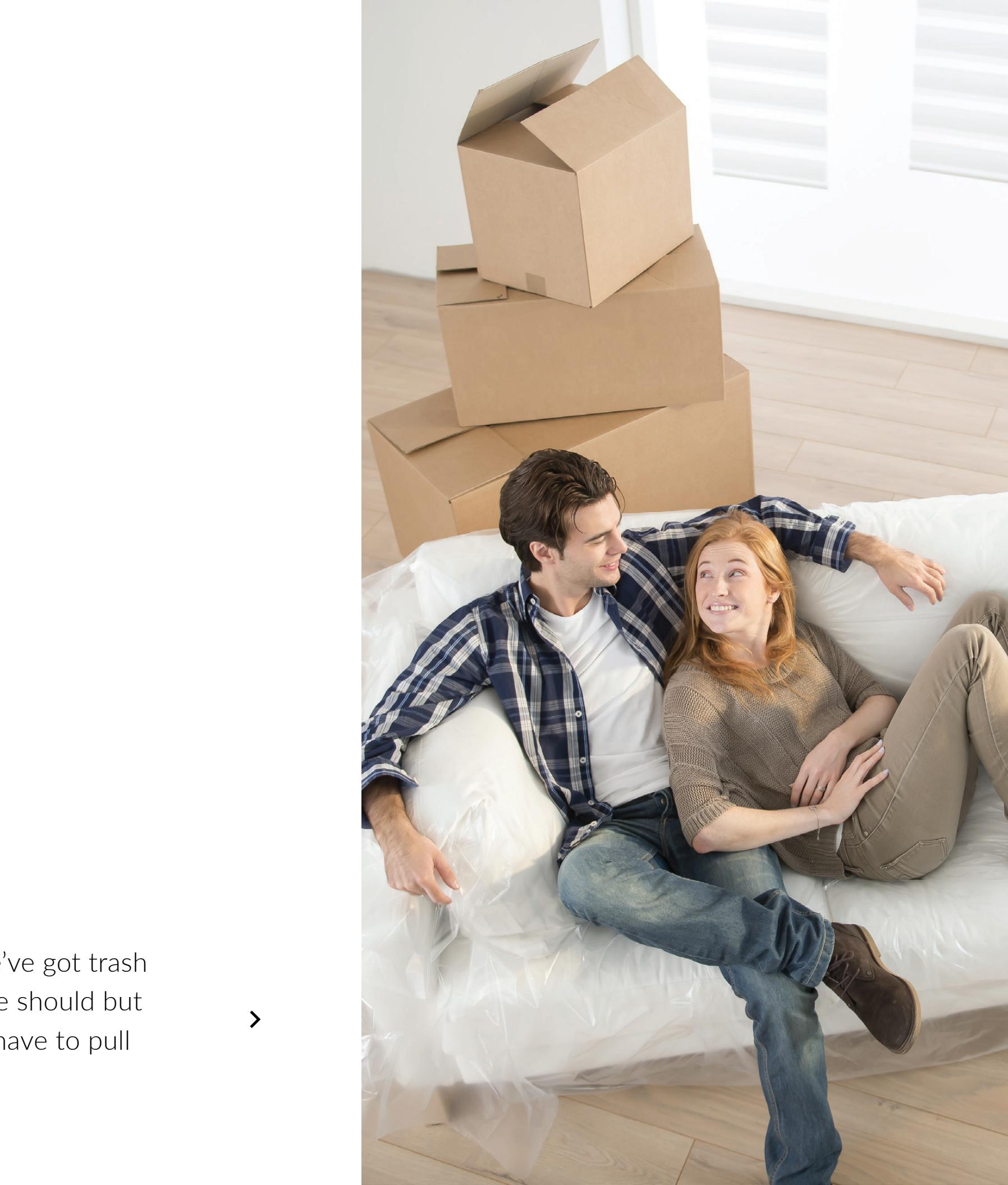
New Homeowner

Mike recently moved into a two story home with his family and finds himself needing a trash can in almost every room. However, these rooms do not all require the same sized trash bin. He has a large trash can in his kitchen, a medium-sized bin in each of the three bedrooms, and a small bin in each of the two the bathrooms. His goal to be able to buy the right-sized trash bags to put in each room's bin quickly and easily at the store—without having to search for multiple sizes.

Lifestyle Benefits

Trash bags are unexciting items, let's be honest. But spicing up trash bags isn't the goal. The quicker a user can refill their trash bags and put the product away, the quicker they can get on to doing things they actually want to do. Like snowshoeing. Or walking the dog.

"We just bought our first home, we've got trash cans in every room like every house should but filling them all is a drag because I have to pull out **two or three different boxes."** >



EXPLORATION

Best Practices

Sticky Notes

Sticky note containers have the added bonus of being refillable. Once a sticky pad runs out or you're feeling a change in color you can quickly swap it with another. This concept can be applied to our product with a mechanism permitting easily replacing spent rolls of trash bags.

"Easily refillable and **extremely convenient** dispensing when placed anywhere." >



EXPLORATION

Best Practices

Tissue Boxes

This package represents an ideal combination of dispensing ease and storage capabilities. Slender and compact in stature these can be stored almost anywhere and use their weight to hold themselves down while being used to dispense product. The weight of the trash bag holding the package down will be important for maintaining ease of dispensing.

