

VIKBAR20

A lightweight, 20 liter foldable bag designed to lower the threshold for car-free grocery shopping.



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A lightweight, 20 liter foldable bag designed to lower the threshold for car-free grocery shopping.

Degree Project for **Bachelor of Fine Arts in Design**

Main Field of Study Industrial Design

For Lund University, **School of Industrial Design** Department of Design Sciences

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LUNDS
UNIVERSITET

Sammanfattning

Detta kandidatarbete undersöker hur utformningen av en produkt kan förenkla vardagshandling och minska beroendet av bil vid inköp av dagligvaror. Arbetet tar sin utgångspunkt i en målgrupp som lever utan bil, ofta i mindre bostäder, och som upplever svårigheter med att integrera spontana eller nödvändiga inköp i en tidspressad vardag mellan jobb, skola och aktiviteter. Syftet har varit att utveckla ett hjälpmedel som gör det enklare att transportera varor på ett ergonomiskt och smidigt sätt. Arbetet har genomförts med utgångspunkt i en inledande undersökning, intervjuer och en marknadsstudie. Utifrån dessa identifierades ett glapp på marknaden för enkla och flexibla cykelväskor. Genom framtagning och utvärdering av fysiska modeller har väskans storlek och funktionella detaljer bestämts. En central del av utvecklingen har varit valet av ett tekniskt textilmaterial med pappersliknande egenskaper, vilket möjliggjort en konstruktion som kombinerar låg vikt med hög vikbarhet. Processen har fokuserat på hur produkten kan avlasta kroppen och samtidigt vara tillräckligt kompakt för att fungera i målgruppens ofta begränsade boytor och spontana vardag. Resultatet är en kompakt och ihopfällbar väska anpassad för att fästas på cykeln, målgruppens primära transportmedel. Tack vare materialets egenskaper är väskan extremt lätt och enkel att medföra oplanerat, vilket sänker tröskeln för mer hållbara transportval. Arbetet visar att behovet av planering vid vardagliga inköp minskar när ett hjälpmedel är både lättillgängligt och fysiskt obelastande. Genom att fokusera på materialets bärförmåga och vikbarhet har en produkt skapats som praktiskt underlättar en bilfri livsstil utan att begränsa användarens rörlighet.

Abstract

This bachelor's thesis examines how the design of a product can simplify everyday grocery shopping and reduce car dependency. The project focuses on a target group that lives without a car, often in smaller apartments, and faces challenges integrating spontaneous or necessary purchases into a time-pressed daily schedule of work, school, and activities. The aim has been to develop an aid that facilitates the transportation of goods in an ergonomic and seamless manner. The project was conducted based on an initial survey, interviews, and a market study. These identified a gap in the market for uncomplicated and flexible bicycle bags. Through the development and evaluation of physical models, the bag's dimensions and functional details were determined. A central part of the development has been the selection of a technical textile material with paper-like properties, enabling a construction that combines low weight with high foldability. The process focused on how the product can relieve physical strain while remaining compact enough to function within the target group's often limited living spaces and spontaneous lifestyles. The result is a compact and foldable bag adapted to be attached to the bicycle, the target group's primary mode of transport. Due to the material's properties, the bag is extremely lightweight and easy to carry unplanned, lowering the threshold for more sustainable transport choices. The thesis demonstrates that the need for planning in everyday shopping decreases when a tool is both readily accessible and physically effortless to use. By focusing on the material's load-bearing capacity and foldability, a product has been created that practically facilitates a car-free lifestyle without restricting the user's mobility.

Keywords: Industrial design, sustainable mobility, material selection, bicycle bag, lightweight design, everyday logistics.

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INTRODUCTION

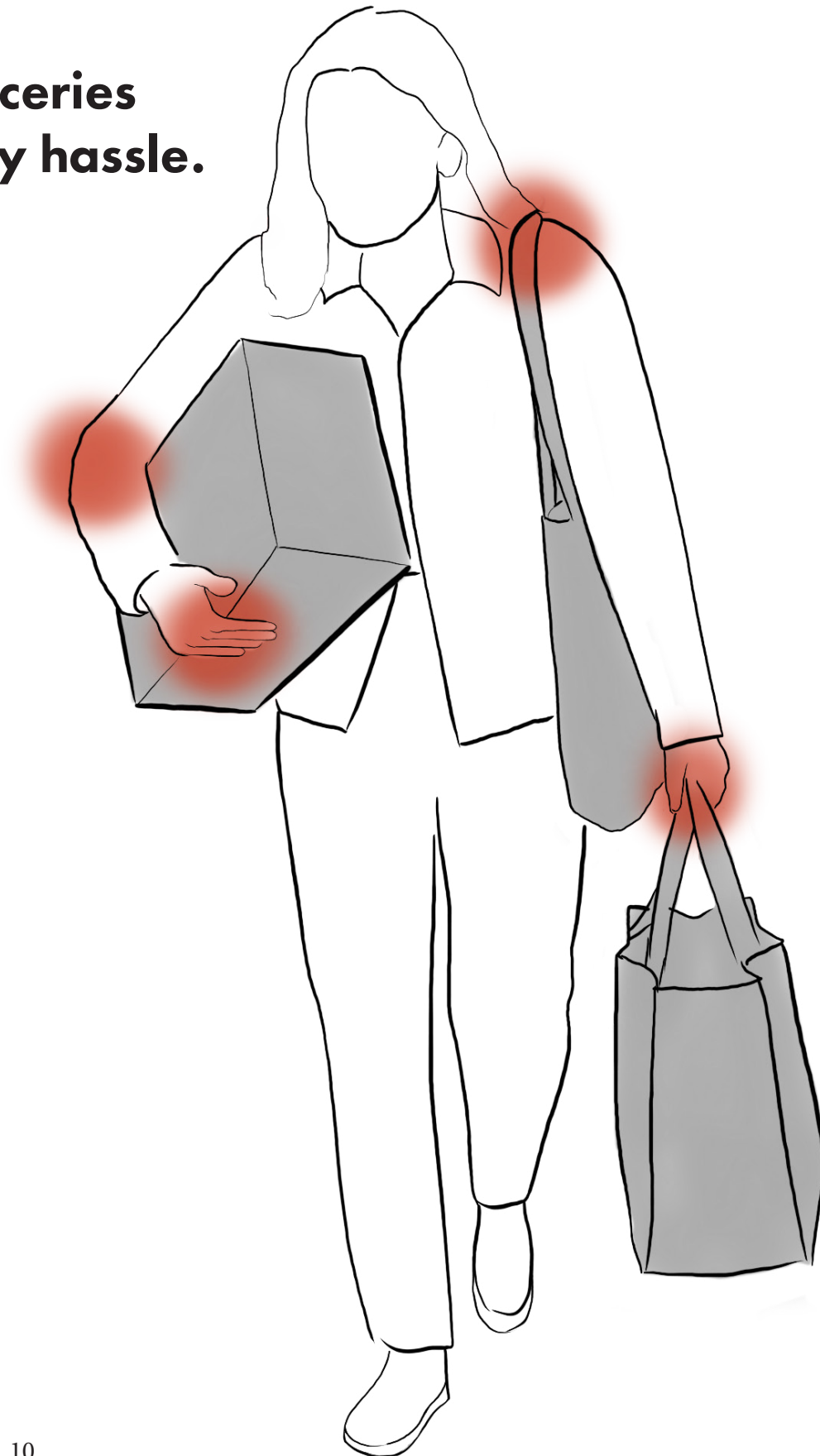
Context

Project timeline

Background & initial brief

01

Bringing home groceries shouldn't be a daily hassle.



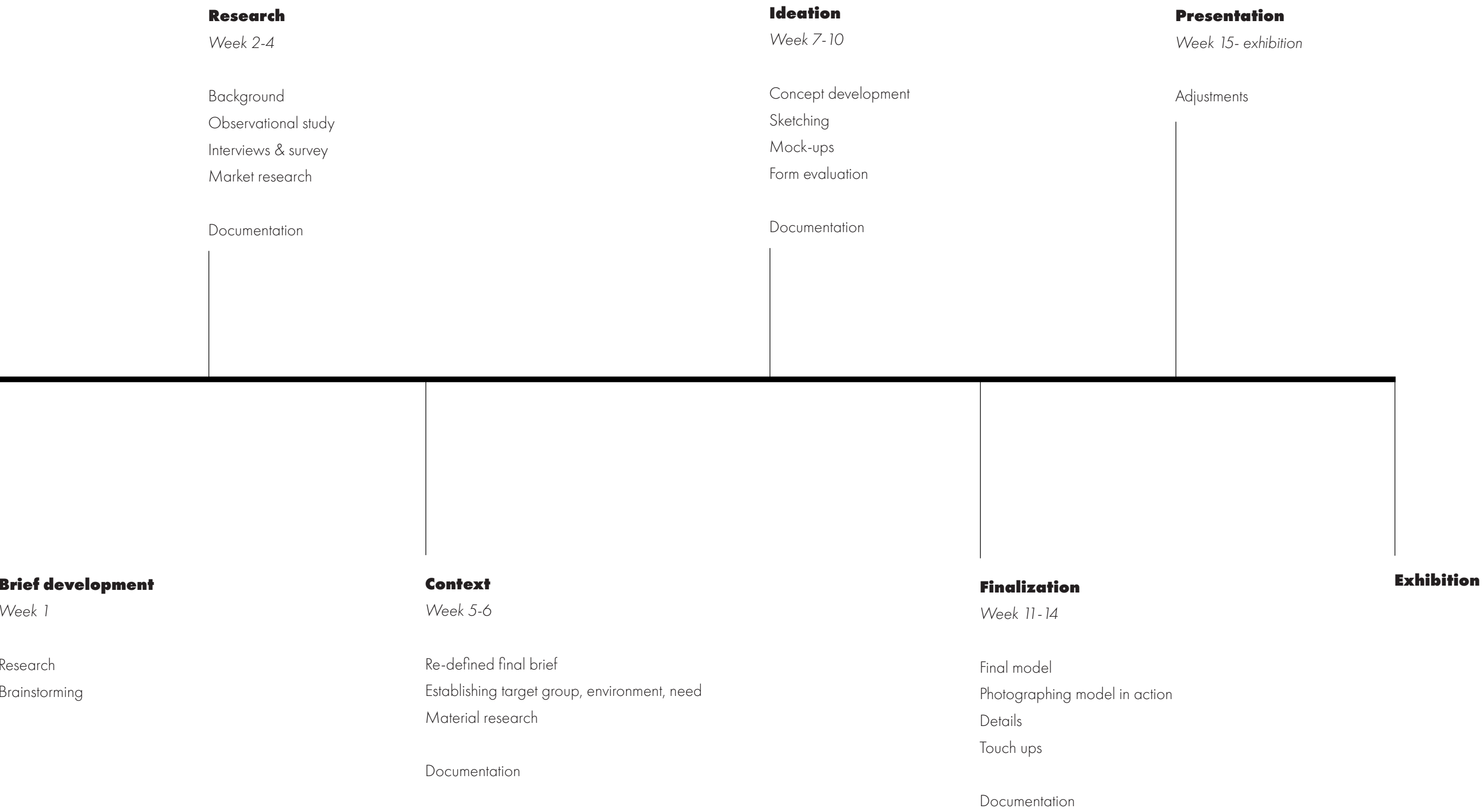
How do we design for a car-free everyday life?

