

BAG ZERO

sustainability at your convenience



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INTRODUCTION

Have you ever been standing in the checkout line at a grocery store when you realize you forgot to bring your reusable bags with? Maybe you're one of the lucky ones who can regularly remember to bring them with. Or maybe you're content using plastic or paper bags. Regardless, I, as well as hundreds of others I have talked with struggle to remember our reusable shopping bags despite valuing sustainability. While the majority of people feel this way, an estimated 5 trillion plastic bags are used per year. Within these pages documents BagZero, a possible solution to this problem.

The goal of BagZero is to reduce, and potentially eliminate, the use of single-use bags in retail and grocery stores. Our proposed solution is to develop a system where BagZero subscribers can rent reusable bags at checkout at the same time they would otherwise get paper or plastic bags. Shoppers would then be able to use these reusable bags for their shopping trip and have 1 month to bring them to any of the reutrnrn kiosks located in participating stores.

If users do not return the bags within this time frame, they will be charged the cost of the bag and the bag would now belong to the user. In the sign up process, users would be able to choose their monthly subscription price ranging from \$1 to \$9 per month. Once the bags are returned, they are collected, sanitized, and entered back into the system.

THE PROBLEM

More than one million plastic bags are used every minute, but less than 3% are recycled properly. Plastic pollution is filling landfills, ocean waters, and even the air we breath at an alarming rate. Meanwhile, paper bag manufacturing is leaving natural habitats devastated by deforestation while consuming large amounts of fresh water in the pulping process, and after, releasing toxic water waste into our environment.



Worldwide, approximately 5 trillion plastic bags are used every year. By the year 2050, it is predicted there will be more plastic than fish in the sea.



Although they want to make decisions that positively affect the environment, shoppers struggle to remember reusable bags.



Shoppers accumulate reusable grocery bags with no way to sustainably dispose of them, leaving an even larger carbon footprint than single-use bags.



THE PROBLEM

THE PROBLEM

OPPORTUNITY

The market for designing an alternative to the single-use bag is a red ocean market. However, there are opportunities to settle into blue ocean territory by thinking about the root of the problem. There are a million single-use bag alternatives on the market, but very few consider the reason people don't use reusable bags in the first place. In the beginning stages of my research, I have found that the majority of people want to use reusable bags. People want to make healthy choices for the environment. So why is it still the case that over 160,000 plastic bags are used every second?

This problem was initially brought to my attention through personal experience. I would say that I am someone who values sustainability, yet, I struggle to remember to bring reusable bags to the grocery store. Either I forget them at home or I make it so far that I put them in my car, but I don't realize I forgot them in the grocery store parking lot until it is too late. I quickly found that, unfortunately, I am not alone in this.

Rethinking how we transport our groceries will require through insight into psychological human factors. It will be important to look into what motivates people to adopt new practices, what contributes to a positive service interaction, and how people perceive usability and positive experiences.

SOLUTION

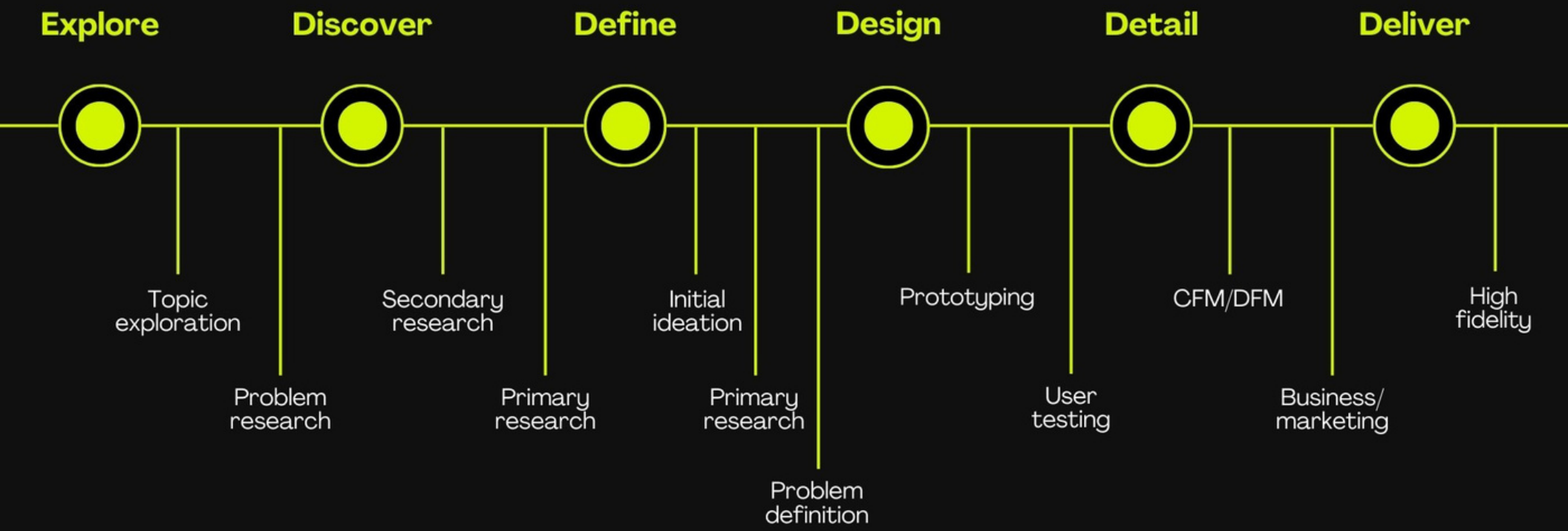
BagZero eliminates the need for shoppers to remember their reusable bags. Subscribers can rent reusable bags at checkout at the same time they would otherwise get paper or plastic bags.

Once subscribed, the customer will have unlimited access to BagZero. Shoppers rent reusable bags at checkout. They would then be able to use these reusable bags for their shopping trip and have 1 month to return them to any of the return kiosks located at participating stores. Users are only charged more if they do not return the bags within 30 days. After one month, the bag will be deemed lost, and the user will be charged the price of the bag.

Returned bags are sanitized and redistributed by a third-party sanitation company. Similar to stocking single-use bags, retail and grocery stores would work with Bag Zero to ensure bags are fully stocked. Bag Zero strives to drastically reduce and potentially eliminate the need for single-use bags in retail and grocery stores while raising awareness around environmental issues.

HOW WE GOT THERE

Over the course of **3 months**, BagZero was developed to the point seen in this process book. My intention is to continue the backstage and employee experience design into next semester.



CONSTRAINTS AND LIMITATIONS

- Can be integrated into current grocery store set ups
- Positively impacts sustainability efforts
- Appeals to target market
- Meets sanitation and accessibility requirements

ASSUMPTIONS

- People want to use reusable bags
- Reusable bags are used often enough to offset the manufacturing emissions
- Stores are open to integrating new systems at their registers

RELEVANT EXPERIENCE

- Cashier work experience
- User of single-use and reusable bags

SECONDARY RESEARCH

Claudia Gherghel, Dorin Nastas, Takeshi Hashimoto, Jiro Takai & Aaron Castelán Cargile (2020)
Culture, morality, and the effect of prosocial behavior motivation on positive affect, Ethics & Behavior, 30:2, 126-149, DOI: 10.1080/10508422.2019.1651651

“Self-determination theory (SDT; Deci & Ryan, 2000): suggests that one factor determining whether prosocial behavior increases actors’ well-being is its **underlying motivation**”

Claim: If the act is done out of choice, a greater sense of satisfaction will be derived from that act than if the act is influenced by external pressures. Autonomy and agency will likely result in a positive response while extrinsic motivation could prove detrimental to consumer compliance.

Hypothesis: bag fees and bans politicize sustainability. **Providing choice and sourcing from consumers’ inherent intrinsic motivation and moral foundations could prove more successful in motivating permanent adoption of more sustainable practices.**

“Kantian philosophy emphasizes **the role of autonomy** by defining moral action as free from external coercion and determined by individual choice, whereas Confucian Role Ethics affirms virtue in fulfilling role-defined obligations (Rosemont & Ames, 2016).”

Claim: Obligation and social expectation does not necessarily undermine one’s perceived choice. Individuals coming from a more collectivist cultural background, such as those from Asian and Latin-Ameircan backgrounds, have a higher perception of choice and tend to feel satisfied despite being bound by moral obligation. Westerners feel less obligated to help someone in need and are more likely to view obligation as a controlling force, thus rating their experience more negatively. Western moral discourse is focused on rights, freedom, and autonomy vs Asian moral discourse being focused on duty, role-fulfillment, and obligations.

Hypothesis: Those influenced by **Western ideals are less likely to adopt sustainable practices out of obligatory motivation alone and may benefit from factors contributing to psychological egoism.**

*Does not take into consideration income and social status

Deloitte LLP. “How consumers are embracing sustainability.” Deloitte. 2022.

<https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html>

Compared to their 2021 sustainability report, Deloitte saw a significant **increase in the percentage of people practicing sustainability** with 65% reporting that they reduced their use of single use plastic in 2022. It is yet to be determined if these are long-term habits, or if the data is skewed as a result of COVID-19 and inflation.

The respondents indicated that they recognized a product as sustainable if it was biodegradable (65%) or if it was made of recycled materials (60%).

Consumers’ top five priorities are:

1. Producing sustainable packaging and products
2. Reducing waste in manufacturing process
3. Committing to ethical working practices
4. Reducing carbon footprint
5. Respect for human rights

Although most people recognize the need to prioritize sustainability, not as many actually do.