"Make use of **their weight to hold them down** during dispensing with the added bonus of **being incredibly compact**, they be stored almost anywhere." >



EXPLORATION

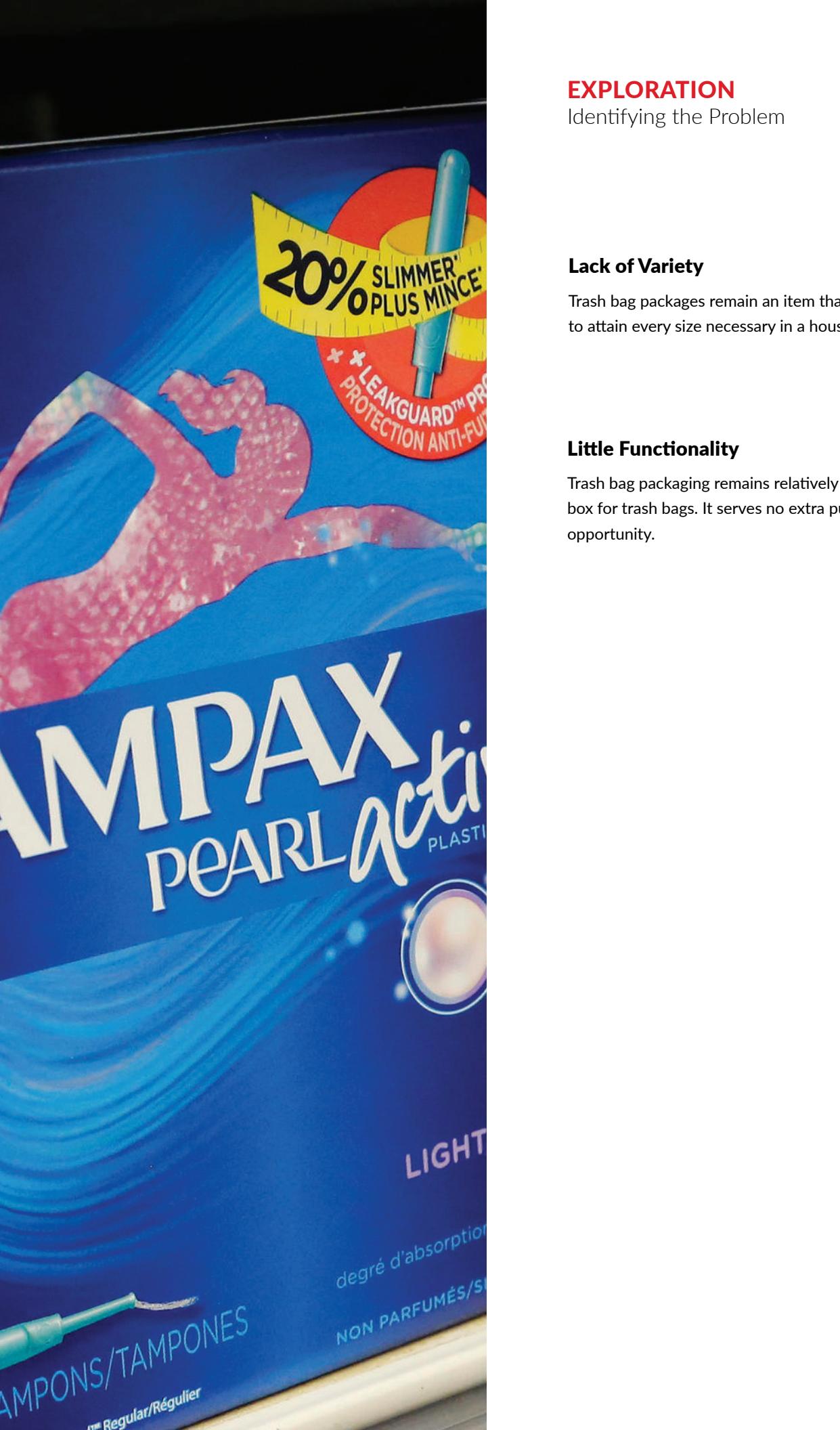
Best Practices

Tampon Boxes

Several different sizes are offered in one box giving great convenience to the user. This eliminates both needing to remember multiple sizes and the inevitable trip back to pick up the size you didn't buy.

"Contain multiple sizes in one box.

Customers no longer have to purchase several boxes and **avoid cluttering their cabinets.**"



EXPLORATION

Identifying the Problem

Lack of Variety

Trash bag packages remain an item that must be purchased separately to attain every size necessary in a household.

Little Functionality

Trash bag packaging remains relatively simple, a borderline tissue box for trash bags. It serves no extra purpose. This feels like a missed opportunity.

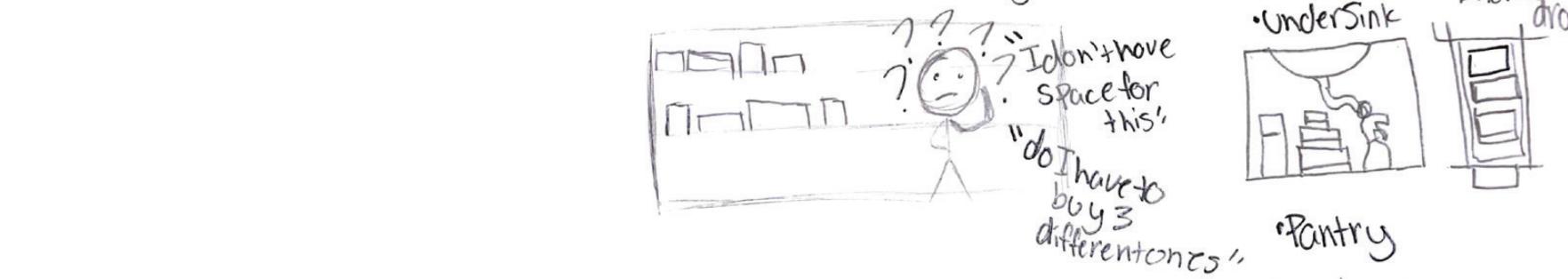
Trash Bag Packaging

Problems:

- Buy all sizes Separately
- Storing different Sizes Causing clutter
- Getting bag out of box

Solution:

- Provide all sizes in one box
- make it easier to dispense bags
- Small enough to store



Possible Solutions:



Best Practices:

- Tissue box
- Tampon Boxes
- sticky note
- Tape dispenser

EXPLORATION

Surveys

Collecting Data

We created an initial survey to greater understand both location and size requirements for our product. This survey helped us determine how large we could make the product as to maximize convenience and minimize its footprint.

The majority of participants had **2 trash bag sizes** in their homes.



EXPLORATION

Surveys

"**Finding the end that opens** and **keeping the roll neat** once I tear one off is always a **struggle** for me."

70% of participants kept **all of their trash bags in one place**.