The climate crisis demands a fundamental shift in our daily transportation habits. For decades, cities were designed around the car, but we are now seeing a significant trend change. In modern urban planning, the focus is shifting away from private vehicles toward “active mobility” such as walking and cycling. Cities are increasingly implementing car-free zones, removing parking spaces, and turning roads into pedestrian walkways (Nieuwenhuijsen, 2020). With expanded bike lanes and secure bicycle infrastructure, these modes of transport are no longer just alternatives; they are becoming the prioritized way to move through the city (C40 Cities, 2023).

Convenience vs. sustainability

Despite these improvements in urban design, several problems still exist, one of the most prominent being: carrying the load. While it is easy to walk or bike to work, transporting heavy groceries or bulky items remains a major friction point. This physical burden is often the reason people still choose a car for their weekly errands (Hull & v, 2014). To support a truly car-free life, we need new products that make shopping on foot or by bike feel as convenient and comfortable as using a vehicle.

Project intent: *Aim to design a solution that allows users to conduct their grocery shopping independently, efficiently, and enjoyably to make sustainable choices a natural part of the everyday.*



Background

For young adults between the ages of 20 and 30, it is more common to not own a car than to do. Juggling studies, early careers, and social events leaves little room for rigid routines. Rather than committing to a single, massive grocery haul for their weekly meal prep, they prefer making frequent, smaller trips to the store. After talking to people in this target group about their routines, I realized that this way of grocery shopping is often quite frustrating. Constantly carrying uncomfortable bags on the bus, on foot, or on a bike becomes an annoying everyday hassle. This clearly shows a need for a smarter and more convenient way to transport everyday goods on the go.

Initial brief

To design a grocery shopping solution that encourages people to shop without a car.

MOTIVATION

Observational study

Need

Target group

Environment

Ways to carry

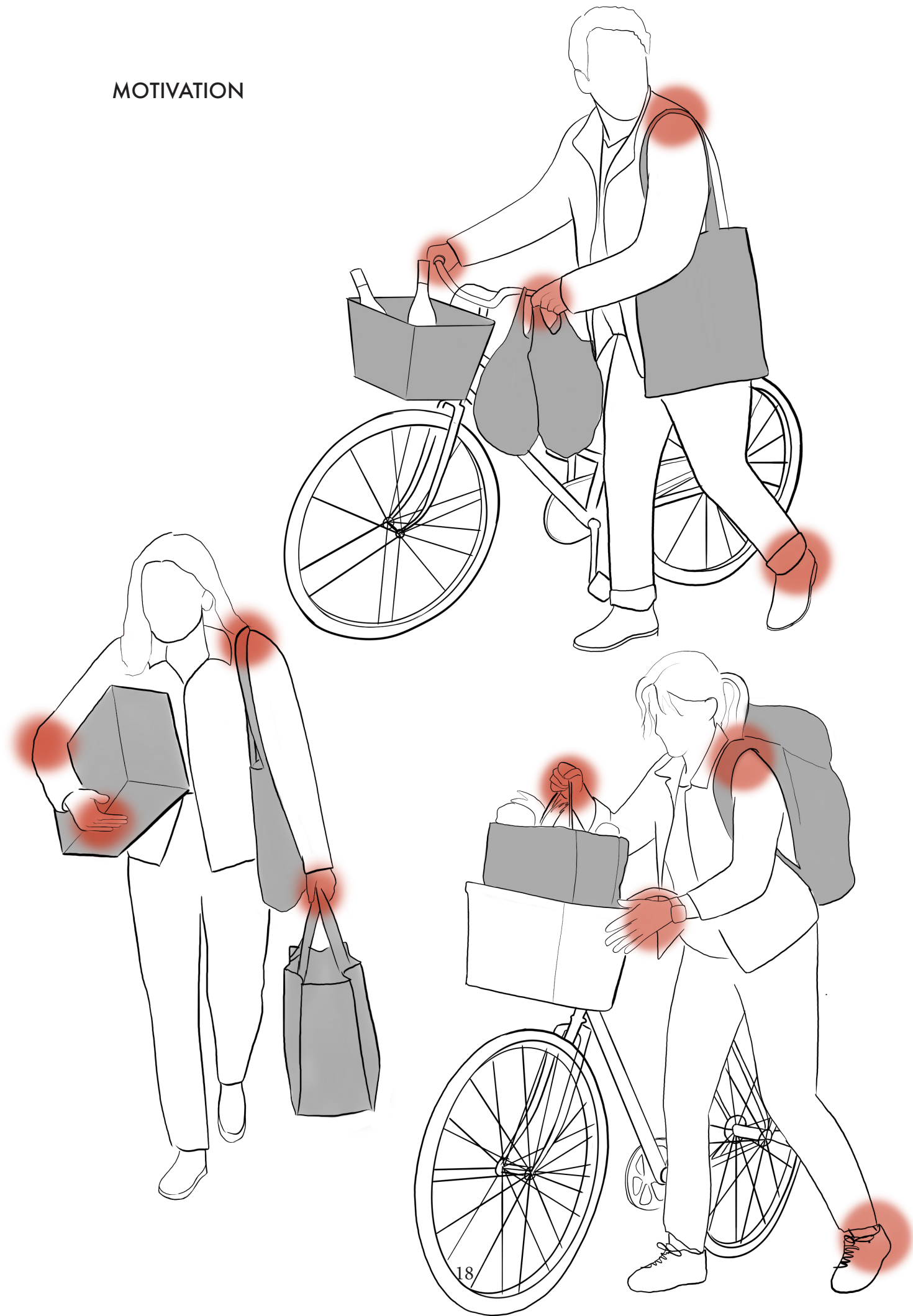
Current market

Survey insights

Interview insights

Current patterns

Choosing direction



Urban shopping patterns

Inefficiency and instability: Shoppers frequently struggled with multiple uncoordinated bags, leading to an unstable gait and poor ergonomic posture.

Improvised transport methods: Bicycles were often used as unintended support structures; users were observed walking alongside their bikes to balance heavy loads rather than riding them.

Segmented solutions: A clear demographic divide was observed regarding the use of rolling aids. While individuals over the age of 60 utilized specialized equipment (such as shopping trolleys or walkers) and appeared more organized and calm, no users under 60 utilized similar solutions.

Psychological impact: There was a visible correlation between the method of transport and the perceived stress level of the shopper. Users relying on manual carrying appeared more physically strained and hurried compared to those using rolling assistance.

Normative barriers: The absence of rolling aids among younger demographics suggests a social stigma or a lack of appropriate, modern design solutions catering to this target group.



Defining the need & function

The problem: There is a lack of uncomplicated, flexible solutions for the unpredictable needs of a daily commute. While a cyclist might have a primary bag for essentials like electronics or gym gear, there is often no safe or hygienic way to carry spontaneous additions, such as groceries, on the way home. Users are forced to either cram food in with sweaty workout clothes and fragile electronics, or dangerously balance extra bags on the handlebars. This missing link in bike luggage makes the bicycle feel impractical and unsafe.

The need: To make the bike a more viable option for these types of errands, there is a need to change how we approach adaptable storage, moving away from rigid setups toward solutions that can handle the changing demands of a day.

The goal: The goal is to design a bag that is compact and easy to stow away when empty, but stable and safe to attach to a bike when full. The focus is to provide a solution that is available when needed, without the burden of carrying a bulky, empty bag throughout the day.

Function	How?
Reduce physical strain	Bike-mounting and multiple handles
Adapt to commuting	Foldable and compact size
Hands-free carry	Integrated shoulder or crossbody strap
Encourage car-free living	Optimized for walking and cycling
Improve shopping flow	Self-standing structure
Ease sustainable choices	Desirable urban aesthetic
Resist daily wear	Durable, weather-resistant materials

MOTIVATION



02 | TARGET GROUP

Young urbanites

20-30 y/o

Spontaneous

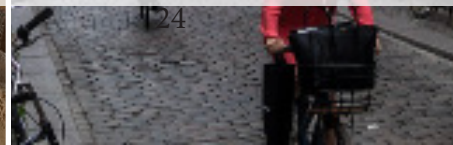
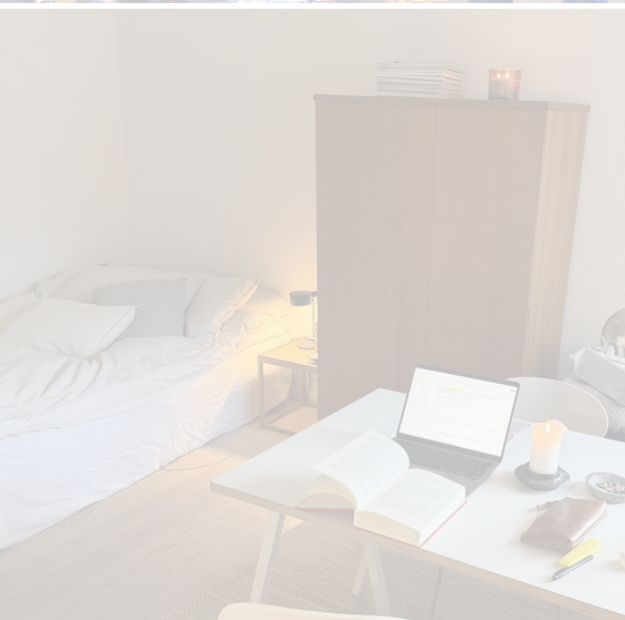
Independent

Socially active

Bicycle as primary transport

Space-conscious

Sporty



Scandinavian cities

Narrow passages

Vibration-heavy (cobblestone)

Uneven Terrain

Corrosive environment

Windy

Commuter-dense

All weather biking

Compact living

MOTIVATION



MANUAL/ CARRIED



02 | WAYS TO CARRY

FLEXIBLE

STATIC



ASSISTED/ MECHANIC



SPORTY, RIGID, UTILITARIAN, DURABLE

SOFT, EFFORTLESS, ACCESSIBLE, UNPRETENTIOUS



KILOMETER
30 L, 370 USD
Waterproof



VAUDE
21- 30 L, 79 USD
Waterproof



ORTLIEB
29 L, 160 USD
Waterproof



CLEVERHOOD
20 L, 16 USD
Foldable



ROCKBROS
32 L, 65 USD
Waterproof



THULE
25 L, 189 USD
Needs an extra locksystem,
waterproof

Context

To map out current grocery shopping behaviors and identify everyday friction points, a survey was done with 35 participants. The demographic was primarily young adults, with 86% aged 18-34 and 75% identifying as students. The data revealed a high-frequency, spontaneous shopping pattern: 72% of the respondents shop for groceries 3 to 5 times a week. 77% currently rely on reusable tote bags to carry their items home.



Key insights

Social Barriers & Aesthetics Stigmatization

The “empty transport” phase is perceived as socially awkward, highlighting a **need for a more adaptive or discreet solution**.

Most users **reject functional support due to poor visual expression**, creating a demand for a design that aligns with contemporary identity.

Physical Strain & Sustainability

High percentages of users report **pain in the upper body during the walk home**, indicating a failure in current manual carrying methods.

Users limit their purchases to avoid strain, **resulting in inefficient consumption patterns**.

Urban Constraints & Mobility

In small urban apartments, **minimizing the product’s storage volume** is a primary concern.

There is a strong desire for **hands-free** solutions to enable natural gait and free movement through the city.

Key quotes

“I often shop on my way home from school. I need something lightweight and foldable that is easy to carry along during the school day, so I don’t have to carry around heavy or bulky extra equipment all day.”

“If I had a transport aid, I wouldn’t know where to put it in my small apartment, which makes me feel like it would just be in the way all the time.”