The main **barriers to adopting a more sustainable lifestyle** include:

1. It’s too expensive (52%)
2. I’m not interested (51%)
3. I don’t have enough information (48%)
4. I don’t believe it makes a difference (42%)
5. It’s too complicated / difficult to do (41%)
6. It’s not available (38%)
7. It’s too inconvenient (i.e. requires too much effort on my part) (37%)
8. I have already adopted this behavior as part of my lifestyle more than a year ago (32%)

Deloitte collected data on what consumers think they would need to make more sustainable choices:

1. Making it more **affordable** to choose a more sustainable alternative (57%)
2. Better schemes to **remove plastics and packaging** (54%)
3. More **clarity on how to** dispose/ recycle old products (46%)
4. **Clearer information** on the sustainability of products and services (38%)
5. Better signposted services to **renew/ repair broken or damaged items** (37%)

Behnam, M., Hollebeek, L. D., Clark, M. K. and Farabi, R. (2021) Exploring customer engagement in the product vs. service context. Journal of Retailing and Consumer Services, 60. 102456. ISSN 0969-6989. DOI: <https://doi.org/10.1016/j.jretconser.2021.102456>

Claim: With customer engagement comes a motivational nature where a customer’s desire to learn about a particular brand increases the likelihood of having a positive interaction with that brand.

Hypothesis: **Education and transparency** will be an important aspect of building CE. CE and motivation will continue to be directly scalable.

Claim: “Customer Co-creation refers to 'a customer’s perceived value arising from interactive, joint, collaborative or personalized brand-related activities for or with stakeholders in service systems' (Hollebeek et al., 2019, p. 170).”

A customer’s first interaction with a product or service is most likely to determine the user’s perceived value and therefore their CE with the product or service (note: value-in-use vs co-creation)

Hypothesis: Understanding user touch points and a user’s first product exposure become increasingly important in service design.

Claim: Relationship quality is a customer’s perceived overall quality of a brand relationship. Customer engagement is directly affected by consumer to brand relationship quality. **Relationship quality is**

built upon three tiers:

1. Trust, satisfaction
2. Reliability, integrity
3. Commitment

*“To stimulate cognitive engagement, the offering of (online) **information, authentic, thought-provoking material** is important. To foster emotional engagement, **affect-inducing stimuli** are key to touching the hearts of the organization’s customers.”*

Hypothesis: Brand relationship is the number one driver of CE. User research and testing should extend into the community (co-creation).

“Per Blasi’s (1983) theory (and according to other researchers), when adolescents view morality as important to the self, they are likely to feel a sense of commitment to what they value, thus prompting them to pursue moral or prosocial action (see Hardy & Carlo, 2005).”

Claim: Moral Identity is how one prioritizes morality in their perception of self. **Those who score highly in moral identity are more likely to contribute to prosocial acts and avoid antisocial acts.**

Moral Judgment is how one perceives moral values and obligation to interpersonal relationships. Those with strong moral judgment are more likely to enact prosocial behaviors. Moral judgment can be dependent on moral identity and requires that individuals hold moral values as centric to the self.

Self Efficacy directly relates to one’s confidence with interacting and positively impacting others. Those who feel confident engaging in prosocial acts often have high self efficacy. The article hypothesizes that **self efficacy could determine how likely one is to participate in prosocial acts.** “An adolescent who has high moral judgment maturity, but who may be low in self-efficacy, may lack the confidence to act prosocially (Comunian & Gielen, 1995; Gibbs, 2014).”

Hypothesis: The majority of consumers believe we need to prioritize sustainability (moral identity). However, they feel like they personally are not responsible (lack of moral judgment) or they do not believe they can make a difference (lack of self efficacy). Focusing on **optimizing these feelings could motivate consumers to use a reusable bag system.**

Claim: Women and girls score higher in moral identity and moral judgment. Consistent with past research, **women are more likely to perform prosocial acts than men.**

- **Anonymous prosocial behavior:** moral identity was significant
- **Dire prosocial behavior:** moral identity and social self-efficacy were significant
- **Emotional prosocial behavior:** moral identity and social self-efficacy were significant
- **Compliant prosocial behavior:** moral identity and social self-efficacy were significant
- **Public prosocial behavior:** moral identity was significant (higher for boys)

Hypothesis: Women will be more likely to use a reusable bag service than men and/or are more likely to already use reusable bags than men. **A reusable bag service will be adopted more readily by women, but could prove more impactful if targeted towards men. If prosocial behavior is made public (ie. rewards system or community building), men are more likely to participate.**

Kania, J., Hanleybrown, F., Juster, J.S. (2014) Essential Mindset Shifts for Collective Impact.
https://static1.squarespace.com/static/5b4311984eddec45e81cba84/t/5bac8a2a0852292c40182b9a/1538034230554/Essential_Mindset_Shifts_for_Collective_Impact.pdf

Claim: How people work together: “Change happens at the speed of trust.” Taking time to build relationships can be a determining factor in the success of the product or initiative. This includes relationships between people in the organization, the organization and the community, and relationships between stakeholders. **People are more apt to adopt new practices and diffuse your idea if there is built trust.**

Hypothesis: One barrier to sustainability is a lack of trust between organizations and its users. Communication, engagement, and education can be pivotal considerations in the design process. **Gen Z and Millennials are demanding transparency and holding organizations to a higher standard.** They are aware of "greenwashing" and are not afraid to call out organizations for doing so.

Claim: It is important to build the processes, relationships, and structures for adaptive work to grow within. **“Abandon the single silver-bullet solution.”** Rather, it is important to think of “the work as part of a larger context and consider how it fits into the larger puzzle of activities.” **Collective impact works best when it focuses on the ways that strong individual interventions or policies fit together and reinforce each other to solve a complex problem.”**

Hypothesis: Reframing the problem to reduce single-use bags or make reusable bags more accessible is more practical and beneficial to the greater movement than searching for a “silver bullet solution” to eliminate single-use bags.

SUMMARY OF KEY FINDINGS

- Rather than punishing shoppers for using single-use bags with bans and fees, people might be more receptive to positive reinforcement when making the switch to reusable bags (making reusable bags more convenient, giving rewards, building community, etc).
- Bag bans and fees have become politicized because people feel like they are loosing autonomy. How can we make the switch without threatening users' autonomy?
- More people are taking on the responsibility to make sustainable choices, but some still feel a barrier to entry because of affordability, access to information, accessibility, and convenience.
- Building trust and being transparent with your users keeps stimulates customer engagement.
- While most people hold the moral identity that we are responsible for our environment, they can still lack self efficacy, believing they do not have the power to make a difference so why bother, and/or moral judgment, believing they are not responsible for caring.
- Women are more likely to act prosocially, but if said prosocial act is given public recognition, men are more likely to participate.Encouraging men to participate in prosocial behavior could be more impactful.
- Collective impact is most successful when an organization lets go of the expectation to solve the problem with a "silver bullet solution." Rather, the organization should think of itself as another piece of the puzzle - another step in the right direction.

IMPACT RESEARCH



In 2014, a bill was passed to ban the use of plastic bags in California. Since its enactment in 2016, the issue of bag bans has been increasingly politicized. Now, in 2022, more states have preemption laws protecting consumers' right to plastic shopping bags than states that have bans against them.

Creating a reusable-bag system could evoke resistance and further politicization regarding what responsibility the consumer has to protecting the environment.

Economic and environmental impacts will be greatly influenced by the processes and materials used within the system. LCA data comparing paper, plastic, compostable, cotton, and polypropylene bags carries greatly depending on multiple external factors such as reuse, disposal, and reusability. Further material research will need to be done to determine the most sustainable option.

REGULATIONS

In the state of Minnesota, the following regulations could be relevant to the design of this product:

471.9998 MERCHANT BAGS.

Subdivision 1. Merchant option. All merchants, itinerant vendors, and peddlers doing business in this state shall have the option to provide customers a paper, plastic, or reusable bag for the packaging of any item or good purchased, provided such purchase is of a size and manner commensurate with the use of paper, plastic, or reusable bags.

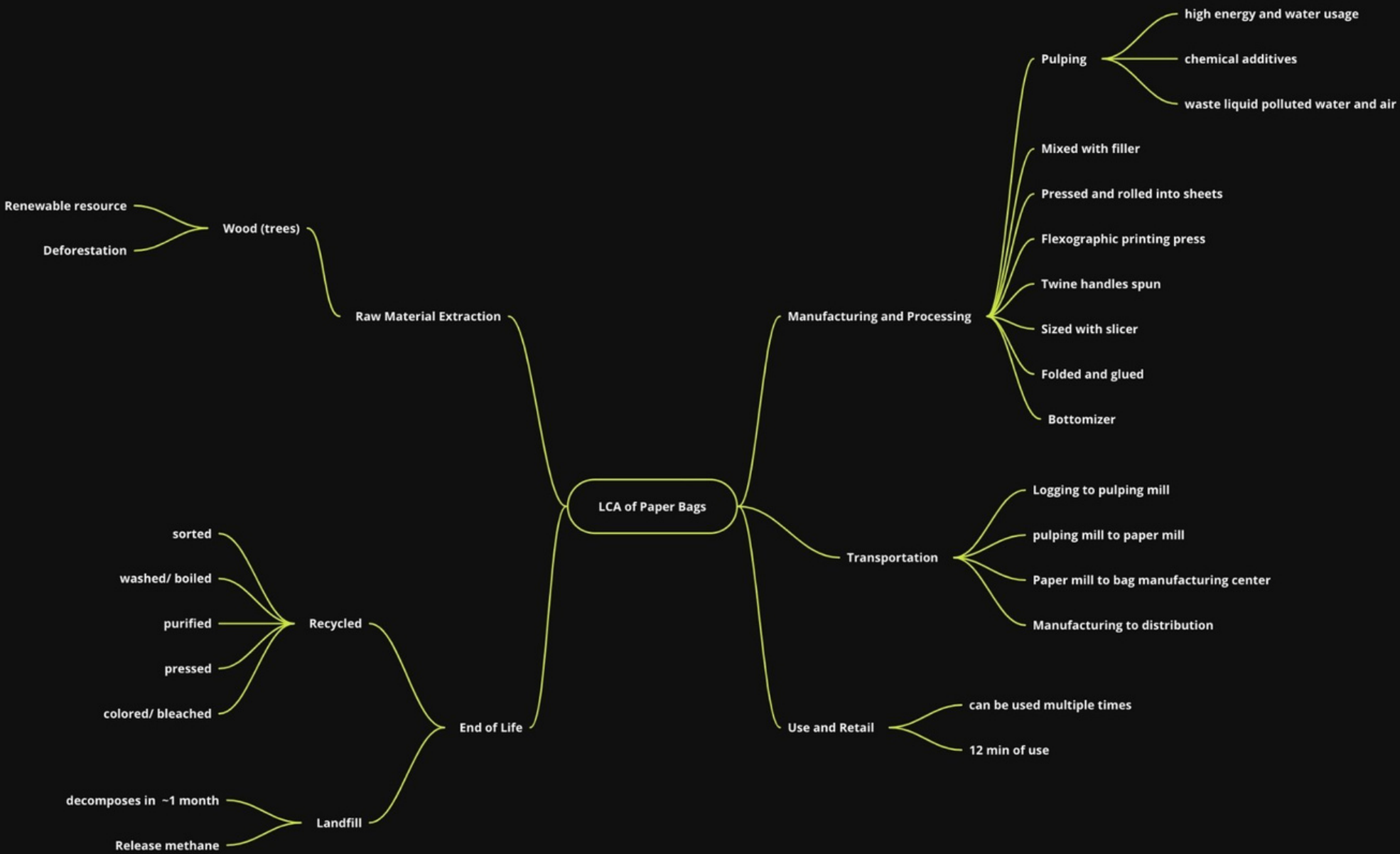
Subd. 2. Prohibition; bag ban. Notwithstanding any other provision of law, no political subdivision shall impose any ban upon the use of paper, plastic, or reusable bags for packaging of any item or good purchased from a merchant, itinerant vendor, or peddler.