82% of participants **empty all of their trash bags at the same time**.



Most participants **stored their trash bags under the kitchen sink** in their homes.

60% of participants said they would **rather buy all their bags at one time**.

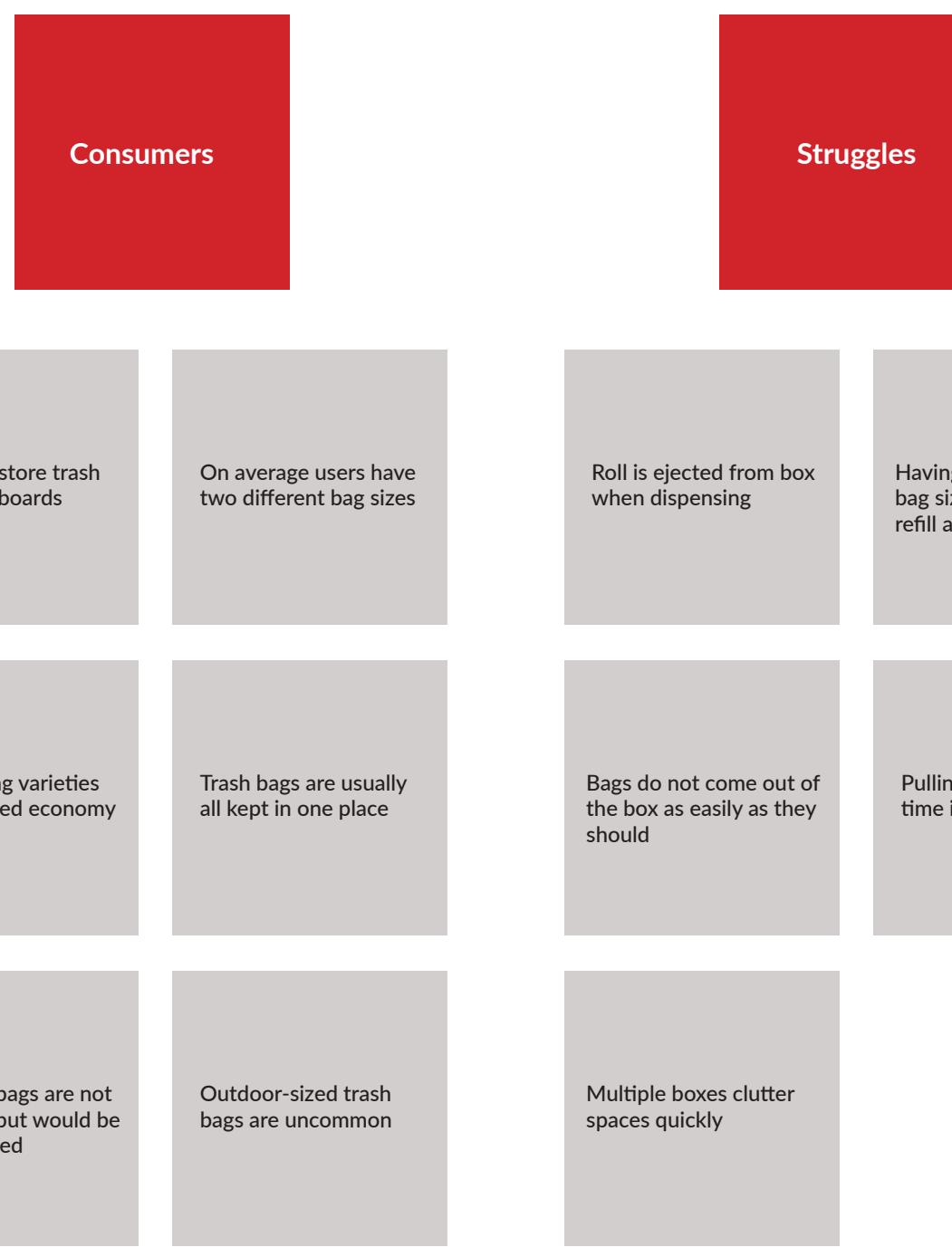
"**Having the whole roll come out** of the box when I grab one is **very frustrating**."

EXPLORATION

Affinity Diagramming

Looking At The Whole Experience

We boiled our wealth of survey data into an affinity diagram which would help us consider the aspects of the entire experience. Not only were we able to further understand the consumer habits behind trash bags but we also saw the struggles associated with the product.



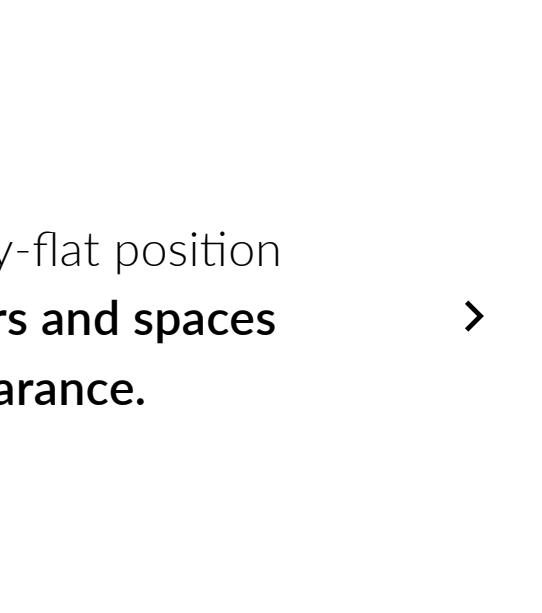
EXPLORATION

Sketching

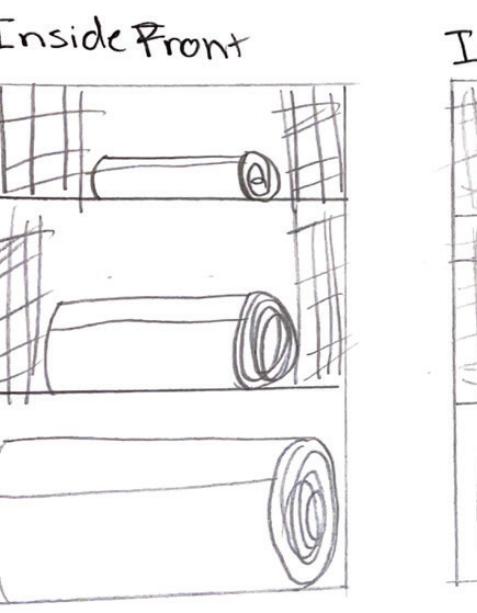
Going Vertical

Our first idea came in the form of vertically stacked bags in a tower form. This allowed easy access to all of the bags at one time and used its heaviest bags on the bottom to keep it anchored while in use. Our product designer made us aware of the materials which egg-carts used to keep eggs in place. This was utilized to maintain internal rigidity.