“I feel like most shopping aids don’t really fit my identity, which makes me feel a bit uncomfortable using them in public.”

“If I use a large shopping aid in a store, it feels like I’m blocking the aisles, which makes me feel stressed and in the way of other people.”



AMANDA
24 y/o, Architect student

Routine: Uses a foldable bag to purchase groceries during the daily commute from university. Goes there by bike and train.

In-store logistics: Must leave the bicycle outside and carry all personal items (such as a laptop bag) throughout the store.

Transport limitations: Physical space is restricted as the bicycle basket cannot carry multiple bags, making the ride home difficult and unstable.



DANIEL
25 y/o, Engineering student

Routine: Commutes from university to the grocery store by bicycle.

Logistics: Shops for dinner while already carrying a backpack full of school supplies.

Constraints: Purchases are strictly limited to the remaining volume in the backpack.



NINA
22 y/o, Art history student

Routine: Walks from home using one or two textile bags for transport.

Logistics: Often combines grocery shopping with errands in the city or picking up parcels. the order of visits is determined by the weight of the items to minimize physical strain.

Physical load: The user often ends up carrying a heavy load for the final part of the trip, highlighting a need for better ergonomics

User insights and behavioral patterns

Through five in-depth interviews with individuals from the primary target group, several recurring behavioural patterns regarding their shopping routines were identified. These insights highlight specific needs and user scenarios that will drive the design process forward:

Integrated routines: Grocery shopping is rarely an isolated activity; it is typically integrated into the daily commute, such as traveling home from university or work.

Multi-stops: The users frequently combine their grocery shopping with other errands. Visiting multiple specialized shops during a single trip such as pharmacies, liquor stores, or local greengrocers. This demands a flexible carrying solution that can adapt to different types of goods.

Avoids self-scanning: There is a notable avoidance of self-scanning systems, they prefer a traditional, manned checkout processes or self-service check out.

Preference for tote bags: Tote bags are the preferred carrying method, largely due to their convenience, aesthetic appeal, and perceived environmental benefits, despite often lacking proper ergonomic support.

Frequent micro-shopping: Due to limited storage space at home, the target group avoids bulk-buying for the entire week. Instead, they opt for smaller, more frequent shopping trips, which directly dictates the required volume and capacity of their carrying equipment

Summary

Form: Must be as flexible and non-bulky as a traditional tote bag.

Interaction: Optimized for post-checkout packing, as users bypass self-scanning.

Ergonomics: Comfortable for shoulder-carry during multi-stop journeys.

Capacity: Compact volume, holding a maximum of three days’ worth of groceries.

Aesthetics: Must function as a personal accessory that reflects the user’s identity.

The tote bag vs the paper bag

What happens when the traditional flexible tote bag meets a rigid paper bag? Based on user research, the two most prevalent carrying methods among the target group are the reusable tote bag and the standard retail paper bag. While both are perceived as environmentally friendly options, they present distinct contrasts in usability, ergonomics, and structural design.



+ Portability & convenience

Lightweight and compact, easily fitting in a pocket for spontaneous use.

+ Cost & lifespan

A one-time investment with a long reusable lifespan.

+ Capacity

The material can hold a significant amount of weight.

+ Hands-free carry

The ability to carry it over the shoulder frees up the user's hands.

- Lack of structure

Lacks a rigid bottom; cannot stand upright, making packing and unpacking inefficient.

- Ergonomic strain

Thin straps dig into shoulders when carrying heavy loads.



+ Structural integrity

Flat bottom and boxy shape allow it to stand upright for easy packing.

+ Zero pre-planning

Requires no foresight; easily acquired when needed.

+ Secondary usage

Easily reused for secondary transport or as a recycling bin.

+ Tactile feedback

Users appreciate the physical feeling of hand-carrying it.

- Carry limitations

Lack of shoulder/arm carrying options leads to ergonomic strain over longer distances.

- Rigid constraints

Rigid shape cannot adapt to volume ; overpacking easily tears the material.

Design Criteria

*These criteria are built directly on the insights from the user research. The goal is to support a spontaneous everyday life, solve the lack of storage space at home, and take the physical strain off the user. **A key realization** is that this target group does not bulk-shop; therefore, the design must be optimized for a maximum three-day capacity, prioritizing compactness and flexibility. Since the bicycle is their primary mode of transport, the main objective is to shift the heavy grocery load away from the user's body and onto their bike.*

Bicycle integration: The product must securely attach to a bicycle, seamlessly transferring the heavy grocery load from the user to the vehicle during the commute.

Portability for spontaneity: To support a spontaneous lifestyle where users shop 3–5 times a week, the product must be lightweight and effortless to carry throughout the day before use.

Compact & foldable: It must be fully collapsible when empty, ensuring it requires minimal storage space in small student apartments.

Ergonomic load reduction: When carried manually (from the bike to the apartment for example), it must reduce physical strain by utilizing wider, comfortable straps for better weight distribution.

Quick-access storage: It must include a dedicated pocket for everyday essentials (such as keys, phone, or wallet) to streamline the shopping experience.

Optimized three-day capacity: The volume must be specifically sized for short-term, spontaneous shopping (maximum three days' worth of meals) rather than heavy bulk storage.

Re-defined brief:

Design a high-quality grocery tote bag that promotes sustainable habits by combining design with practical adaptation for the bike.

The design:

Must

Reduce physical strain

Improve shopping flow

Resist daily wear

Should

Adapt to commuting

Function as a personal accessory

Enable hands-free carry

Ease sustainable choices

Could

Encourage car-free living

IDEATION

Mood board

Ways to collapse

Concept development

Defining product scenario

User-test insights

Handles development

Mock-up test

Choosing material

Intended use

Sporty minimalism

Technical textiles

Carabiner elements

Paper bag aesthetic

Industrial elegance

Wide shoulder strap

Functional

Simple

Folded geometry

Muted colors



IDEATION

Plissé

Pre-folded pleats that expand like an accordion.

+ Enables a high compression ratio while maintaining a controlled, rhythmic aesthetic. It allows the bag to expand linearly without losing its structural integrity.

Squeeze

Adjustable drawstrings that cinch the fabric to compress volume.

+ An intuitive, lightweight system that makes it easy to compress and manage volume.

Fold + Roll

Description: Flattening the main body and wrapping it around itself to minimize the footprint.

+ A space-efficient method that creates a compact, cylindrical shape, ideal for long or tall bag components.

Fold

Collapsing the 3D volume into a 2D plane using defined seam lines or hinges.

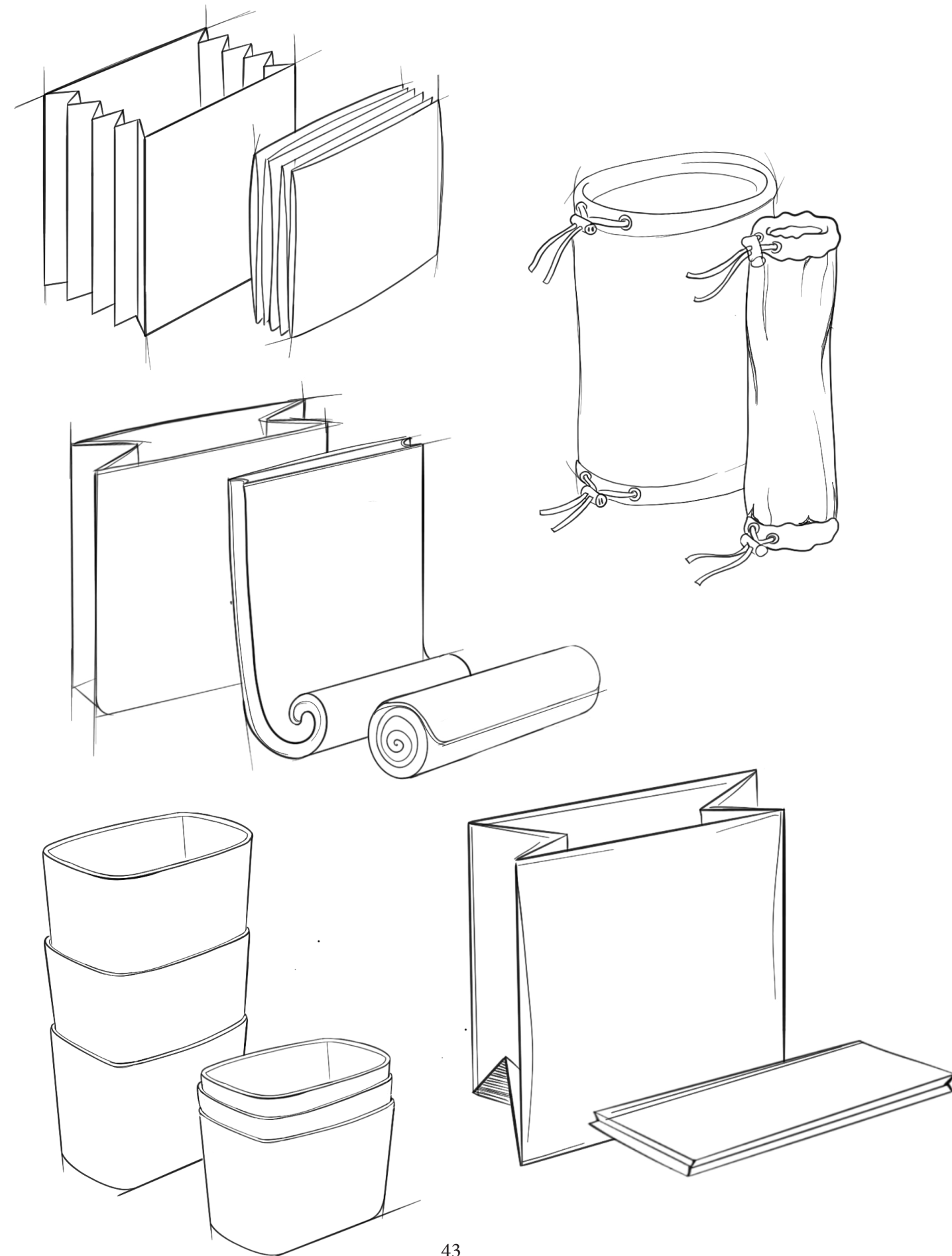
+ Transforms the bag into a slim, neat profile that is easy to tuck away or slide into a pocket.