3014.AA44 ATBCB.

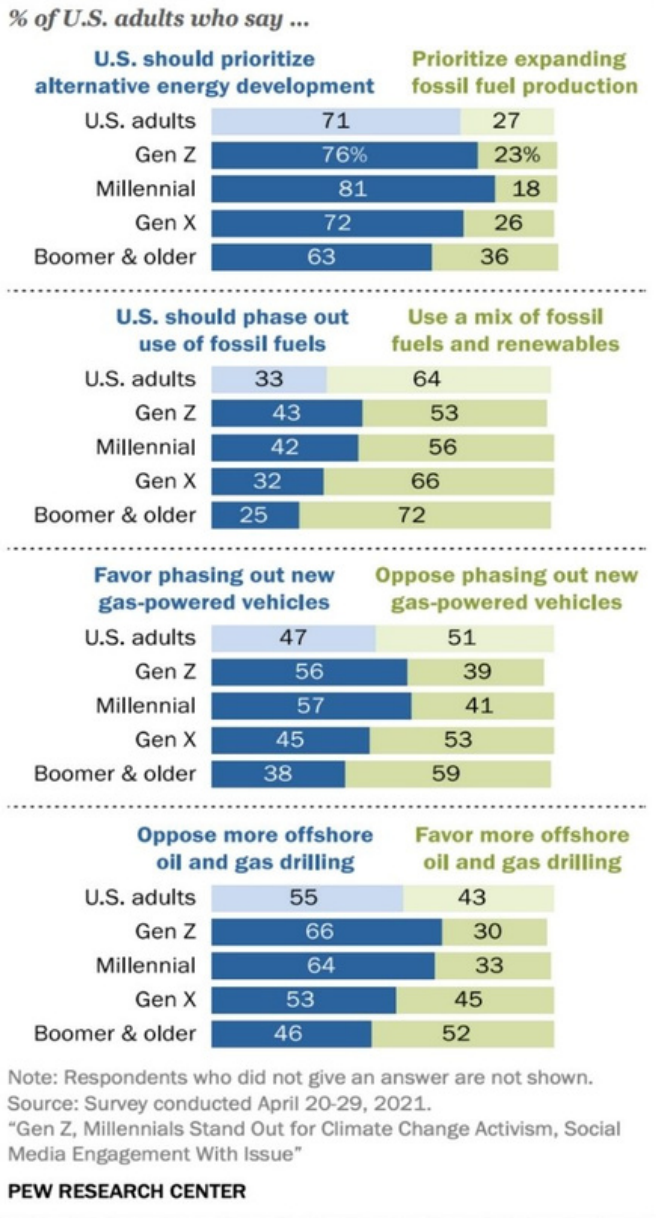
This rulemaking would amend the Architectural and Transportation Compliance Board's existing accessibility guidelines for buildings and facilities under the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA), located at 36 CFR part 1191, to include guidelines for the accessibility of fixed self-service transaction machines, self-service kiosks, information transaction machines, and point-of-sale devices. The U.S. Department of Transportation and U.S. Department of Justice are expected, via separate rulemakings, to adopt these amended guidelines as enforceable standards for devices and equipment covered by the ADA.

MATERIAL

Cotton canvas bags have to be used 131 times to offset their manufacturing emissions. However, other materials fare much better. Non-woven polypropylene has a break-even point of 11 uses. Material durability will be an important consideration (National Geographic).







THE USER

Data indicates that there are generational differences when it comes to valuing sustainability. Gen Z and Millennials prioritize sustainability and are more open to changing existing behaviors than older generations (Pew Research).

The target market for this project will most likely be Gen Z and Millennials (ages 18-40). Branding and marketing will also be targeted towards this audience.

RESEARCH METHODS

Research methods will mainly consist of user interviews and surveys. Because the intended user tends towards “tech fluent,” utilizing digital diary capture could be useful for observational documentation. Observations sessions will be used during the service design process.

HUMAN FACTORS

It used to be “Paper or Plastic?” Then, in 2015, the bag charge was introduced. “Do you need bags?” Single-use bags are what we have known since the beginning of the super market, but how can we start to reimagining how we transport our groceries? Behavioral and psychological human factors will be particularly important in this design process to encourage users to rethink the way the shop for groceries.

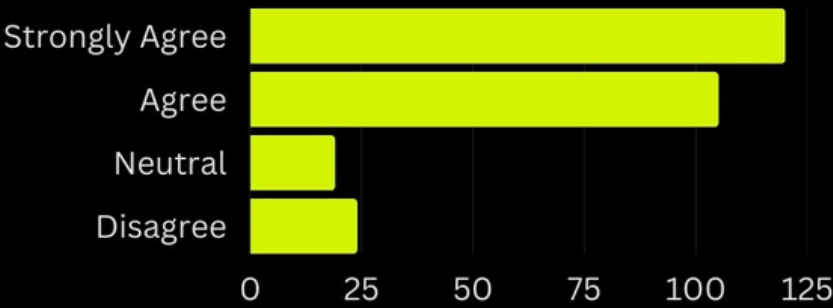
PSYCHOLOGICAL CONSIDERATIONS

- Affect (behavioral and reflective)
- Perception of experience and quality of interaction
- Incentive and motivation
- Efficiency of use
- Emotion of interaction
- Usability
- Stages of engagement

SURVEY RESULTS

from a 327 person survey

✦ **84% of respondents agree we need to increase our efforts to help the declining state of our environment.**



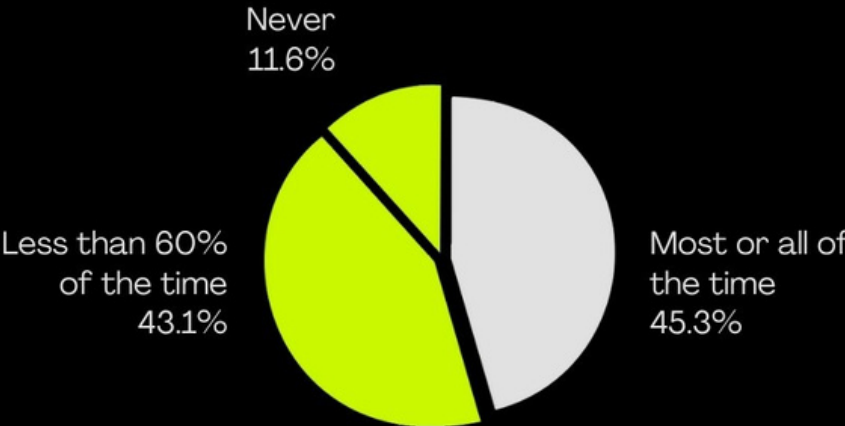
✦ **9/10 respondents believe they should limit the amount of single-use plastic they use.**



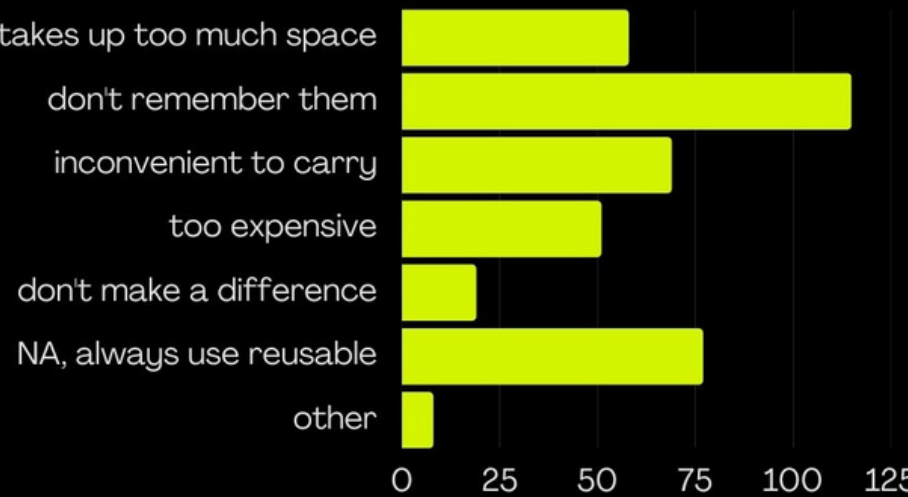
✦ **76% of respondents are likely to prioritize convenience over sustainability, and most find current sustainable alternatives to be inconvenient.**