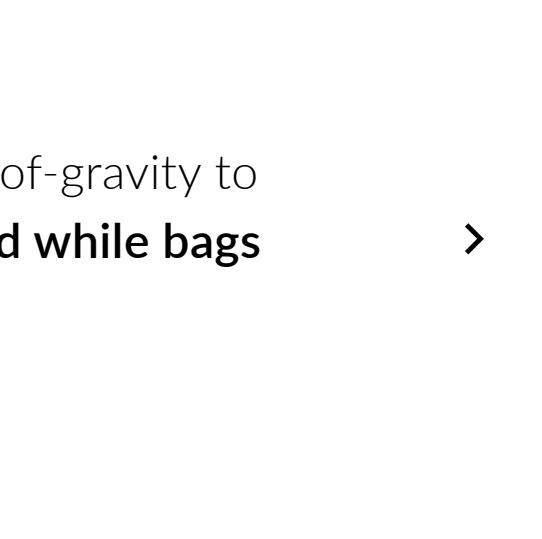
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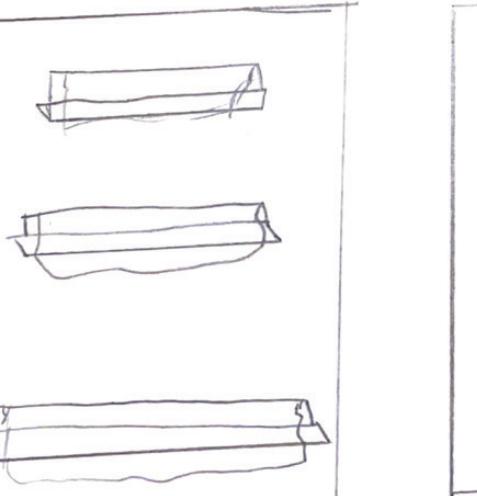
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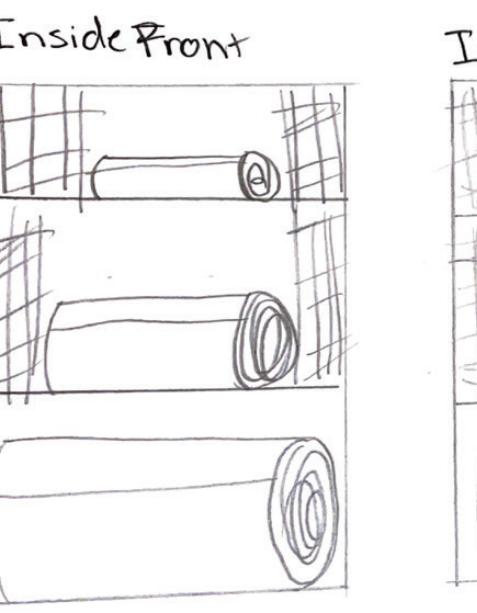
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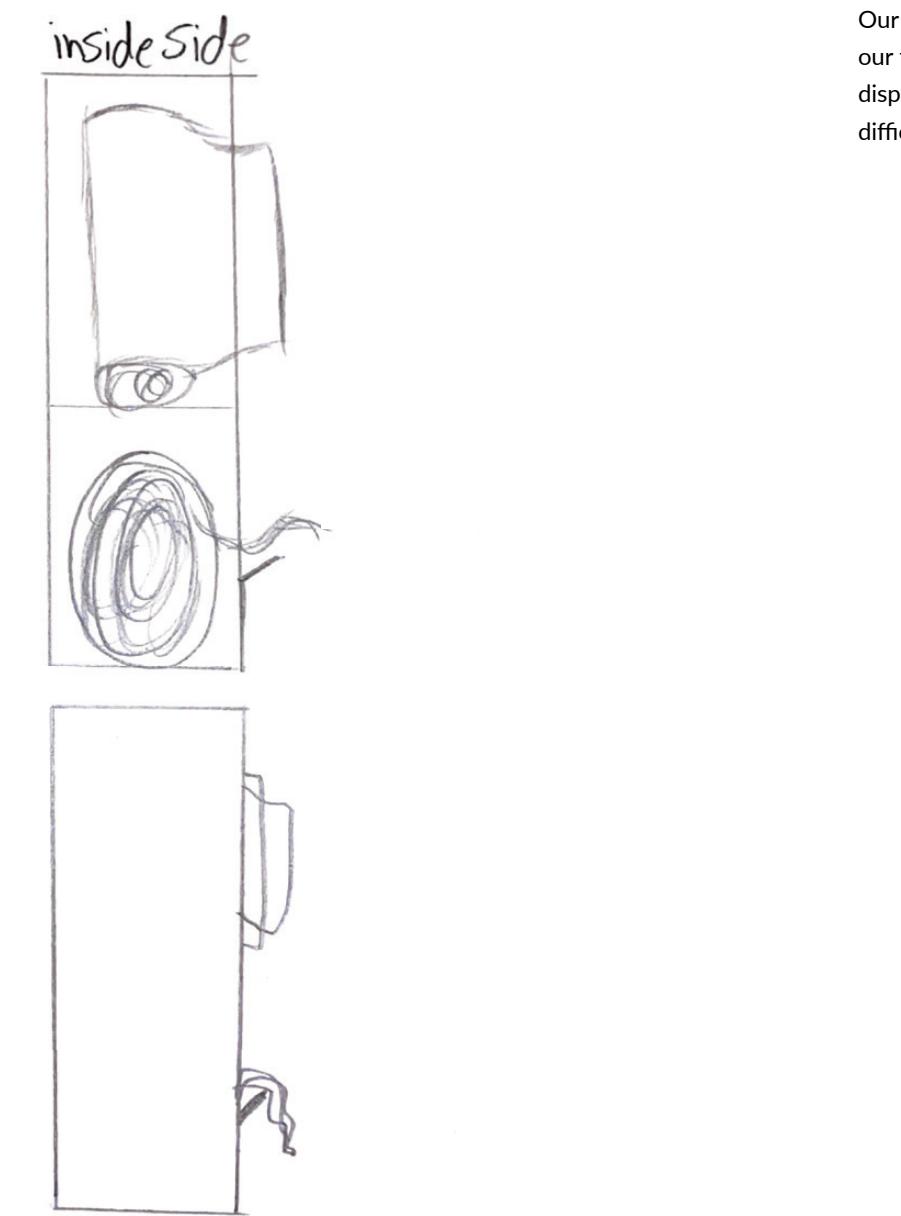
EXPLORATION