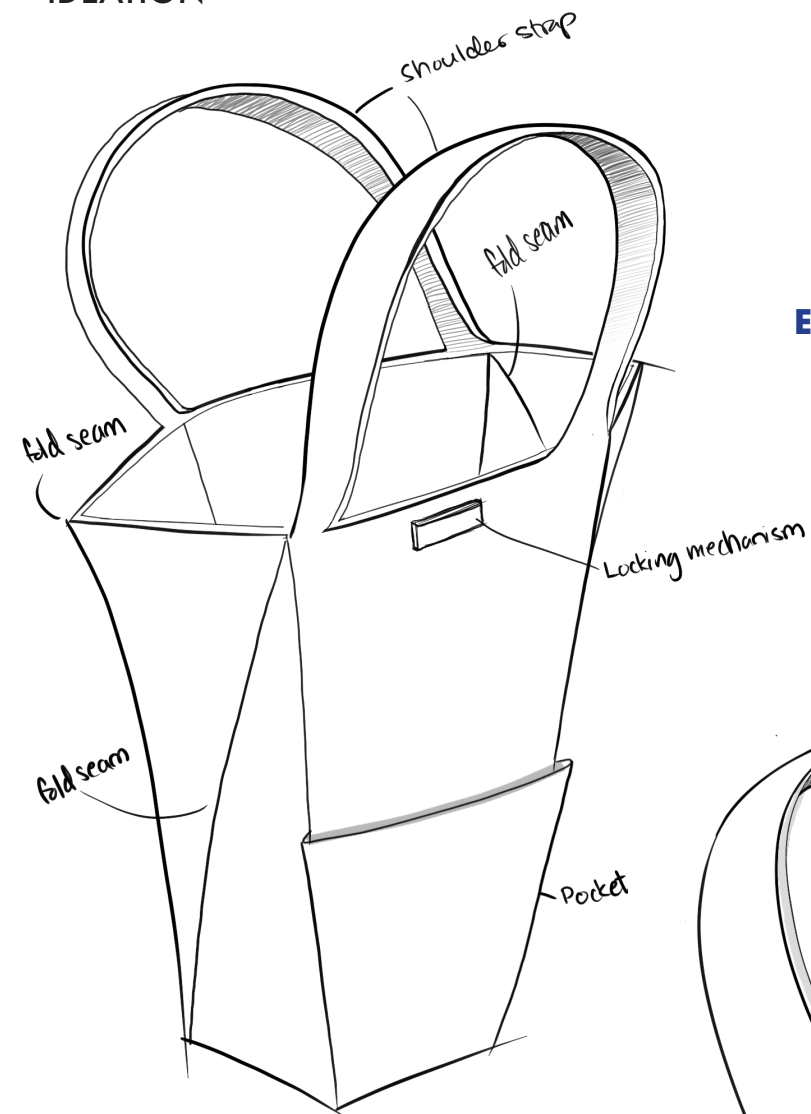
Telescopic

Sliding sections into one another, much like a telescope or binoculars, to reduce the height.

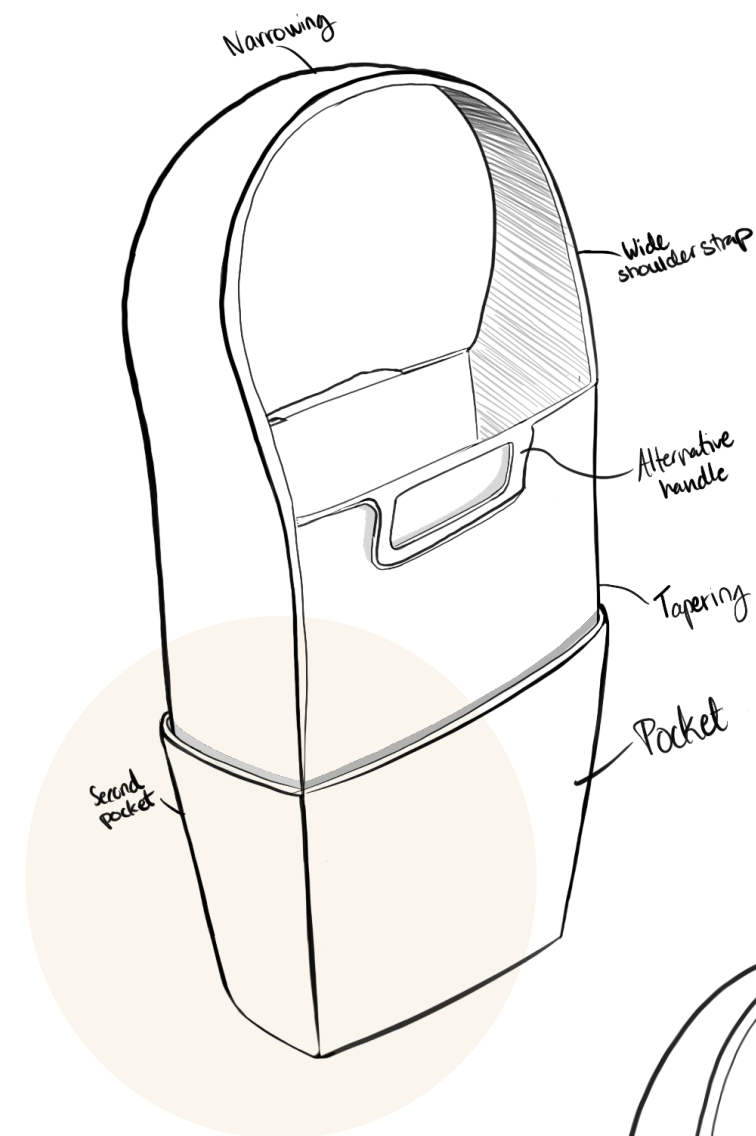
+ Provides a smooth, guided movement that feels high-end and snaps intuitively into place.

03 | WAYS TO COLLAPSE



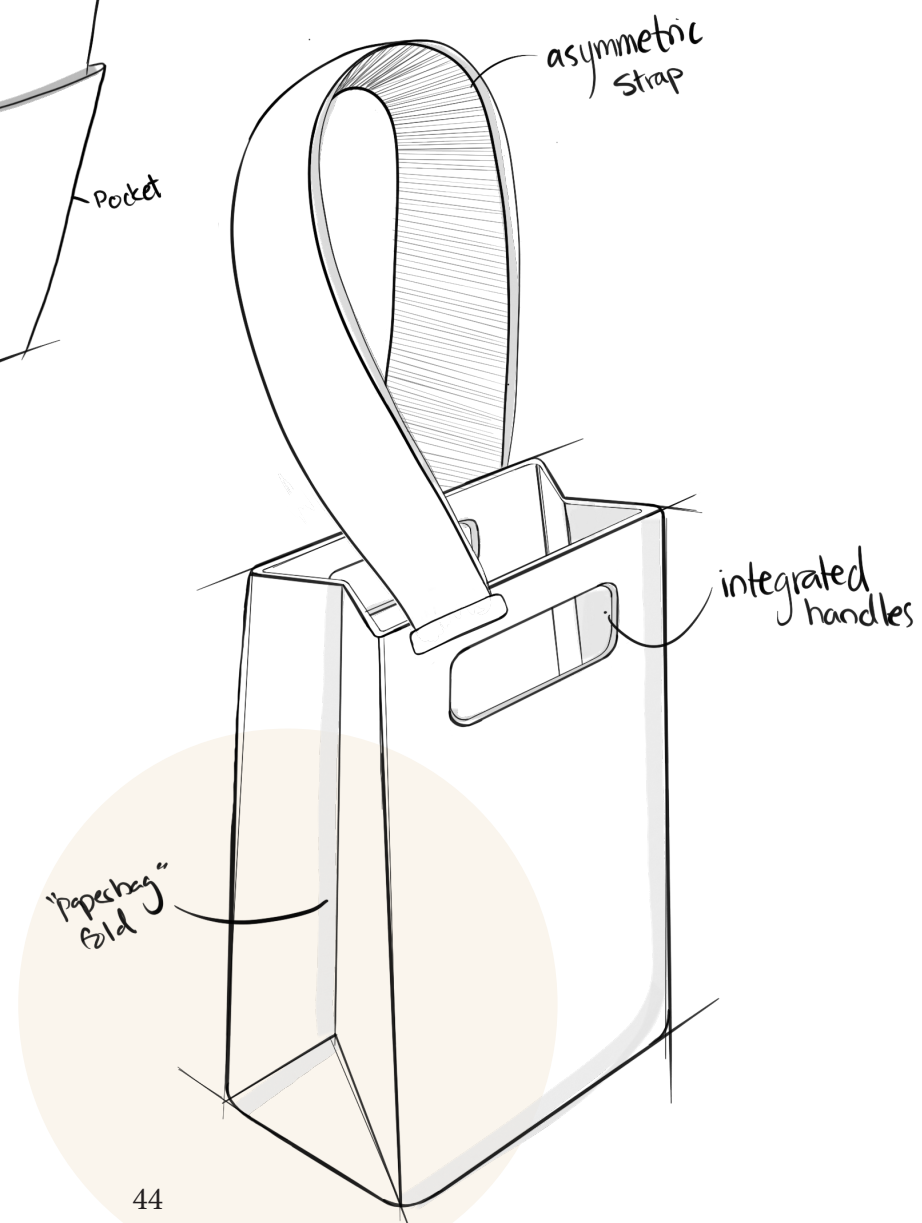


Elegant, hand bag like

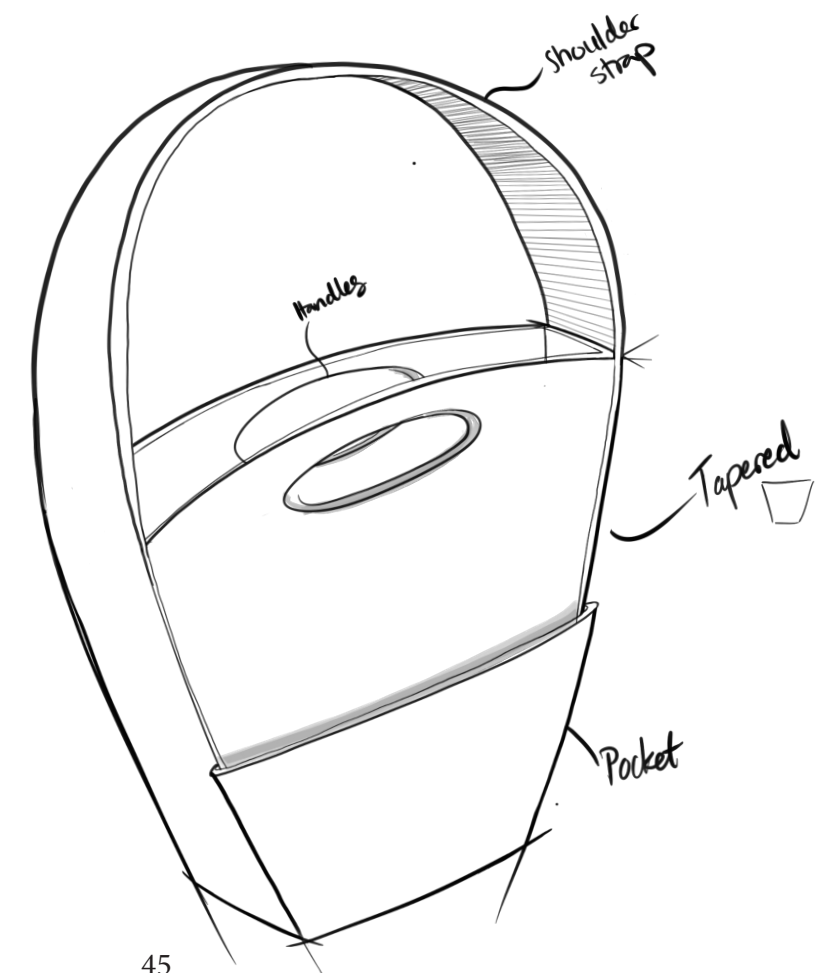


Functional, versatile

Sturdy, foldable, sporty



Sleek, tapered



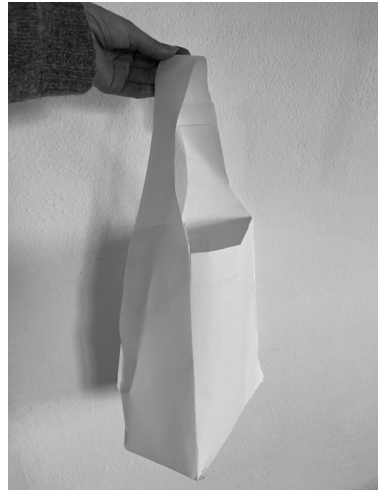
Folded on the way to store/ during the day

Folded in store

Carried by hand out of the store / between stores

Attached to the bike between stores/ on the way home

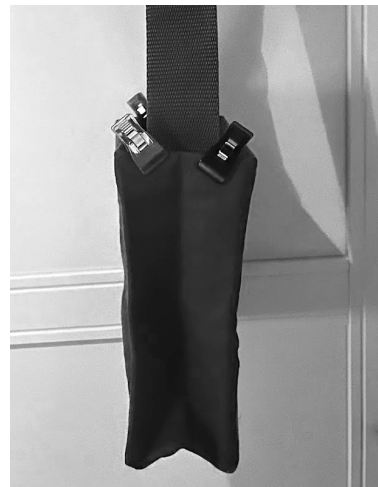
IDEATION



The user testing revealed a conflict between form and function: although the integrated straps were aesthetically pleasing, they **negatively impacted the folding** performance, making them an unsuitable design choice.