76% of respondents are likely to prioritize convenience over sustainability

74% of respondents find current sustainable alternatives to be inconvenient



✦ **Less than half of respondents use reusable bags on a regular basis.**

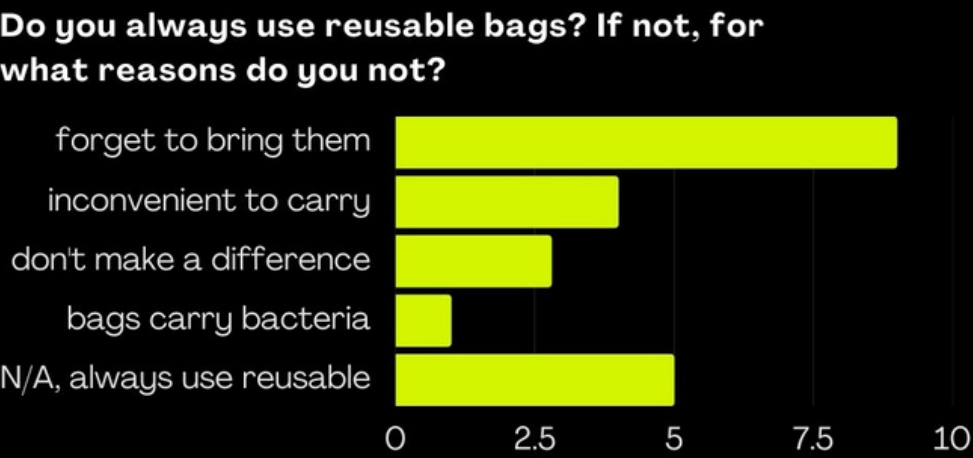


✦ **The most common reason survey respondents do not use reusable bags is because they forget to bring them with.**

USER INTERVIEWS

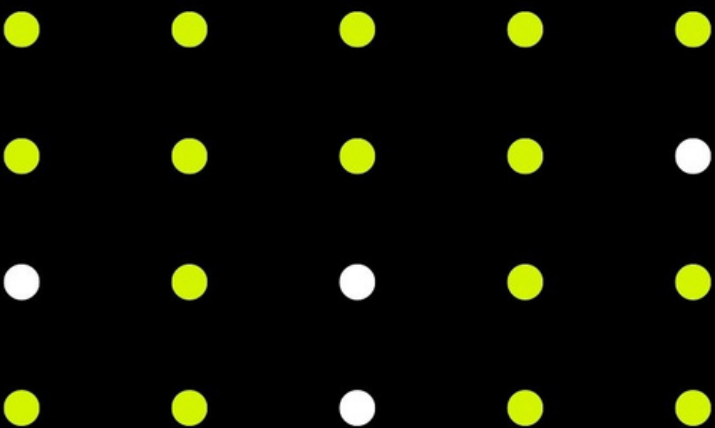
DEMOGRAPHICS

- User 1: Ashely Mondale, 23
- User 2: Abraham Omar, 26
- User 3: Percilla Padlow, 61
- User 4: Joesph Brandt, 25



PAIN POINTS

- I believe the environment is declining and we need to put more effort into helping it.
- I currently try to bring my own bags to the store.
- I often forget to bring reusable bags with me.
- I, or my family, would be interested in using Bag Zero as it is currently described.





"Even if I do have them in my car, I sometimes forget them there. Being 100% honest, I wouldn't go back out to the lot to grab them."

"Maybe I don't care enough. I feel like I do... It's just another thing to remember to bring with."

"I keep them on the top rack of my coat rack. They are so ready to go out. I don't know why... I can never remember to bring them."

"Maybe I don't care enough. I feel like I do... It's just another thing to remember to bring with."

USER INTERVIEWS





DEMOGRAPHICS

Age: 23 (GenZ)

Occupation: Microbiologist

Location: Minneapolis, MN

Frequents: Trader Joes, Whole Foods, Target

ALEXANDER THOMPSON

Alex recently graduated college and has since entered the workforce as a young professional. Since starting full time as a biology researcher, his days have been busy and spontaneous. Alex lives in Minneapolis with two roommates and his cat. He tries to make environmentally conscious decisions including bringing his own bags to the grocery store. However, just like his metal straws, he can never remember to bring them with.

PERSONALITY

- Spontaneous
- Ambivert
- Disorganized
- Empathetic

GOALS

- Limit his consumption of single use products
- Feel like he is contributing to a greener environment
- Use sustainable products more consistently

FRUSTRATIONS

- Remembering to bring reusable product requires preemptive planning.
- It can be inconvenient to carry reusable products when out.
- Living a busy and spontaneous lifestyle makes it difficult to know when he will need reusable bags.



DEMOGRAPHICS

Age: 33 (Millennial)

Occupation: Project Manager

Location: Minneapolis, MN

Frequents: Cub Foods, Trader Joes, Target

JASMINE WRIGHT

Jasmine is a single mother of a 2 year old. Together, they live in an apartment just outside of downtown Minneapolis. Jasmine has her hands full working a remote full-time position as a project manager while also caring for her young child. She tries her best to make sustainable choices, but admittedly often opts for less sustainable options out of convenience.

PERSONALITY

- Adventurous
- Social
- Active
- Empathetic

GOALS

- Use sustainable products more consistently
- Feel like sustainable choices are more accessible
- Set a positive example for her son

FRUSTRATIONS

- Sustainable choices are time consuming and expensive.
- It is difficult to remember to bring reusable bags.
- It can be inconvenient to carry reusable bags to the store while also trying to shop with a child.

MARKET RESEARCH

Logo	Name	Cost	Rent/ Own	Accessible	Sanitized	Rewards	App
	self-supplied reusable bag	\$0.99 - \$9.99	Own	●	●	●	●
	Goatote	\$1.00 per use or \$2.99/ month	Rent	●	●	●	●
	Chicobag - Beyond the Bag	\$0.00 - \$3.00	Rent or Own	●	●	●	●
	Fill it Forward	\$4.95	N/A	●	●	●	●
	Local Reusable Bag Bin	\$0.00	Rent	●	●	●	●

GOATOTE - DIRECT COMPETITOR ANALYSIS

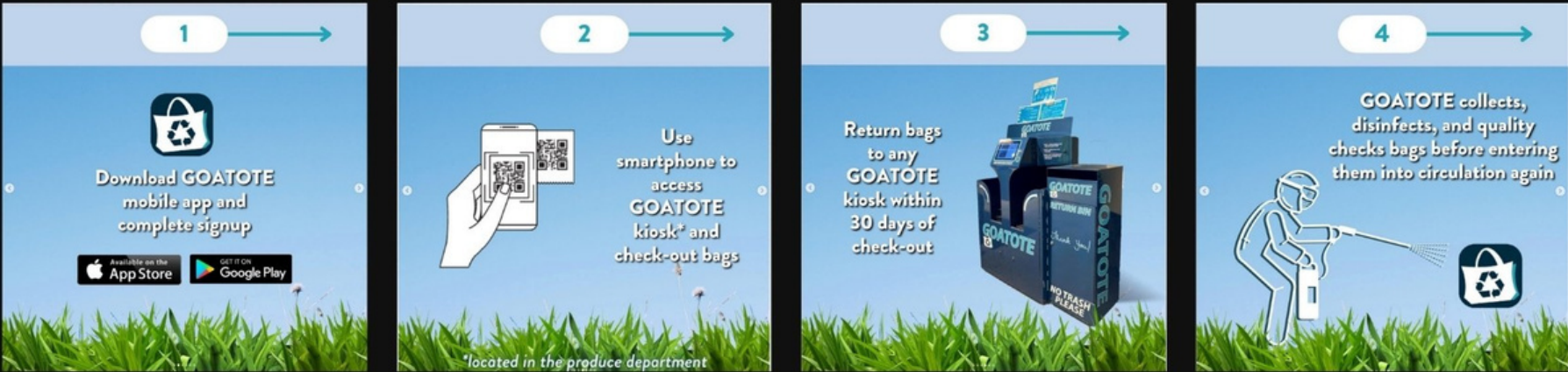


Participating Locations

- Target - Mountain View, CA (limited time)
- Walmart - Mountain View, CA (limited time)
- CVS - Mountain View, CA (limited time)

Market Opportunity

- Users have to check out their reusable bags before going to check out and carry them around as they shop.
- Shoppers don't want to stand in line for reusable bags when they will already have to stand in line at checkout.
- UX and UI design: underdeveloped user experience and outdated UI turns new users away.
- Marketing: The current brand does not appeal to the target market.
- Interaction is all machine based.
- Kiosks are placed in inconvenient locations.



CONTEXT RESEARCH

The market for designing an alternative to plastic bags is a red ocean market. However, there are opportunities to settle into blue ocean territory by centering around convenience. Current offerings on the market focus on designing a reusable alternative to single-use shopping bags. However, through my research, I have found that the bag is not the issue. Despite most people owning reusable bags, they find themselves with a stash of paper and plastic bags. The main reason for this is because they forget of it is inconvenient to bring their reusable bags to the store.

Currently, there are limited products and services on the market to encourage shoppers to use reusable bags on a regular basis. Options that are widely accessible include community bag bins at local grocery stores and user hacks such as hanging your bags on the front door or putting "bags" at the top of the grocery list.

Research suggests that the target user will be Gen Z and Millennial shoppers. These generations are more concerned about sustainability, but they also value convenience. Within this target group, middle class women are predicted to be the primary users of this service based on research studying the correlation between gender and income with the likelihood of enacting prosocial behavior.

LET'S CONSULT THE EXPERTS



Kamal Mohamed

Business Entrepreneur



Quynh Akers

Justice + Climate Innovation
in Industrial Design



Megan Lee

Senior Product Engineer
at Target



Kamal Mohamed

Kamal is always thinking up the next big idea. He studied Business Entrepreneurship and has since launched multiple start-ups. Kamal is the mastermind behind Gallant Tiger, STEPCHLD, and has co-founded Nashville Coop, Love You Cookie, and JuiceBot.