Sketching

Alternate Dispensing Orientations

Our fourth concept changed the layout of bag receptacles significantly. It maintained the dimensional effectiveness of our first and second sketches. The directional change in bag dispensing was found to provide significant challenges later on.

Different dispensing directions **could provide recognition difficulties.**



Form factor **maintains versatility.**



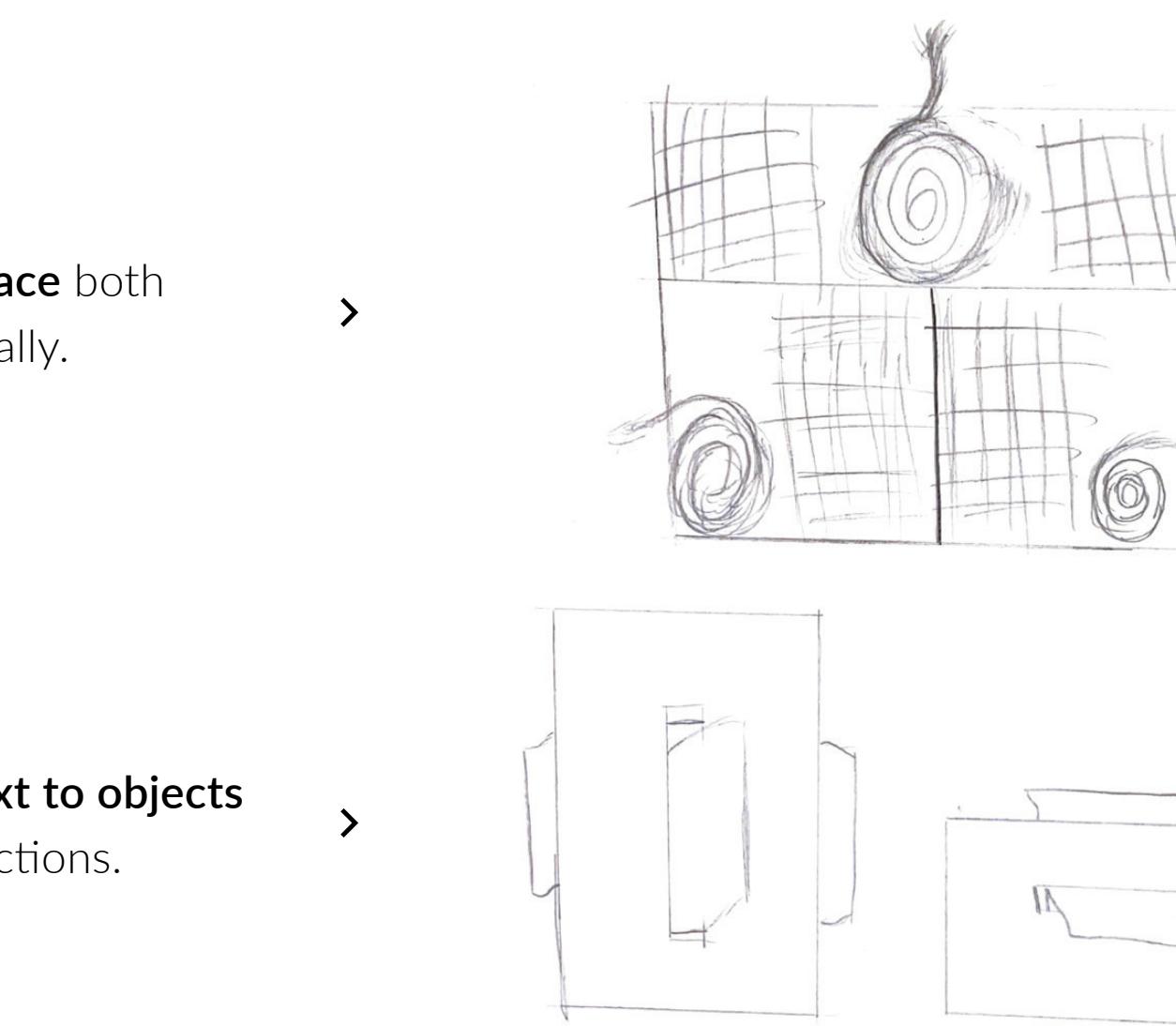
EXPLORATION

Sketching

What About Sideways?

Our second concept saw a great deviation from the symmetry of our first idea. This version utilized three of the five visible sides for dispensing. It was highly space efficient but made dispensing incredibly difficult in all-but-ideal scenarios.

Makes **great use of space** both vertically and horizontally.



Inhibits placement next to objects due to dispensing directions.