Integrating the front, back, and base into a single component **enhanced the structural integrity**, as the base serves as the primary load-bearing surface. The picture illustrates the sewing and folding process of the sides. This configuration was highly appreciated by users due to its **intuitive folding** mechanism, which draws a clear parallel to the familiar geometry of a paper bag.



Positioning the strap on the side created a clean, symmetrical aesthetic. However, **this configuration compromised the foldability** and was therefore excluded from further development.

03 | USER TEST INSIGHTS



Testing a 1:2 scale model on a bicycle revealed that the **carabiners must be positioned lower** on the bag. This change is necessary to ensure the bag sits at the correct height and remains stable on the bike rack.

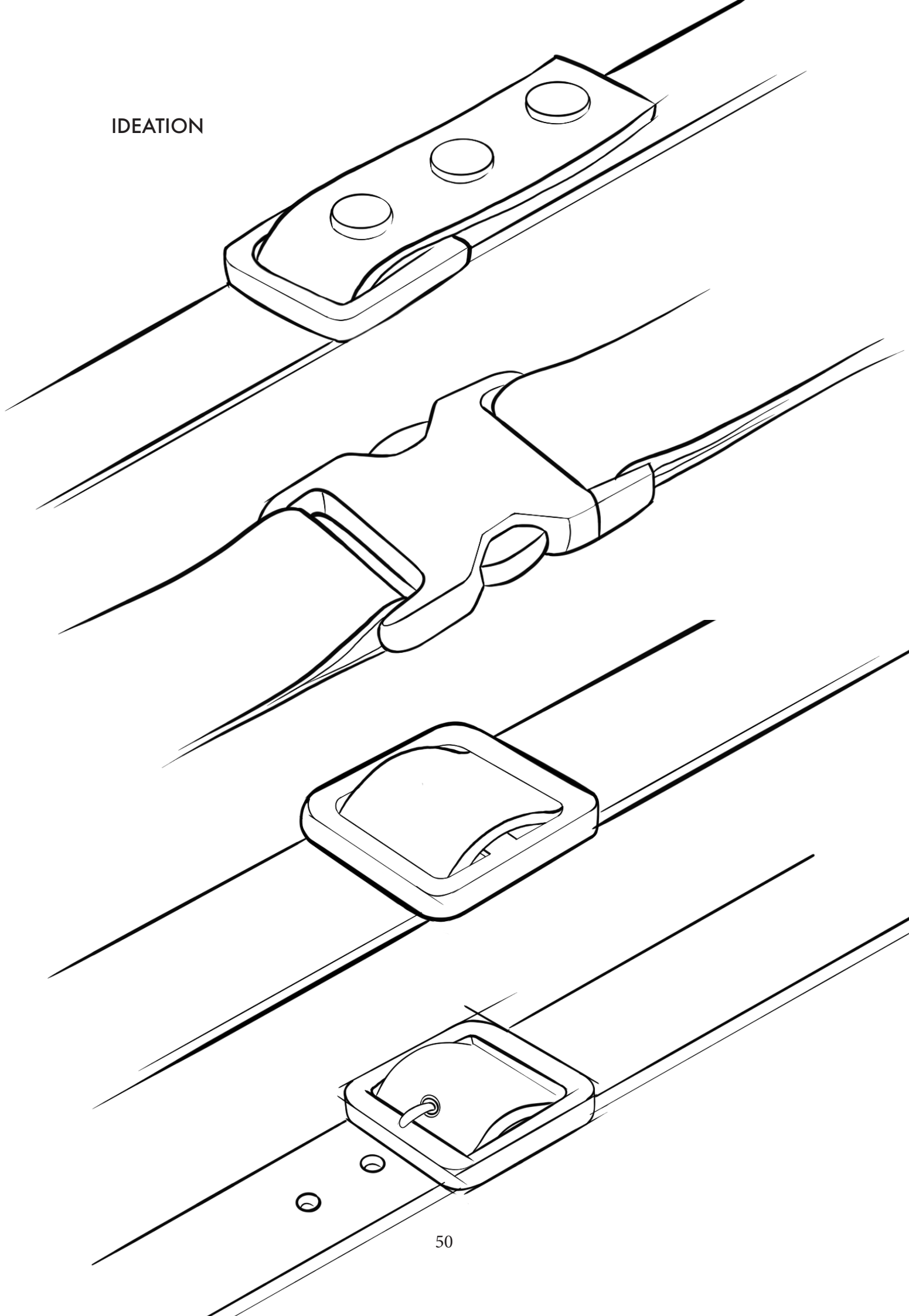
The testing also highlighted that the horizontal placement of the carabiners is crucial. **Their position along the width of the bag determines both the compatibility** with the bike rack and the overall stability during transport.



Overall, user feedback was positive, particularly regarding the long shoulder strap and the bag's **self-standing capability**, which significantly enhances usability during loading and unloading. To further refine the design, users identified a need for a **deeper front pocket** to ensure the secure storage of valuables like phones and wallets. Users also wanted **shorter handles** for carrying the bag over short distances. These handles must be short enough so the bag doesn't hit the ground, even if the person carrying it is not very tall.



Users appreciated that the **bag can stand on its own**, making it easier to pack in the store and unpack into the fridge. To improve usability, the bag **should not be wider** than a standard kitchen chair, as users often use chairs for support when loading or unloading. Additionally, **the height should be limited**; if the bag is too tall, it becomes difficult to reach and organize items at the bottom.



What is important when sketching handles?

From my initial surveys and interviews, it became clear that users highly appreciate a wide shoulder strap for comfort, especially when carrying the bag for longer periods. However, they also needed a quick and convenient way to grab and carry the bag with just one hand. Through physical user testing, I found that having dual top straps or integrated handles provided the best balance and ergonomics for this type of one-handed carrying.

The primary design challenge was figuring out how to combine these two carrying methods: a top handle and a longer shoulder or cross-body strap, without ending up with “dead” straps. I wanted to avoid a situation where a strap just hangs loosely, gets in the way, or snags on things when it is not actively being used. A core principle for this entire project was that no feature should take up unnecessary space or feel superfluous; every detail had to serve a clear, active purpose.

I initially explored a few different directions to solve this. Ultimately, I decided against using integrated handles. While they looked clean in the sketches, I realized that making them comfortable enough to carry a heavy load would require extra reinforcements. This would have made the manufacturing process significantly more complicated and added unwanted bulk to the final product.

Instead, I opted for a removable strap system. To make this interaction smooth, a custom hardware solution was needed. I modeled a buckle in Rhino and 3D-printed prototypes to test the functionality. Since everyday ease of use was a main priority, the final iteration features a wide slot. This practical design makes it straightforward to slide the loop through, allowing the user to easily attach or detach the longer strap depending on how they prefer to carry the bag.



Unfolded state



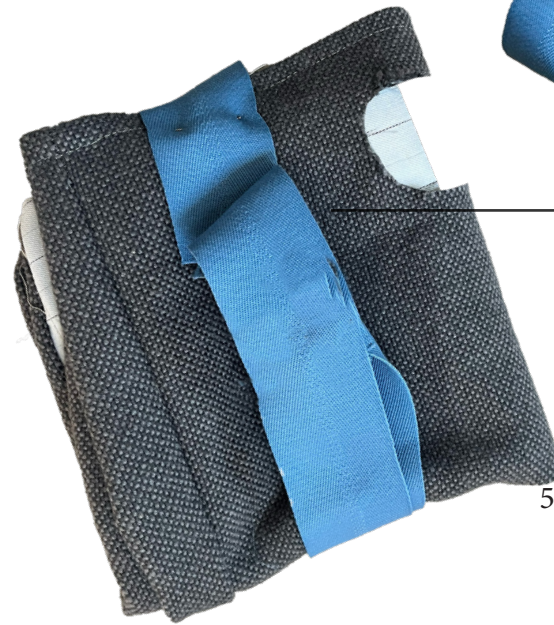
Sides are tucked inward and folded once



The unit is folded a second time to its final size



The securing strap is pulled over the body



The strap connects to its corresponding end



The unit is fully folded, secured, and ready for use

Material Exploration

When exploring materials, the aim was to look beyond standard textiles. The candidate materials below were chosen because their specific appearance and texture align well with the visual direction of the mood board. At the same time, they all fulfill the functional requirements of being water-resistant and suitable for everyday wear.

Essential material requirements

Durability and wear resistance: The material must be highly robust to withstand daily wear and tear during multi-stop journeys.

Structural stability: While remaining somewhat flexible, the material needs sufficient inherent stiffness to allow the bag to stand upright independently, heavily optimising the post-checkout packing experience.

Quick-dry and maintenance: The material should be easy to clean and fast-drying. This ensures the bag stays fresh and hygienic, even if it gets damp or is used in humid environments.

Desired Attributes

Ecological sustainability: Ideally, the fabric should be sourced from eco-friendly, recycled, or repurposed materials.

Low maintenance: The surface should be wipeable or easily washable to ensure hygiene and maintain the product's aesthetic value over time.

Pleasant tactile qualities: Since the bag acts as a personal accessory carried on the shoulder, the haptic and tactile feel of the material should be comfortable against the body and visually appealing.