At the beginning of the semester, Kamal came to me with an idea. This idea kickstarted the beginning stages of BagZero. While I went through the design process, Kamal's experience in business management and entrepreneurship made him an excellent resource.

Kamal provided me with guidance on business to consumer as well as business to business insights. I am excited to connect with Kamal again in the future for guidance on backstage design and employee experience. His connection to the community and local grocery stores will be an excellent resource moving forward.

NOTES FROM KAMAL

Branding and marketing is key

It is cool to be sustainable now. Make this something trendy that people want to be seen with.

Marketing towards target audience (TikTok/ instagram)

Don't give your users too many options. Just have it be subscription based.

Right now there is no better alternative to incentives higher bag fees. Could partner with the City

We are seeing the rise of bag bans and fees.

Connections with Kowalski's and Lunds and Byerlys

How do we incentivise businesses?

- Businesses are taking up sustainability initiatives... makes them look good.
- Marketing
- Draws more business
- Tax breaks?
- Reduced spending on single-use bags

BagZero vs Goatote... you don't have to go to a separate "station" to receive bags

You only need a few early adopters.

If we can get Minneapolis to go BagZero, the business model can be scalable to other cities.

Need:

- supply and demand (backstage process)
- space in the grocery store



Quynh Akers

Quynh is a design strategist, educator, and researcher. She is passionate about design justice, and takes a multidisciplinary approach with a strong background in service design, entrepreneurial studies, social impact, and sustainable design.

I reached out to Quynh because of her diverse background in sustainability, service design, product design, and social change. Quynh is extremely passionate about the work she does and always keeps the user journey at the forefront of her design thinking. Quynh's design thinking was extremely helpful when seeking feedback about my current service design.

Quynh provided valuable feedback that encouraged me to think deeply about the user experience. She will be a great resource throughout the design process to challenge ideas and hold the solution accountable.

NOTES FROM QUYNH

Look at your user journey although some influences will be out of your control
CRM and NFC library

How to incentivize businesses

Consider demographics

Why use BagZero over single-use?

- incentives
- what else makes it better?

Service vs business design

Integrate into existing apps (whole foods/ cub foods) Similar to Zelle and Ridwell. BtoB vs BtoC

Service model:

- what if it was not app based? Tech overload?
 - like putting down deposit (ie. buying kombucha jug and bringing it back for refills)
 - Track everything at the bottom of your receipt

Consider material psychology

Rather than piling on late fee: rent it out and then you buy/ own it

Look at similar models... Target 5% cash back

Gamify? Make it fun. Connect with community.

Impact tracking like bike/ water stations



Megan Lee

Megan studied material science and engineering at the University of Minnesota. She has since worked in the field at the Fortune 500 companies, 3M and Target where she has refined her expertise in material research, innovation, and selection.

I connected with Megan to learn more about sustainable material options that could be used for BagZero bags. She has experience in sustainability and was able to provide me with some great material recommendations.

Coming from a retail background, Megan was also able to provide insight on material cost to value. Looking further into bag prototyping, Megan will be a great reference for more material insights.

NOTES FROM MEGAN

Need: durable, sustainable, affordable.

- PVC -> insulation, energy, asphalt? (downcycle)

Fabric or plastic?

- polyester: use recycled content (rPET)... ie. 70% recycled bottles
- Affordable
- Fabric tears

Consider hard materials? Hard recycled plastics... like shopping baskets

Stay away from sourcing raw Nylon and Vinyl

Consider the space it takes up

- more expensive
- more space

Fabrics

- recycled content
- seams could rip
- folds down

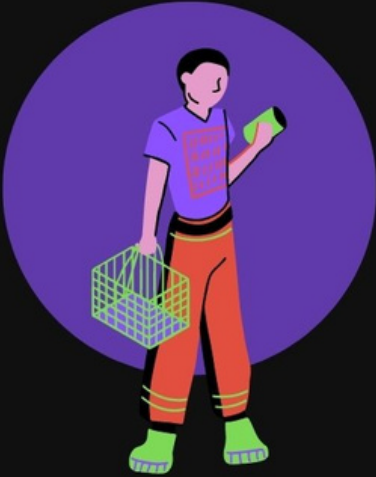
Cooler bag - can be washed?

Upcycled materials... how do you maintain consistency?

PLA *some can't withstand heat when washed

Consider microplastics

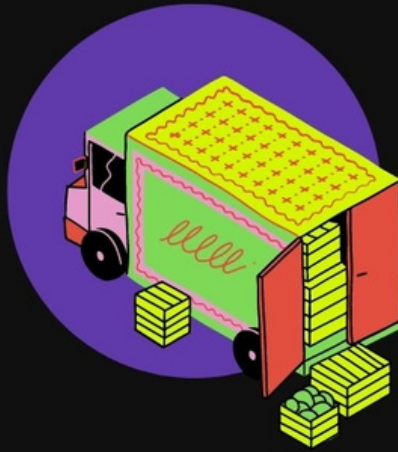
THE STAKEHOLDERS



shoppers



store staff



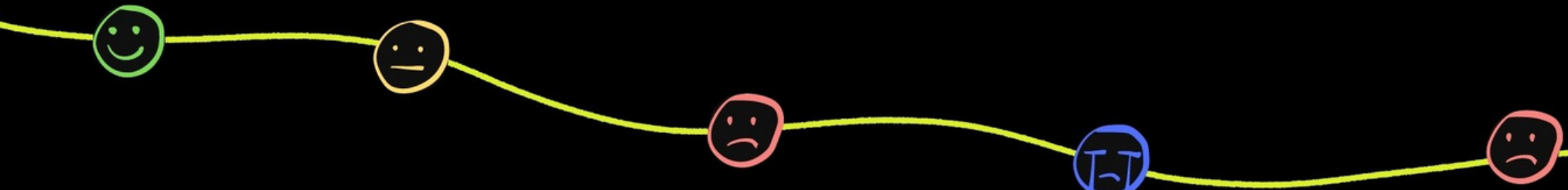
sanitation crew



investors

THE CURRENT EXPERIENCE

	Awareness	Decision	Use	After Use
Do	<ul style="list-style-type: none">Continues to checkoutLeaves the store to get reusable bags	Buys another reusable bag, uses paper or plastic, uses no bag, or comes back with reusable bags	<ul style="list-style-type: none">Use multiple trips to bring carry groceriesHold groceries from the bottom to avoid ripping	<ul style="list-style-type: none">Given a second use, recycled (less than 2%), sent to landfillFound littered on the streets
Think	<ul style="list-style-type: none">Maybe I don't care enoughI am so frustrated that I forgot my bags again	<ul style="list-style-type: none">Am I polluting?I need to be betterShould I buy another reusable bag?	<ul style="list-style-type: none">The handles on these bags always ripEveryone will think I hate the environment	<ul style="list-style-type: none">I don't know what to do with all of these bagsThese bags take up so much space
Feel	Frustrated and annoyed for forgetting bags at home again.	<ul style="list-style-type: none">Guilty for using single use bagsAnnoyed for having to buy another bag	<ul style="list-style-type: none">Cautious and annoyed when trying to carry groceriesGuilty for using single-use bags	<ul style="list-style-type: none">Annoyed having at the difficulty to recycle plastic bags.Guilty for disposing of single-use bags.



How might we encourage shoppers to **limit the number of single use bags** they use at the grocery store to **make sustainable choices more accessible and convenient?**



DESIGN CRITERIA

1

CONVENIENT

Users should not have to put in significant extra effort or time.

2

SUSTAINABLE

Materials and operations should be transparently sustainable.

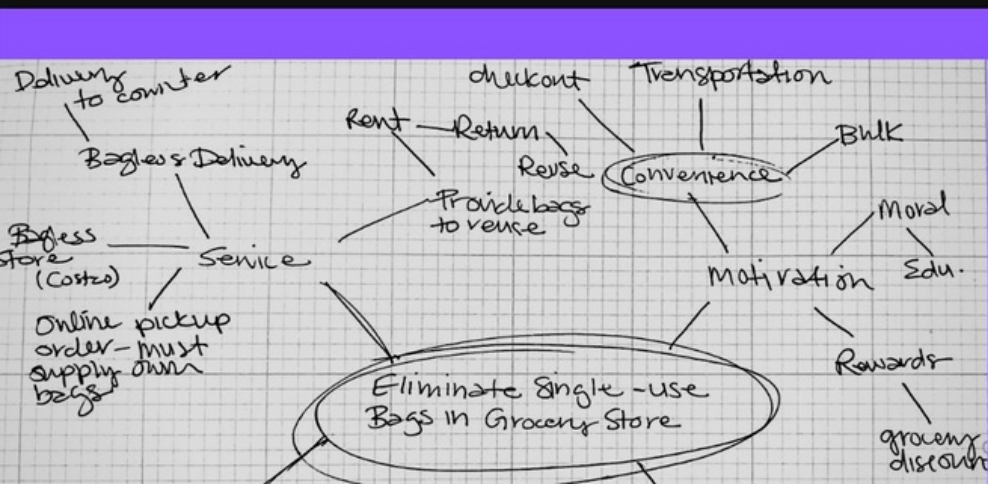
3

ACCESSIBLE

The service should be affordable and readily available.

IDEATION

Keeping the design criteria in mind, it was time to move into ideation. In the ideation, I used multiple strategies to generate ideas. A few of these strategies included group design sprints, SCAMPER, mind mapping, and silent ideation.