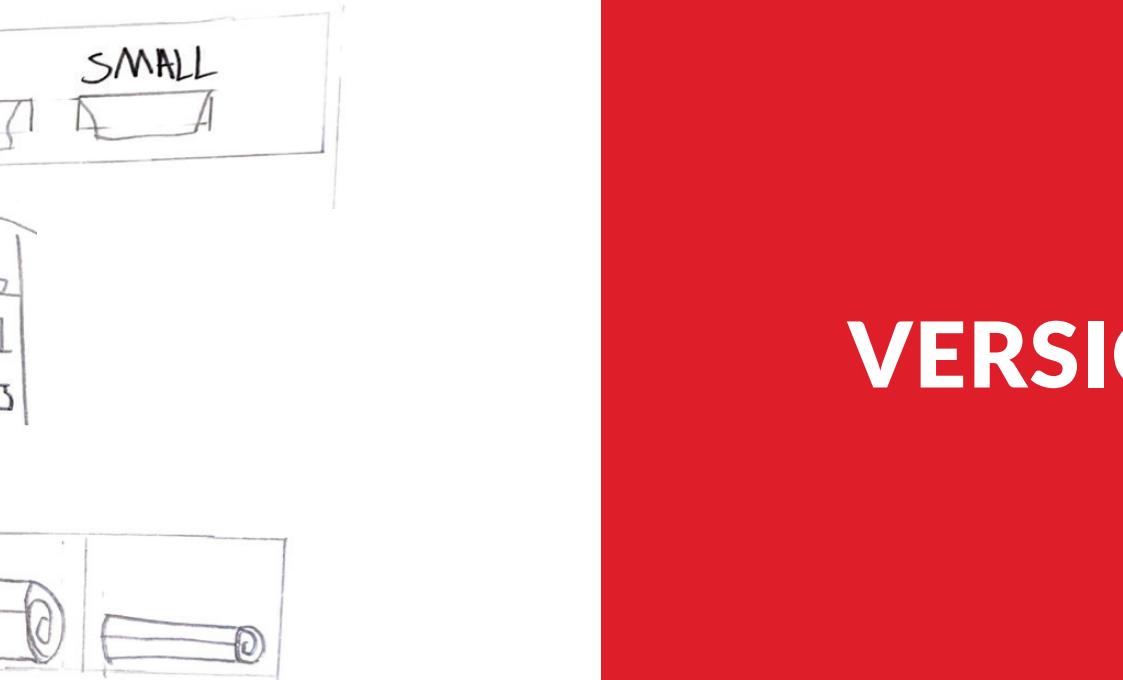
EXPLORATION

Sketching

Side Dispensing

Our third direction took a more extreme lay-flat approach. With all bags dispensing from one side, labeling was much more noticeable and we could nix the egg-carton internals. However, this solution turned out to cater too much towards pantry users. Which, while they are present, are not the majority. The awkward spacial preferences of this design made it very difficult to satisfy all the problems we found.

Fits very well in **pantries** and **wider** areas.

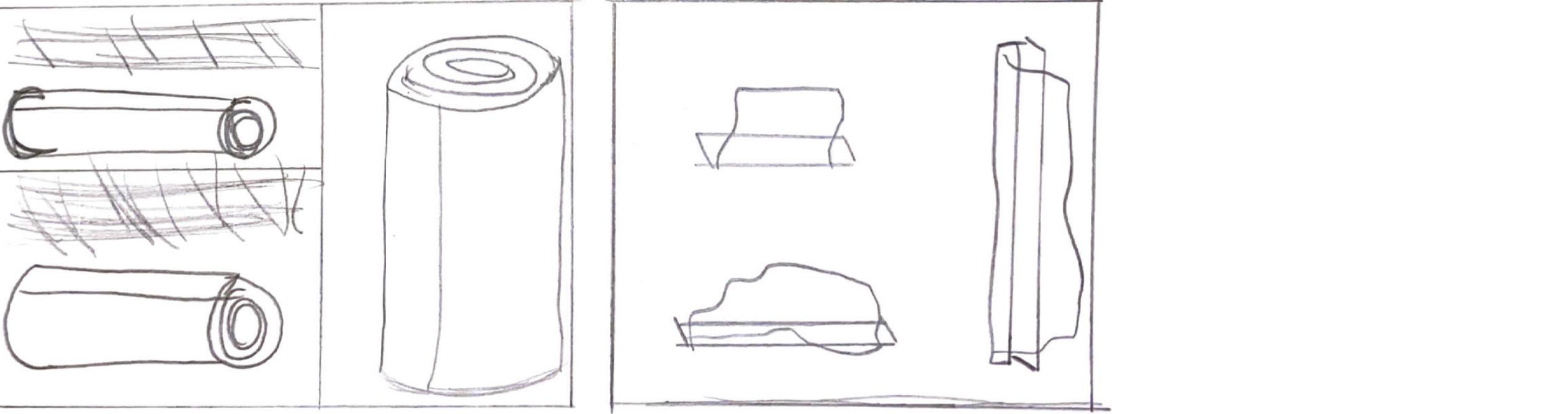


Reduces material cost by eliminating the need for internal reinforcement.

VERSION ONE

VERSION ONE

Sketching



Different dispensing directions could **provide recognition difficulties.**

Form factor maintains **versatility.**

VERSION ONE

Prototyping

**Do-It-Yourself**

The impracticality of 3D printing such large objects introduced a need for a hand-built prototype. Using cardboard and hot glue, we constructed a to-scale representation of our product to test in various places according to our survey. This would help us physically detect any problems an end user would encounter.

If It Fits It Ships

Once physically constructed we tested our product in a few of the locations which appeared most often in our surveys; cupboards and under-sink storage, and drawers. Dimensionally our prototype was a perfect fit, leaving room for additional stacking if needed.

This prototype allows us to sit 3 bag types where originally two was pushing the limits of the space.

Directional Dispensing

Our one main concern with this design was the direction of dispensing causing issues for users. Upon building the prototype we immediately noticed having to discern both direction and a sizing designation was much more difficult than just having to recognize a sizing on the box.

VERSION ONE

Feedback

"It was a bit **difficult to see where each trash bag size was on the package.**"

"**The orientation of the bags get a little weird** depending on where I put it."

"**Very convenient** compared to buying them all separate!"