Washable kraft paper

- + Lightweight & tear-resistant
- + Water-repellent
- + Machine washable
- + Develops a leather-like patina
- + Highly sustainable (often FSC-certified)

- Lacks absolute rigidity
- Requires structural folds to be self standing



Upcycled tarpaulin

- + Extreme durability
- + 100% waterproof
- + High structural stability (easily self-standing)
- + Wipeable surface
- + Strong upcycling narrative

- Heavy
- Stiff to fold and sew



Repurposed sailcloth

- + High tensile strength
- + Water-repellent
- + Surprisingly lightweight
- + Natural rigidity
- + Strong ecological narrative

- Loud material friction
- Vulnerable to structural creasing
- Challenging assembly process



Tyvek

- + 100% waterproof
- + Exceptionally lightweight
- + Highly tear-resistant
- + Fully recyclable

- Low structural rigidity
- Softens and wrinkles heavily over time

IDEATION

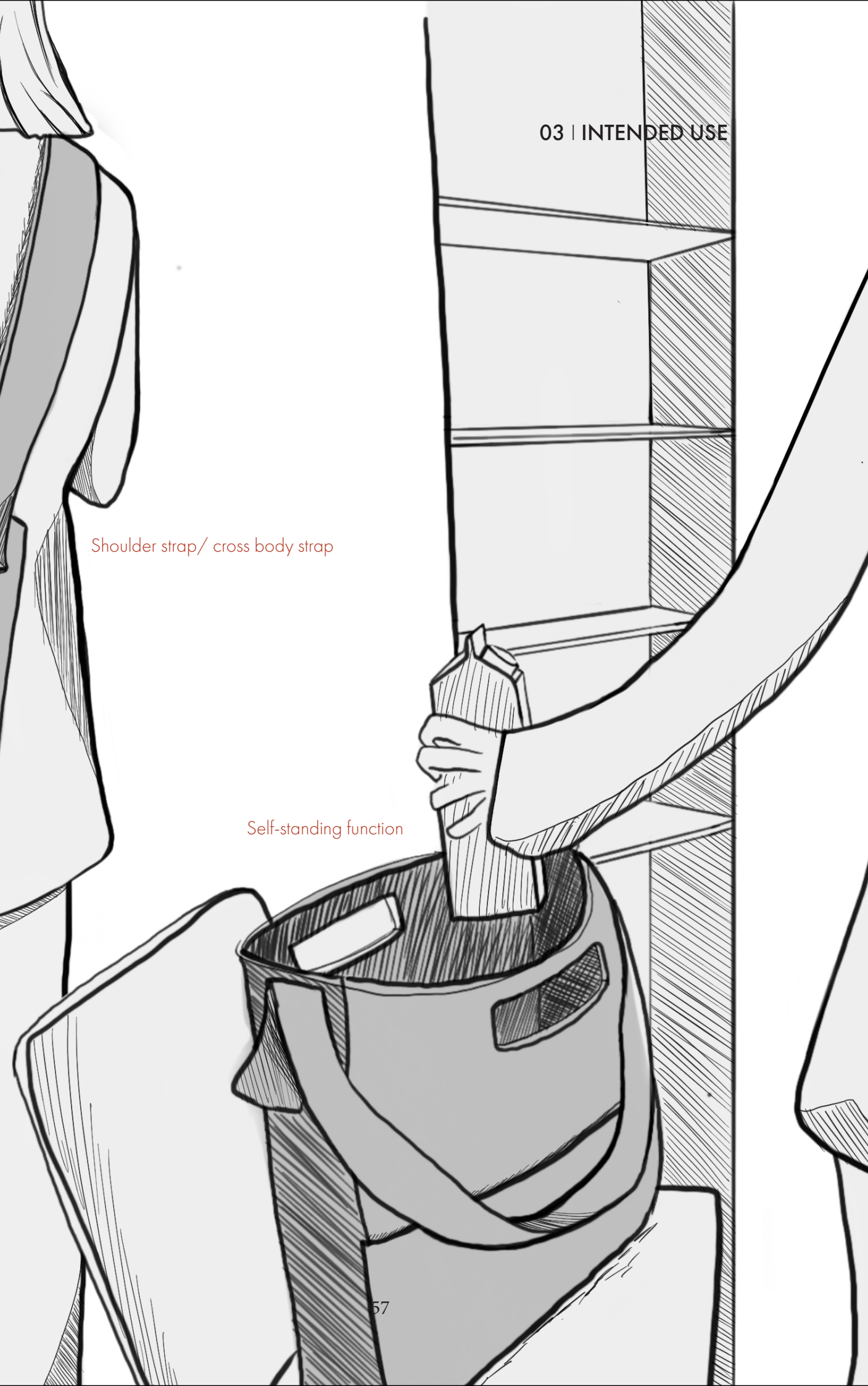


Pocket for wallet etc.