S

AmazonGo	Cart pre-loaded with bags	charge for incentive
don't have to go to the store	no need for human contact... robot?	live off the land
packaging-less shipment	no whole food, just shakes and vitamins	Zero waste as a top priority
Bag has aesthetic value	Bag scans for rewards	cardboard

C

Aesthetic value	use as day bag and grocery bag	Getting groceries and storing food
Combining social efforts (local artists)	Bag is also your cart	Reuse materials
multi-use bags: cooler/stroller bags	reusable bag tab/deposit	

A

Fits with your fit	Use as a sun reflector	lunchbox
cycling community	public transit - sits off the ground	more comfortable / durable to carry
Multiple carrying options	Bag hanger storage	'left behind' notification (like air tag)
use the packable/pocket ones	reminders in parking lots	

M

have a cart (pull behind cart)	Design of bag (durable, comfortable, aesthetic)	Attachable bag
impact tracking (positive and negative)	checkout is at your car	store layout
order for pickup - must have bag	keychain bag	Shoe bags
Sling/long (silicon nylon)	put infographic/stats on bag	negative single-use bags 'I'm polluting'

P

airbags in your car	fits into hand sanitizer bottle	library book bag
bag is card you use to buy groceries	pay for groceries through app	paper bag soaker outside of store
dinner in a bag - hot and ready	put ways the bag could be reused	

E

going to the store	checkout	the food bulk
the need to carry your food	go out to eat only	open kitchen grocery stores
Bagless shopping (Costco)	Baskets, drones, robots	sensors know when you nav to store

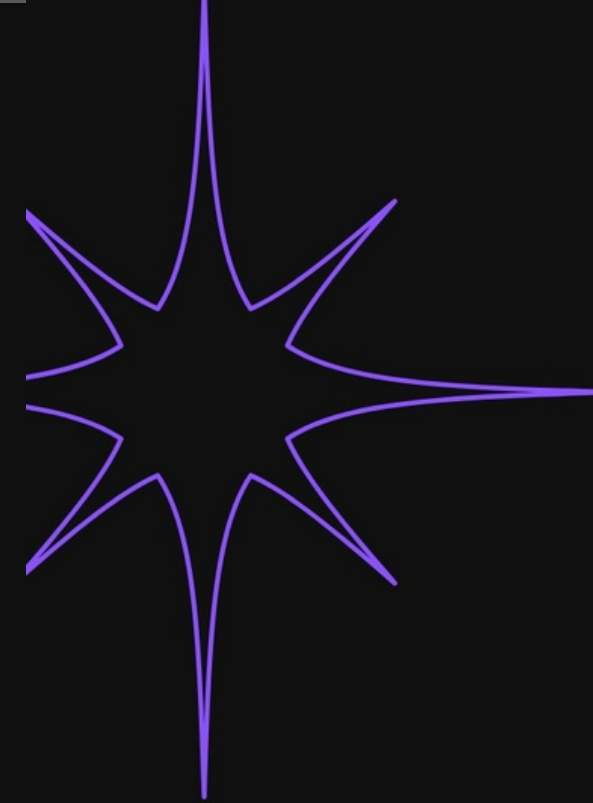
R

when is in your car	bag is in your food??	Bag self-destructs if not returned to car
# of bags limit	drop bags off and pick up when you go to checkout	put 'reusable bags' at the top of grocery list

Rent bags at checkout if reusable bags were forgotten

TESTING

Users are then taken to sign up. Here, they are able to pick their price in an attempt to make BagZero more accessible to a range of budgets. Monthly subscription prices range from \$1 - \$9 per month. Based on consumer research, users are not just going to choose \$1. If they are able to, they are most likely to choose the price that accurately reflects their perceived value of the service.



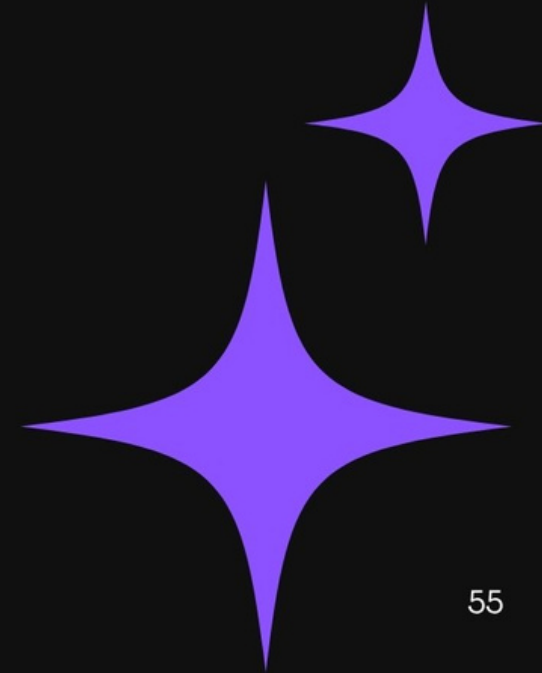
*"What if I can't get to the store within 30 days? What if you could **extend your rental time** similar to renewing a library book?"*

*"I wonder if you could **make it even more convenient. It's kind of clumsy to fuss around with an app in the store**"*

*"What if I don't have the app downloaded? **Is someone really going to stand in checkout, with a long line behind them, to download and sign up in the app?**"*

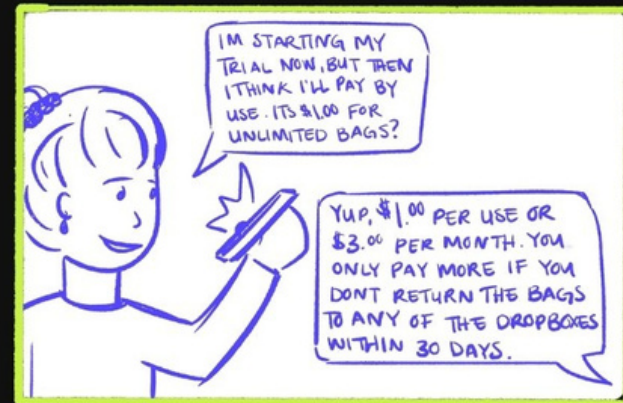
*"I think you should **keep it simple and just do a subscription. Don't overthink it and don't give people too many choices.**"*

USER FEEDBACK



SCENARIO 1

Olivia is at the checkout when she realizes she forgot her reusable bags at home. It's a good thing **she heard about BagZero through social media and is ready to go with the app.**



SCENARIO 2

Olivia is at the checkout when she realizes she forgot her reusable bags at home. The cashier tells her about BagZero. **She wants to sign up but doesn't want to hold up the line.**



USE CASES

Context: The use of this product depends on demand for reusable bags, compliance and partnership with the store, inventory, product durability, and system reliability. The product is used during store operating hours at checkout and during the time needed to transport the groceries.

	Jon, 34, employed full-time,	Scenario 1: Jon is on his way home from work and remembers he needs to pick up a few grocery items for dinner tonight. Jon did not bring any reusable bags with him because he was not initially planning to make any shopping stops on the way home.
	Mai, 22, student	Scenario 2: Mai is at checkout, and remembers she forgot her bags in the car again. She is already in line, and it is not worth it to her to go all the way back out to her car to grab them.
	Max, 24, employed full-time	Scenario 3: Max’s reusable bag stash is quickly expanding. It is taking over his coat rack, yet he often still forgets to takes bags to the grocery store with him.

BRAND LANGUAGE

Culture	Customer	Voice	Feel	Impact
Fresh	Busy	Refreshing	Energized	Sustainable
Responsible	GenZ/ Millennial	Bold	Organic	Fulfilling
Urban	Socially Engaged	Forward	Authentic	Inspiring
Sustainable	Eco-Conscious	Trustworthy	Exciting	Motivating



ROC GROTESK

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789



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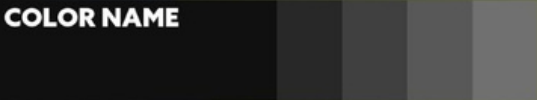
R 92
G 57
B 255



R 212
G 245
B 0



R 238
G 90
B 176



R 16
G 16
B 16

ENERGIZING



BOLD





APP IDEATION

Keeping the brand identity in mind, I moved between analog and digital sketches to develop a low fidelity prototype of the app design.



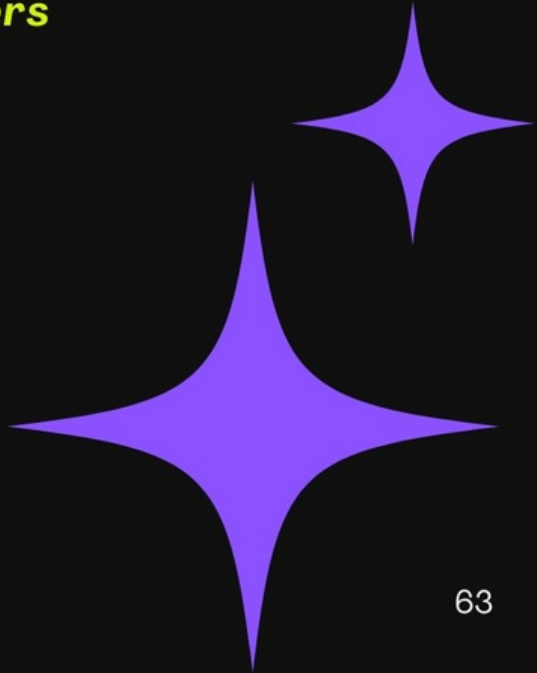
USER FEEDBACK



"I like the sporadic yet organized placement of features on your home screen. It is **fun and refreshing and fits the branding.**"

"I feel like the most important features are the QR and bag tracking so those should be **accessible when holding your phone with one hand.**"