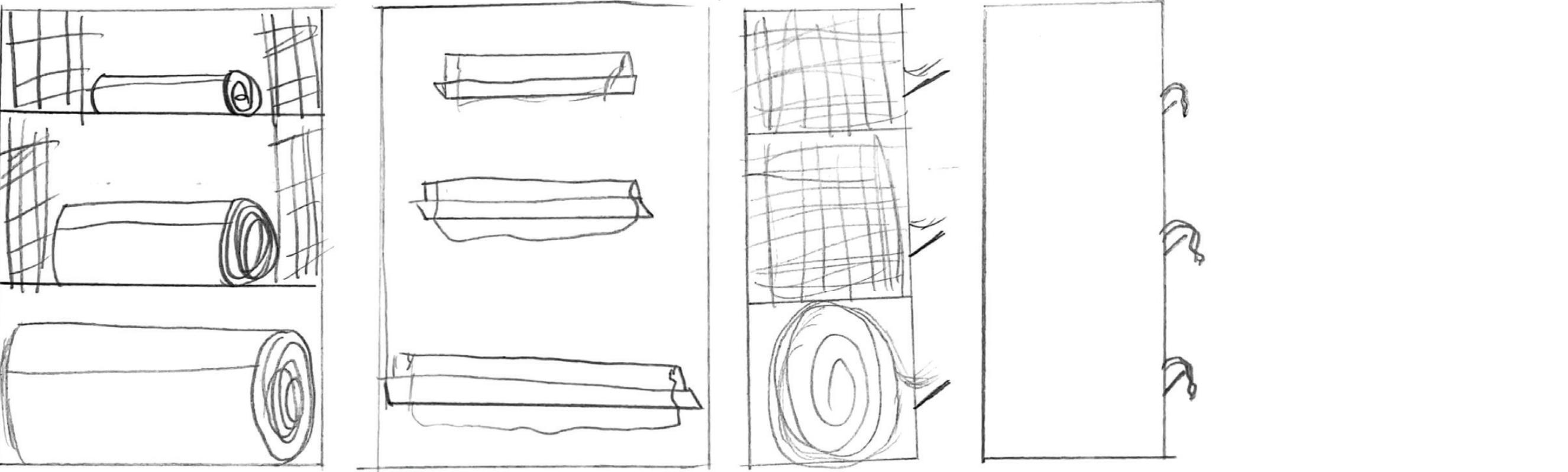
"The box **stays put when I try and grab a roll**, I love that."

"**So nice** to be able to just take this around and **re-bag my entire house in one go!**"

VERSION TWO

VERSION TWO

Sketches



^
Can be stored in a lay-flat position for storage in drawers and **spaces with less vertical clearance**.

^
Utilizes a low center-of-gravity to **keep object anchored while bags are being dispensed**.

VERSION TWO

Prototyping



Spacial Relations

This prototype retained the same form factor as our first version. This form factor again excelled in each place it was set. Its footprint was small enough, both vertically, and horizontally comply with the most popular spaces from our surveys.

Dispensing Direction v2.0

For this prototype we utilized a uniform dispensing design where all receptacles were oriented horizontally. This was immediately easier on the eyes, giving a much needed usability boost. Improving the speed with which a size could be picked out from the crowd was crucial to creating an experience which helped, not frustrated users.



VERSION TWO

Feedback

"The little flap helps keep the bags separate so I don't accidentally grab multiple at a time."

"I wish there was a way to refill the bags."

"Having the whole roll come out of the box when I grab one is very frustrating."

"I wish I could restock the bags, or detach the boxes to get new ones."

VERSION THREE

VERSION THREE

Best Practice

Refiling

Users commented on the lack of ability to refill the trash bags. This drastically reduced economy. For our second iteration of the package we introduced a tabbed flap on one side. This was to function very similar to the top of a cereal box.

A tabbed top portion, **allows resealing.** >



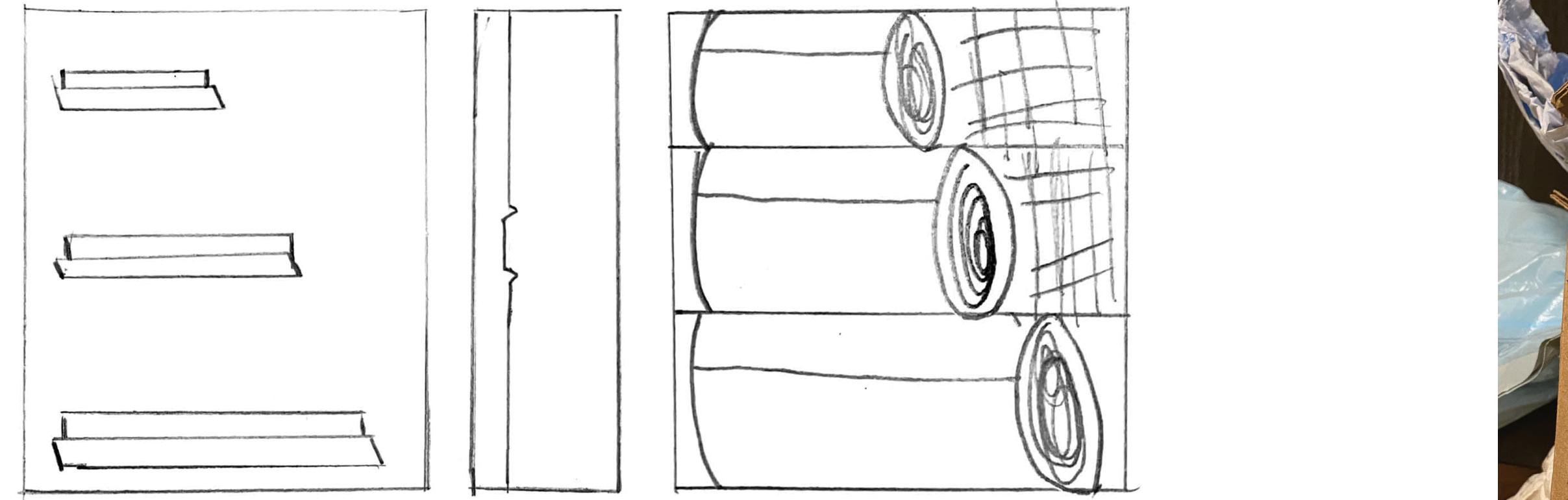
VERSION THREE

Sketching

Side Flap Design

Taking queues from cereal boxes, we implemented a side flap into our package. Our earlier design utilized reinforcement material on both sides of the small and medium sized sections. For a side flap to work properly, this material had to be shifted to one side to enable customers to retrieve the bags and not have to remove a support insert in the process.