Shoulder strap/ cross body strap

Shorter handles

03 | INTENDED USE



Self-standing function

FINAL RESULT

Summary

Dimensions

Handles

Volume

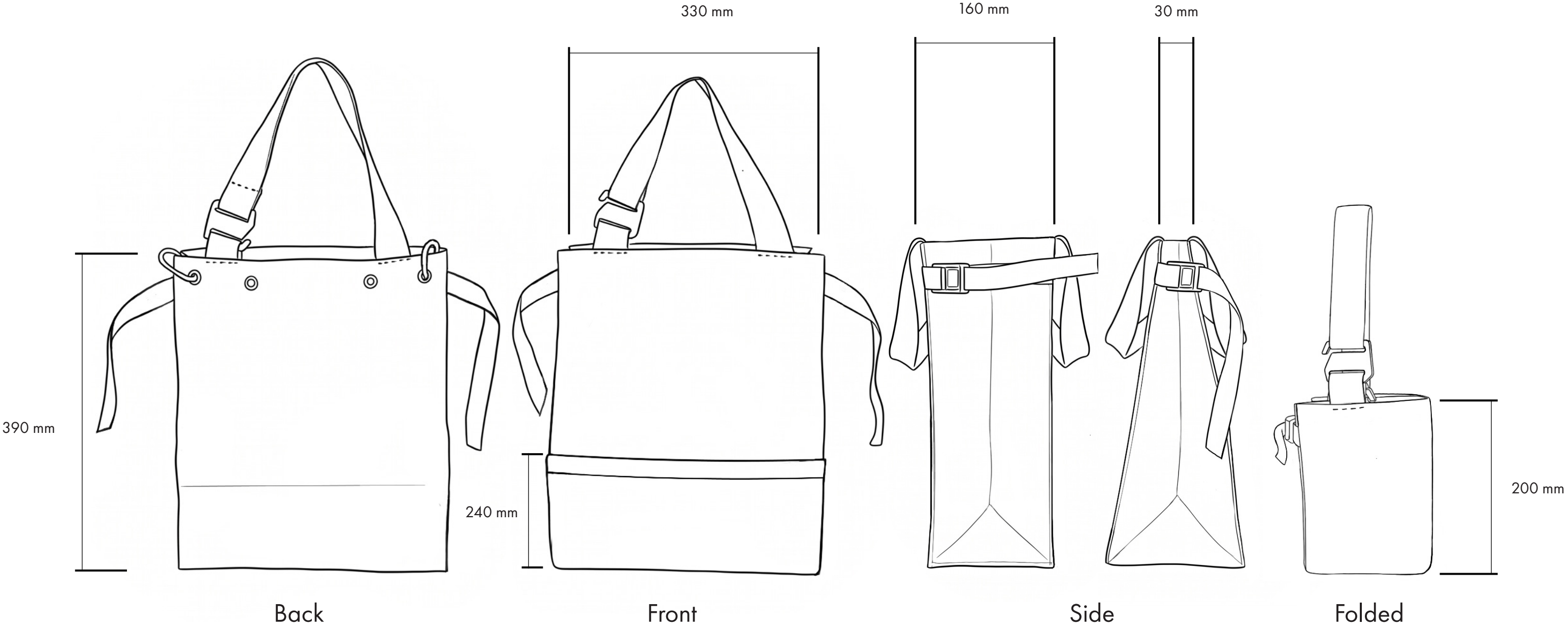
CMF

Evaluation

Final product

Reflection

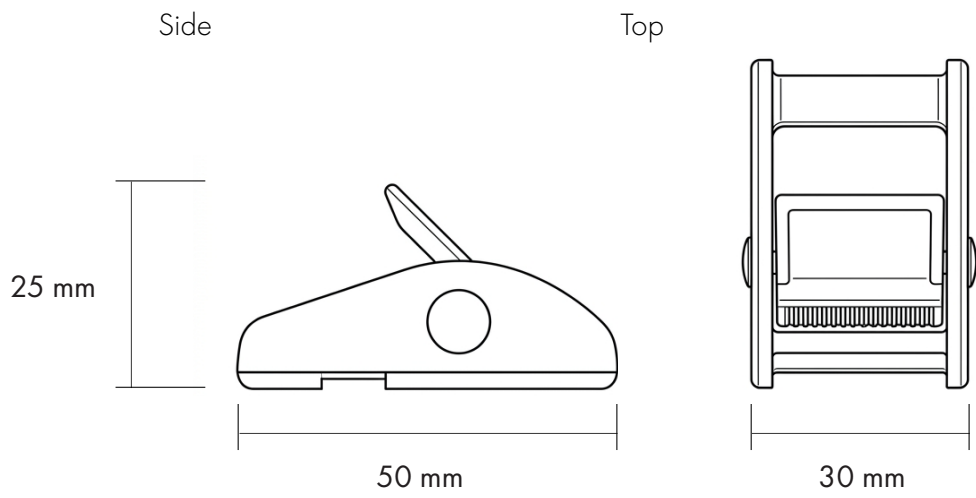
04



RESULT

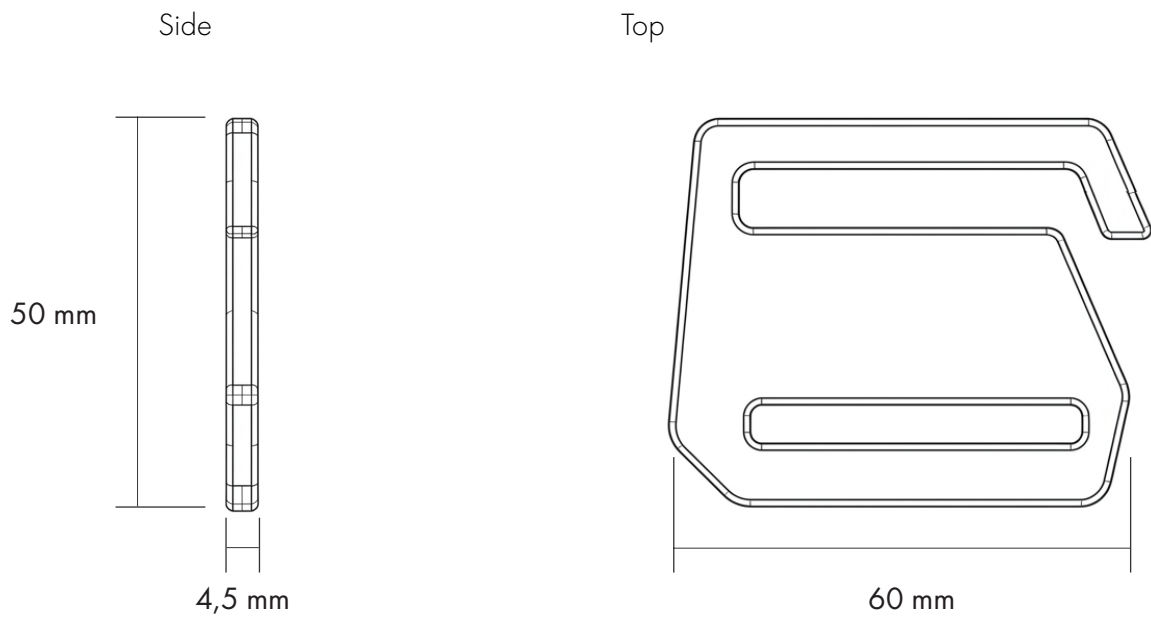
Side buckle

Off-the-shelf component



Handle hook

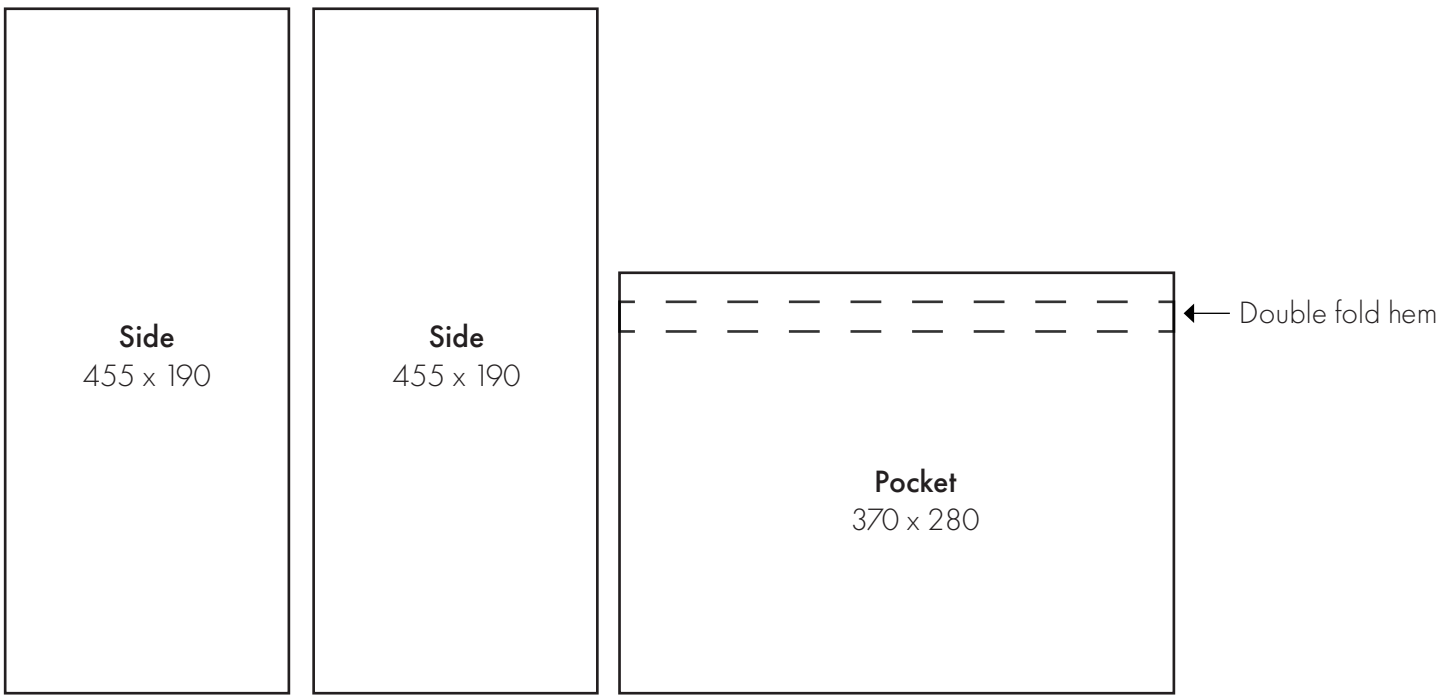
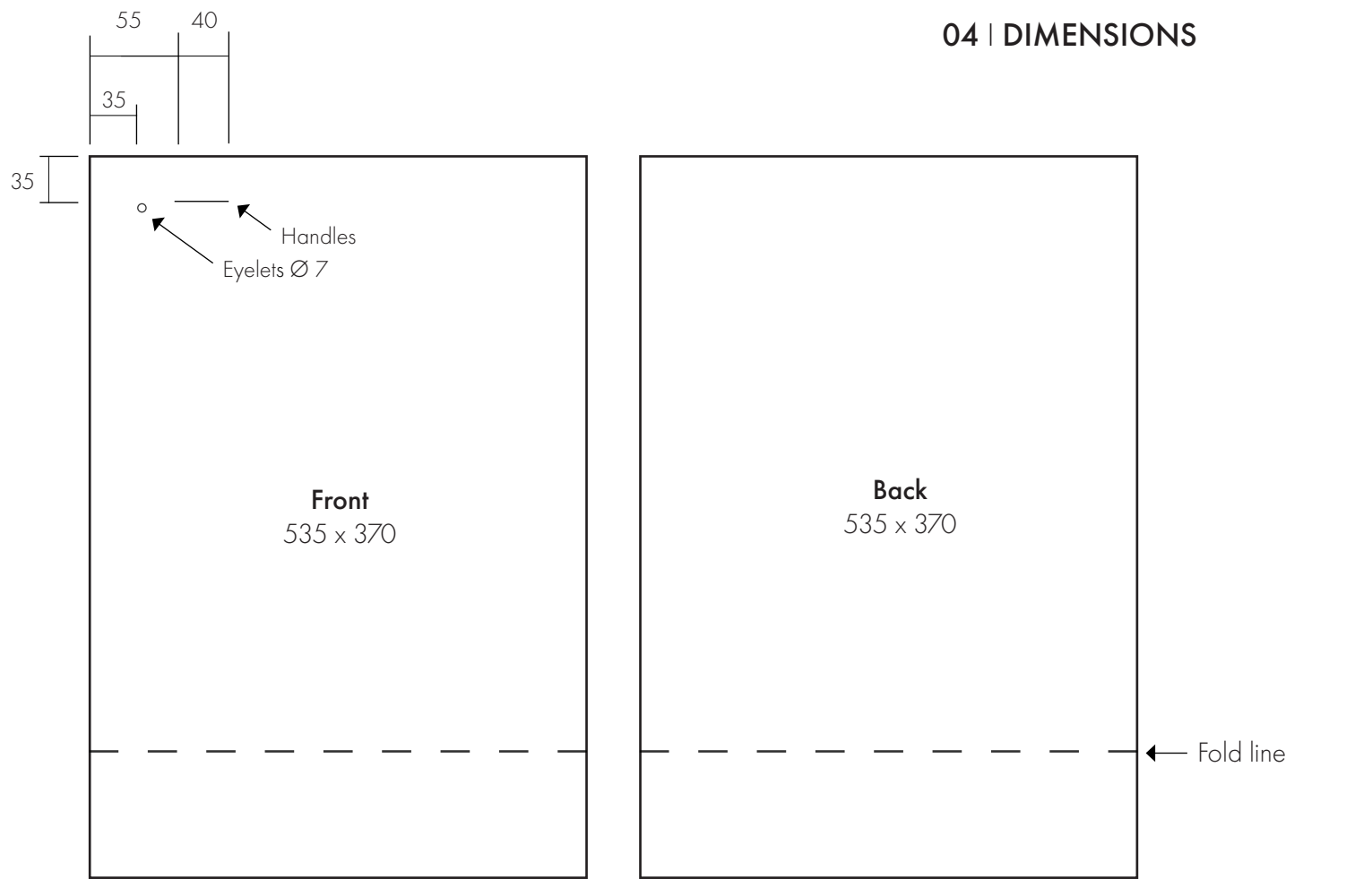
Designed and 3d printed by me



*Handle hook is designed and 3d printed by me

*1:1 scale

04 | DIMENSIONS



*All dimensions are given in millimeters and include a 15 mm seam allowance

*Scale 1:5

RESULT



04 | HANDLES

The strap system is a central feature, designed to provide multiple carrying options without the clutter of unused handles. By prioritizing modularity, the design avoids the need for separate straps for different functions; instead, a single system adapts to the user's needs. **The strap functions as two short handles for carrying by hand or on the forearm, but can be reconfigured into a single long strap for shoulder or cross-body use.** This ensures a clean aesthetic and optimal functionality, where every part of the strap serves a purpose in every mode of carry.

Top handles
L 50 mm x2
W 40 mm



Shoulder strap
L 90 mm
W 40 mm





Capacity: 20 L

User-centric sizing: Based on research showing the target group typically shops for 1-3 days

*Groceries in the pictures take up 1/3 of the volume

RESULT

04 | KEY FEATURES

Modular strap system

Adjustable straps that transition seamlessly from top handles to a shoulder strap configuration.

Tactile & foldable materials

Flexible construction that holds its shape when loaded, but folds completely flat for storage.

Simple bike attachment

Integrated carabiners for instant mounting to bike racks without complex or bulky hardware.

Everyday tote aesthetic

A clean, everyday look that avoids the over-engineered aesthetic of traditional cycling gear.

Quick-access front pocket

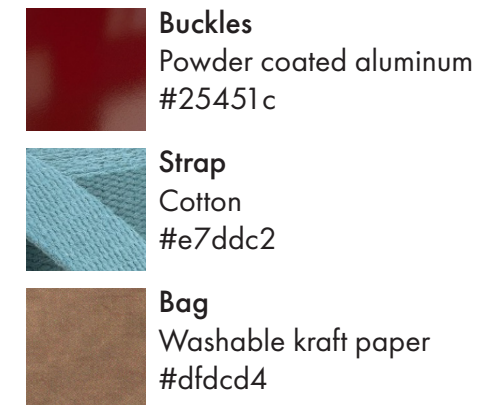
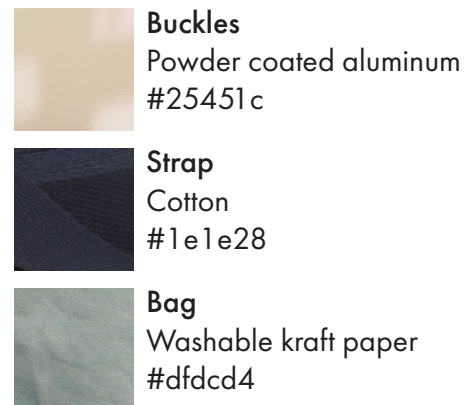
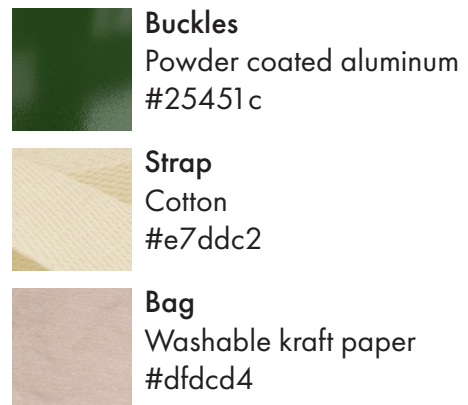
A dedicated front pocket to separate personal essentials or delicate items from the main cargo.

Side buckles for stability

Buckles on the side let you tighten the bag around your groceries. Secures the load and prevents items from shifting around while you bike.

Fold-lock function

The same side buckles can be used when the bag is empty. Opposite sides can be locked together to keep the folded bag compact so it doesn't unfold on its own.



RESULT

Kola



74

Havre



easybags.

04 | CMF

Salvia



easybags.

75

*Colors in picture 1 & 2 has been changed with the help of AI

**Must**

Reduce physical strain: The design successfully minimizes ergonomic strain by offering versatile carrying positions, allowing the user to alternate muscle groups and prevent fatigue. Furthermore, the integration of a bicycle mounting system effectively offloads the weight from the user's body to the vehicle frame.

Improve shopping flow: The product's self-standing geometry significantly improves the user experience during the "packing phase." By maintaining its shape and stability, it enables a hands-free workflow, allowing the user to use both hands to organize items efficiently.

Resist daily wear: The material selection ensures durability through water resistance and high-quality aging characteristics. Similar to the patina of leather, the material is intended to "age gracefully," where wear and tear contribute to the product's character rather than degrading its structural integrity.

**Should**

Adapt to commuting: The requirement is met through a modular attachment system for bicycles and a collapsible structure. This allows the product to be easily stowed within another bag when not in use, supporting a seamless multi-modal commute.

Function as a personal accessory: The aesthetic language aligns with the identified target group's preferences. By referencing current product trends and CMF-strategies within the segment, the design functions as a cohesive part of the user's personal style.

Enable hands-free carry: The adjustable handle and strap configuration allow for various carrying modes (e.g., over-the-shoulder or cross-body), enabling the user to keep their hands free for other tasks during transit.