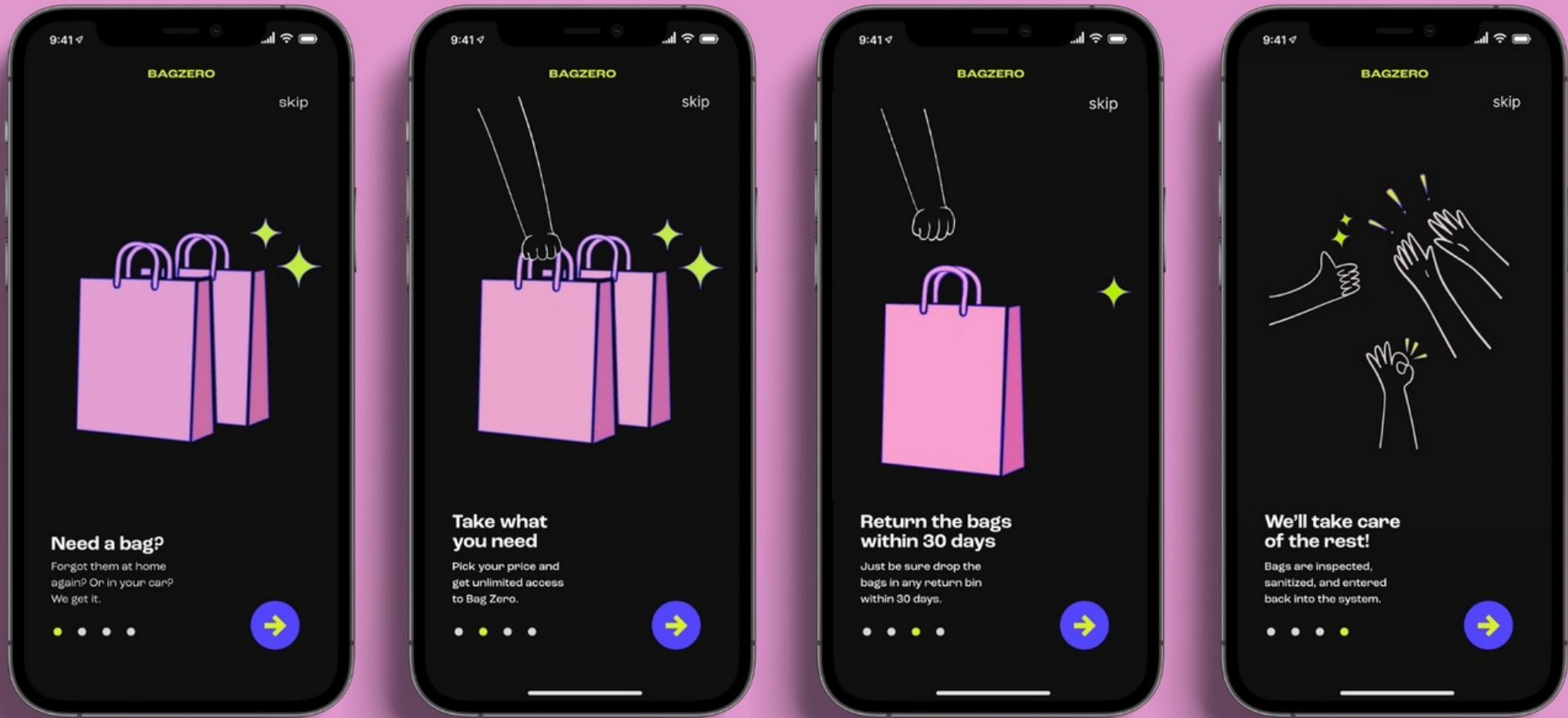
"It would be really cool if people didn't have to download a completely separate app to use BagZero. Maybe you could **design it so that it could be integrated into apps that users already have...** like their Whole Foods app."





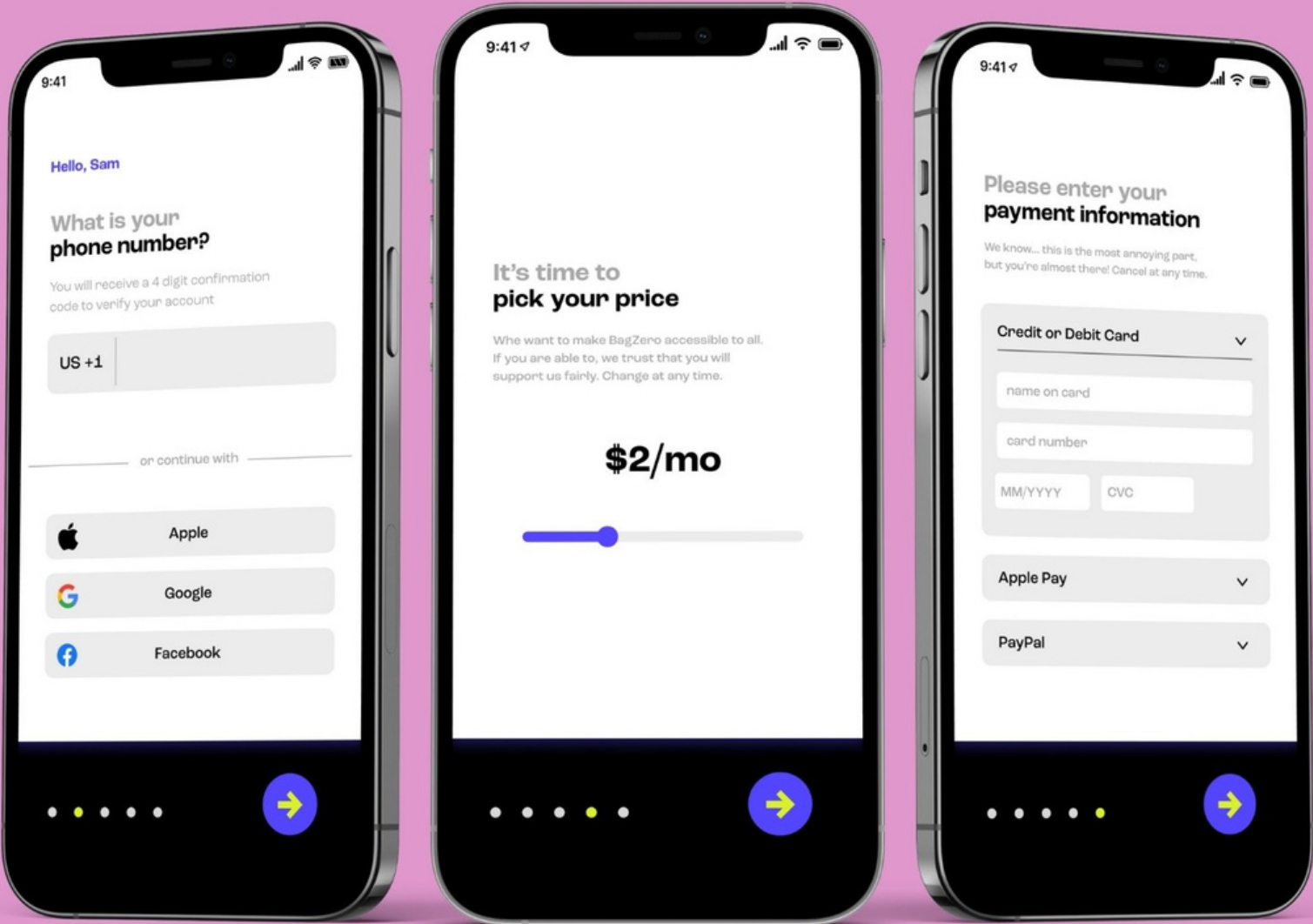
ONBOARDING

After the start up screen, Bag Zero users are taken to the onboarding screen with animated graphics where they learn about the process of needing a bag, renting a bag, returning the bag, and the bag being collected, sanitized, and returned to the system.