Bags were shifted **closer to the open end** for easy retrieval



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Easy to **open, refill, and reseal**

VERSION THREE

Prototyping

Building The Flap

We constructed a prototype with the flap to study how effectively users were able to operate it and refill the bags. It was immediately obvious that its likeness to a cereal box was a familiarity users took advantage of.



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VERSION THREE

Feedback

"It's **very convenient** for when I run out of the big ones first!"

"Being able to refill the bags makes it feel much more **worth the money**."

"The angle of the bags is a little **strange** at first but it actually **helps** me grab each one easier"

"It's so much **easier to buy them this way**, why don't they do this?"

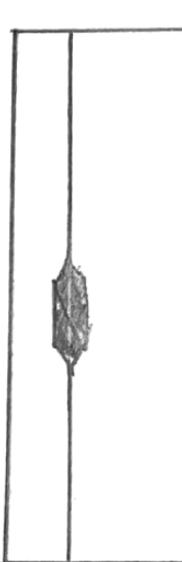
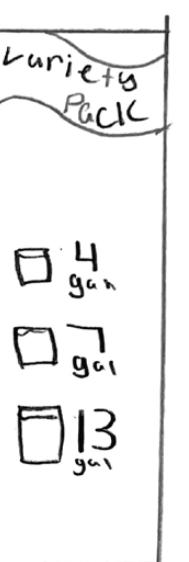
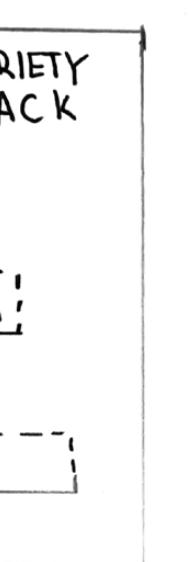
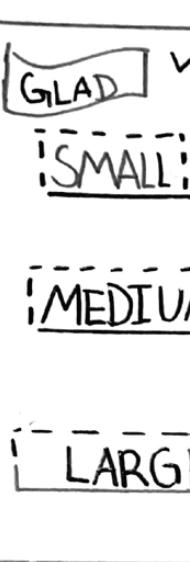
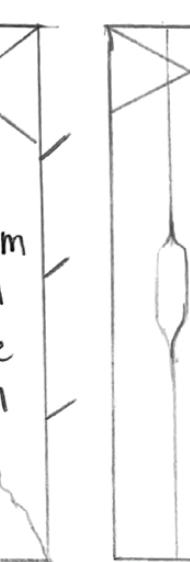
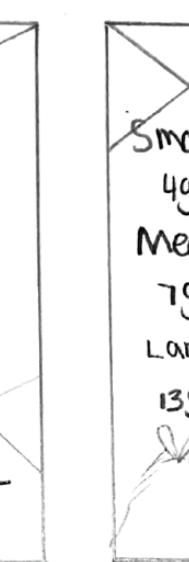
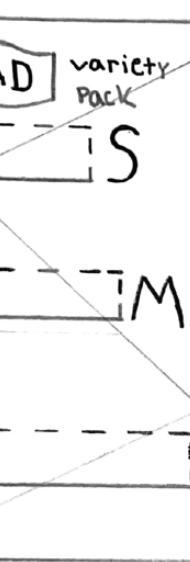
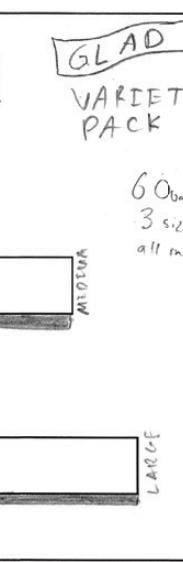
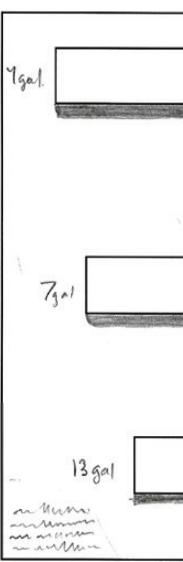
PACKAGING VISUALS

VISUALS

Sketching

Informational Consistency

In keeping with Glads current branding system for their trash bags, we kept the on-box information the same so customers could scan the package for their same information they have used when shopping before.



VISUALS

Visual Design



COLLABORATION

COLLABORATION

The Process

Telecommunication

Locations, schedules and health guidelines made it extremely inconvenient to conduct in-person meetings. Microsoft Teams was our platform of choice for meeting virtually. We could centralize our communication in a dedicated channel, as well as share files.

File Sharing

Microsoft Team served as a file repository for everything from sketches to SolidWorks assets. Keeping each team member in the loop improved efficiency during meetings and removed much of the downtime between ideas which is usually wasted on catching other members up to speed on the current project status.

Rendering Handoffs

In the words of our Product Designer "SolidWorks is many things, a renderer is not one." Due to SolidWorks insatiable rendering needs we chose to intake the .stl files from SolidWorks and place them in Adobe's Dimension for rendering. Dimensions functionality is enhanced greatly by its rendering abilities. Its utilization of computing resources meant we could produce renders in resolutions high enough for print productions in less than 60 seconds.

What's Next?

Ergonomics

We believe a worthwhile exploration into ergonomics and handling could shed light on the experience customers have while refilling the trash bags. Several consumers pointed out how nice it was to be able to fill everything at once. What if we promoted this activity? Would handles or other niceties compel users to complete the task of filling trash bags faster and get back to their daily activities?

Product Rolls

A very time consuming, yet potentially beneficial area we considered while producing this package was the method which the rolls were constructed. Is a roll the most effective way to put trash bags into a container? Would a flat stack, similar to tissue boxes be better?