Ease sustainable choices: By lowering the threshold for bicycle-based shopping, the design actively encourages a shift away from car dependency, thereby supporting more sustainable daily routines.

**Could**

Encourage car-free living: While the long-term behavioral impact is difficult to quantify at this stage, the design provides the necessary functional infrastructure to make a car-free lifestyle more feasible and convenient for the urban consumer.





RESULT

04 | FINAL PRODUCT



RESULT

04 | FINAL PRODUCT



Learnings and further developments

Reflecting on the development of this project, it is clear that the final result is a balance between functional solutions, material properties and proportions. This process was not like my usual workflow. While I typically focus more on the “designing” and sketching phase, this project was largely driven by the physical constraints of the materials themselves. Because they and their inherent properties were central to the product’s identity, aesthetics were a very integrated part that could not be thought of independently. This was further complicated by a limited amount of the materials, which prevented me from building full-scale prototypes in the actual material early on. With this in mind, if I were to approach the project again, I would prioritize creating more models in the intended materials to better understand the relationship between them and the product’s full and final form.

A central part of my technical exploration involved CMF strategy, specifically finding a balance between durability and aesthetics. I chose a material that handles dirt through its washability and the way it patinas over time, valuing a natural aging process. However, it would have been highly relevant to explore more technical, water-resistant alternatives, such as synthetic polymers, to evaluate their performance in demanding environments. This leads to the realization that if I had more time, I would have implemented a multi-week user test. Using the bag in a real-world setting for an extended period could have revealed improvements and refined my understanding of its long-term durability.

Technically, there are some specific details I would have liked to develop further. One example is the addition of a central buckle to allow the bag to be cinched together, replacing the ones on the sides, which could improve both security and form. Another example is that more specialized hardware, such as refined carabines optimal for bike carriers, might have offered better ergonomics and ease of use.

In summary, this project taught me that innovation does not always require reinventing the wheel. Substantial product improvement might often come from simply identifying existing mechanical solutions and reapplying them in a smart, well-proportioned, and material-conscious way. While the process was somewhat restricted by the difficulty of building the prototype, it provided valuable insights into how manufacturing constraints and material choice must be integrated into the design from the very first step to ensure a realistic and functional end product.

Sources

Page 11

C40 Cities (2023). Green and Healthy Streets.
Available: <https://www.c40.org/news/green-healthy-streets/> (Accessed 15/3 2026).

Hull, A. & O’Holleran, C. (2014). Bicycle infrastructure: can good design encourage cycling?. Urban, Planning and Transport Research.
Available at: <https://www.tandfonline.com/doi/full/10.1080/21650020.2014.955210> (Accessed 20/3 2026).

Nieuwenhuijsen, M. J. (2020). Urban and transport planning pathways to carbon neutral, liveable and healthy cities. CA: A Cancer Journal for Clinicians / Environmental Health Research.
Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0013935120314006?via%3Dihub> (Accessed 12/3 2026).

Page 42-43

Mollerup, P. (2006). Collapsibles: A Design Album of Space-saving Objects. London: Thames & Hudson.

Page 55

DuPont (u.å.). Tyvek® Converting Guide.
Available at: <https://www.dupont.com/tyvekdesign/design-with-tyvek/tyvek-converting-guide.html> (Accessed 1/4 2026).

DuPont (u.å.). What is Tyvek?.
Available at: <https://www.dupont.com/what-is-tyvek.html> (Accessed 1/4 2026).

Maldonado, N. (2023). 3-D Sewing: Sail Bags. Slice of Pi Quilts.
Available at: <https://www.sliceofpiquilts.com/2023/07/3-d-sewing-sail-bags.html> (Accessed 1/4 2026).

Sustainably Chic (u.å.). What Is Washable Paper?.
Available at: <https://sustainably-chic.com/blog/what-is-washable-paper/> (Accessed 1/4 2026).

Tarps and All (u.å.). Eco-Friendly Tarps: How Reuse and Upcycling Make a Difference.
Available at: <https://www.tarpsandall.com.au/blog/eco-friendly-tarps-how-reuse-and-upcycling-make-a-difference/> (Accessed 1/4 2026).

Wikipedia (2024). Sailcloth.
Available at: <https://en.wikipedia.org/wiki/Sailcloth> (Accessed 1/4 2026).

Wikipedia (2024). Tarpaulin.
Available at: <https://en.wikipedia.org/wiki/Tarpaulin> (Accessed 1/4 2026).

Page 32, interviews

Amanda Gleason
Interviewed 4/3 2026

Nina Preisler Gahnström
Interviewed 12/4 2026

Daniel Vaknine
Interviewed 3/4 2026

Pictures used



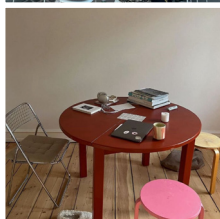
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20/04/26



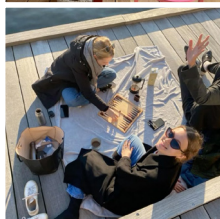
From: <https://dk.pinterest.com/pin/56041674399718549/>

17/04/26



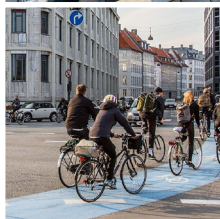
From: <https://se.pinterest.com/pin/547750373449373398/>

20/04/26



From: <https://de.pinterest.com/pin/374924737744314931/>

17/04/26



From: <https://www.viator.com/sv-SE/tours/Copenhagen/Hidden-Gems-of-Copenhagen-A-Biking-Tour-of-Secrets-and-Sights/d463-5507216P8>

17/04/26



From: <https://www.ystadsallehanda.se/tomelilla/sten-for-sten-laggs-vid-entren/>

17/04/26



From: <https://www.unt.se/nyheter/inrikes/vader/artikel/arets-sista-vader-knappt-nagra-solchanser/i86n0mmr>

17/04/26



From: <https://news.cision.com/se/hyresgastforeningen/i/colourbox-gata-lund-host,c15233358>

17/04/26



From: <https://www.flickr.com/photos/adambowie/36519832721/in/pho-tostream/>

17/04/26



From: <https://www.allehanda.se/story/d310e108-7461-430d-845d-75a949880f63?pageSlug=bajkott-av-matbutiker>

07/04/26



From: <https://hulken.eu/products/hulken-teal>

17/04/26



From: amazon.co.uk/Shopping-Retractable-magnetic-cover-Foldable-Transport/dp/B0B313PT9C

17/04/26



From: <https://www.ikea.com/se/sv/p/rulleboer-frakta-kaerra-med-trunk-svart-bla-s89491028/>

17/04/26



From: <https://copenhagenbags.com/collections/all-products>

17/04/26



From: <https://www.bikester.se/sv/articles/2.2717.132595/cykelvaska-paketballare-vaude-aqua-back-print-single-redblack>

17/04/26



From: <https://emmaljunga.com/sv-se/products/sento-max-flat-urban>

17/04/26



From: <https://www.amazon.fr/Ennox-wi-Provisions-Poign%C3%A9e-Pliable-L%C3%A9gumes/dp/BOF2HRXNBVV>

17/04/26



From: <https://www.ah lens.se/produkter/herr/rolser-shoppingvagn-joy-ln-853e0126-ac7d-45d6-a703-e8699d9ab186>

17/04/26



From: <https://www.mimocook.com/fr/reisenthel-carrycruiser-frame-twist-sky-rose-4802.html>

17/04/26



From: <https://www.evobike.se/elcyklar/alla-modeller/ladcykel/elcykel-evobike-cargo-pro-2026>

17/04/26



From: <https://se.pinterest.com/pin/140806234962364/>

17/04/26



From: <https://ru.pinterest.com/pin/607774912244269067/>

17/04/26



From: <https://mousesails.co.uk/products/no1>

17/04/26



From: <https://www.wzbiben.com/tyvek-zipper-bag/>

17/04/26



From: <https://www.behance.net/gallery/164325985/Nike-ACG-Aysn-Bag-Collection>

17/04/26



From: <https://www.instagram.com/p/DUpqQlFdlS/>

17/04/26



From: <https://se.pinterest.com/pin/395261304817511482/>

17/04/26



From: <https://in.pinterest.com/pin/342555115427953170/>

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17/04/26

Department of Design Sciences at Lund University

DECLARATION ON THE USE OF
GENERATIVE AI IN ACADEMIC WORK

Name and surname:	Juni Preisler Gahnström
Course/Course module code:	IDEA01
Name the specific work (e.g., assignment, module code etc.):	BA project

- ☐ I have NOT used any AI services to generate content for my assignment
- ☒ I have used AI services to generate content for my assignment (specify on page 2)

By submitting my work I assure the following:

1. The work I have submitted was created by me (text, image, video etc.).

2. I have acknowledged the use of any generative AI services where relevant; this includes AI plug-ins or assistants included in existing programs (listed as applicable).

3. I take responsibility for any fabricated references or factual errors stemming from the use of these services.
4. I have appropriately cited or indicated the use of AI-generated content in the document where applicable.

5. I acknowledge that any undeclared use of generative AI will constitute academic dishonesty and will be dealt with according to relevant University policy.

Signature

Juni Gahnström

Date

2001-04-29

Digitally signed by Juni Gahnström
Date: 2026.04.29 16:41:19 +02'00'

GenAI Acknowledgement:

Generative AI service used (list each separately)	Purpose	Explain the extent of use of the generative AI service
Text editing	Text editing and refinement.	Used to edit and proofread my own original text for better grammar and clarity.
CMF pictures	Material and color visualization.	Used to explore alternative color and material variations based on an original photograph of the physical prototype.
Final product pictures	Putting the bag in an photo studio	Used to place original photos of the product on pedestals and adjust the lighting to simulate a photo studio.

Human Oversight and Contribution:

Clearly describe the extent of your own original work and intellectual contribution to the project. Emphasize the critical thinking, analysis, and original insights that you brought to the process. Address how you verified the accuracy and validity of the AI's output.

Example: "While AI services were used as described above, the core research question, methodology, analysis, and conclusions are entirely my own. I critically evaluated all AI-generated content, verifying information against reputable sources. I made significant revisions to the AI's output to ensure accuracy, coherence, and alignment with my own arguments and understanding of the subject matter. The final work reflects my own original thinking and interpretation of the evidence."

The core of this project is entirely my own original work. I identified the user need on my own, did all the initial sketching, and built the physical product by hand without any AI assistance.

For the user research, I came up with the main questions myself before using AI as a quick brainstorming partner to expand and refine the interview. When it came to the visuals, I took original photos of my physical prototypes and used AI to generate alternative versions and place them in realistic scenarios that would otherwise have been too time-consuming to create from scratch.

I critically reviewed all AI outputs to make sure they actually made sense, filtering out unrealistic details to ensure the final images stayed true to my original design and real-world functionality.

Limitations and Potential Biases:

Acknowledge any limitations of the AI services used and any potential biases that may be present in the AI-generated content. Explain how you attempted to mitigate these limitations and biases.

One of the biggest limitations I encountered was that the AI tended to alter important design details when generating images. To fix this, I had to be very careful and double-check every output to ensure the final images accurately represented my actual, physical product rather than unintended changes.

I noticed a similar issue with text generation. AI can easily sneak in facts or claims that sound perfectly convincing but are completely false. Keeping track of this required constant fact-checking, and I had to closely review and edit all AI-generated or edited text to guarantee that no misinformation slipped through.

VIKBAR20



LUNDS
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Degree Project for Bachelor of Fine Arts in Design

Main field of study: Industrial design

2026

Juni Preisler Gahnström