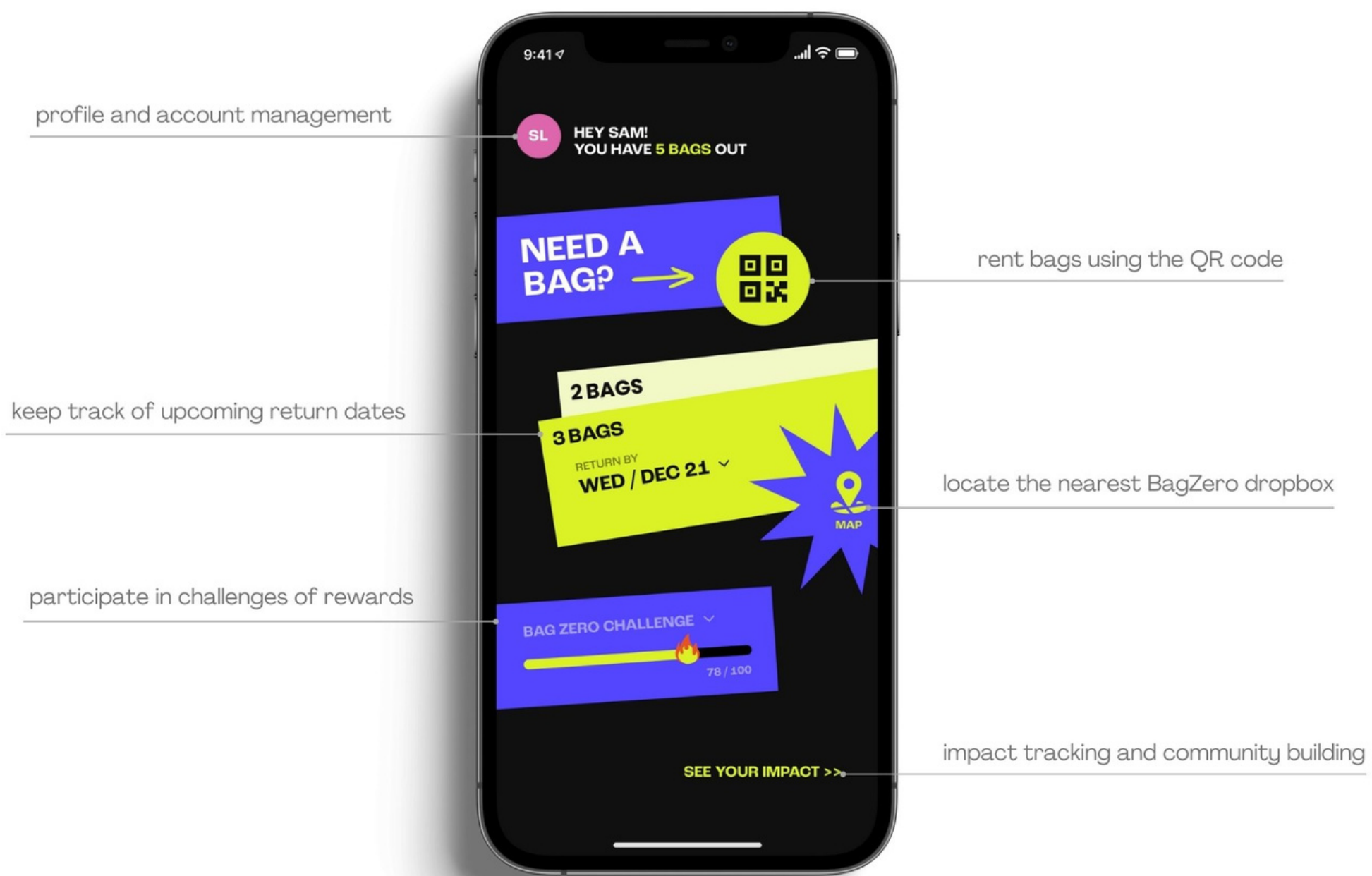
SIGN UP

Users are then taken to sign up. Here, they are able to pick their price in an attempt to make BagZero more accessible to a range of budgets. Monthly subscription prices range from \$1 - \$9 per month. Based on consumer research, users are not just going to choose \$1. If they are able to, they are most likely to choose the price that accurately reflects their perceived value of the service.



MAIN SCREEN

I wanted to keep the main screen fun yet relatively simple so that it could be integrated in to existing shopping apps (ie. Whole Foods app, etc.).



SECONDARY SCREENS

Users are able to tap and expand features within the main screen. The bag tracking feature expands to show the option of extending your rental if need be. The QR code expands for the cashier to scan. The challenge feature expands for more information about the reward you're working towards.

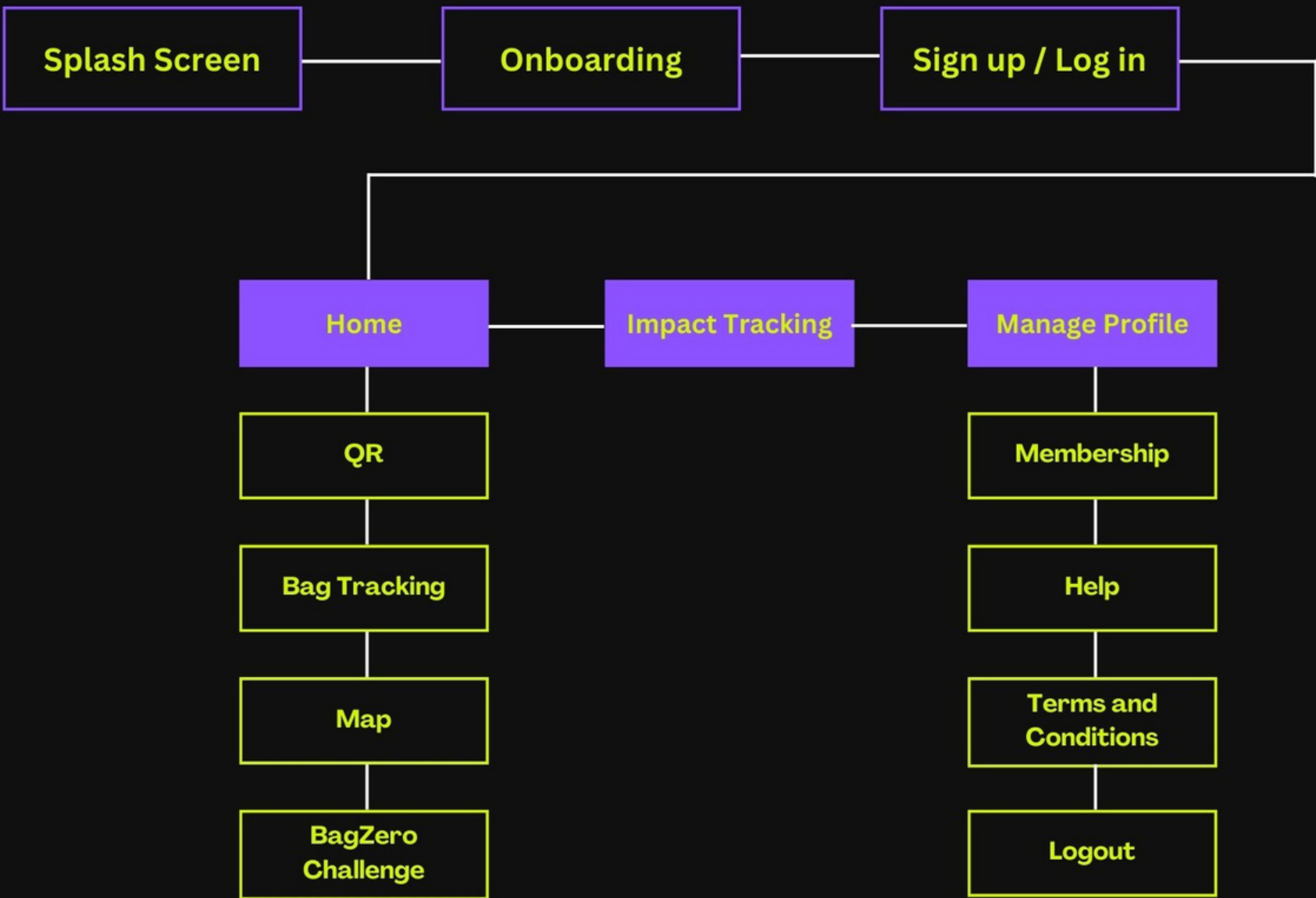


SEE YOUR IMPACT

Users can navigate to the impact tracking feature to connect with community and find more information about the company.

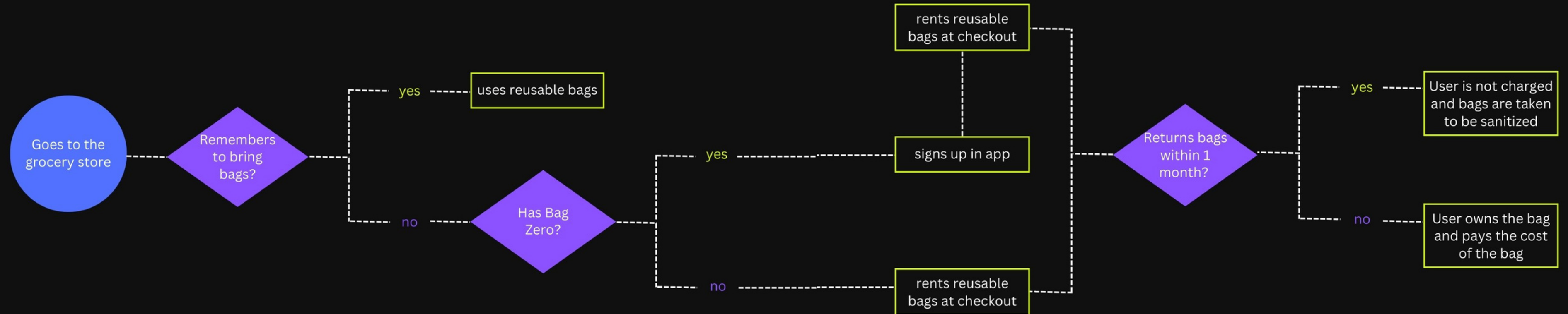


USER FLOW



USER JOURNEY

Let's merge the service and app design and take a closer look at the user touch points and call to actions.



BUSINESS AND MARKETING

The User

Environmentally conscious Gen Z and Millennial shoppers.

Mission

To make sustainability more accessible and convenient while inspiring solutions for a healthier planet.

The Problem

How might we encourage shoppers to limit the amount of single-use materials they use at the grocery store to make sustainability more accessible and convenient?

User Motivation

- Morally and socially motivated
- Aesthetics/ Trend driven
- Discounts offered through store partnership
- More durable/ ergonomic bags
- Rising bag fees
- Complete ban of single-use bags

Business Motivation

- Strengthens environmental initiative
- Early adopters seen as leaders in sustainability
- Increased traffic
- Tax breaks

Approach

- Marketing on social media platforms with heavy Gen Z and Millennial traffic - primarily TikTok and Instagram
- Partnership with Kowalski's and Lunds and Byerlys to implement small scale trial launch
- Easy sign up at checkout
- Work with local government and co-ops to start local and scale up
- Reliance on early adopters

Partners

- Local grocery stores
- Textile manufacturers
- Textile Sanitation
- Restocking Crew

Monetization Solutions

- Potential partnership with local and state government
- Recurring subscription fee from users using a user's choice model. Research supports the prediction that given the choice, users will support a business fairly rather than choosing the minimum payment option.
- Lost bag charge covers costs of unreturned bags
- Further development of backend operations is necessary to determine exact use rates (coming soon next semester)



Bag Zero as an entire system is far from complete. Over these last couple of months, I focused on the customer experience and interface. Next semester will focus more on the employee experience and backstage design.

COMING SOON...

I am interested in materials that can be upcycled or recycled in a circular model. Upcycled tarpaulin, billboard vinyl, boat sails, recycled cotton canvas, and recycled ripstop nylon ripstop are a few of the materials I have experimented with this semester. I am excited to continue bag development next semester.



1 BAG PROTOTYPING

Continue what was started this semester with bag form and material exploration.

2 BACKSTAGE DESIGN

Thinking about how collection, sanitation, and redistribution fit into the service and business model.

3 EMPLOYEE EXPERIENCE

Mapping out moments of interaction between BagZero users and store and BagZero employees.

