



**BAG RETHINKING TRAVEL ESSENTIALS  
FOR STRESS-FREE JOURNEY**

**BY**

**MIN YAN**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF FINE ARTS IN DESIGN  
COLLEGE OF DESIGN**

**GRADUATE SCHOOL, RANGSIT UNIVERSITY  
ACADEMIC YEAR 2024**

Thesis entitled

**BAG RETHINKING TRAVEL ESSENTIALS  
FOR STRESS-FREE JOURNEY**

by  
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was submitted in partial fulfillment of the requirements  
for the degree of Master of Fine Arts in Design

Rangsit University  
Academic Year 2024

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## Acknowledgements

I am writing to express my sincere gratitude for all the guidance and support throughout my program from all the lectures. Your expertise and encouragement have been invaluable to me, and I feel incredibly fortunate to have had you all in my study experience.

Over the past two years, I have learned so much from school, both in terms of academic knowledge and professional skills. The mentorship has helped me grow as a student and as a person, and I am confident that the lessons I have learned from you will stay with me for years to come.

As I move on to the next chapter of my life, I will always remember the impact that all lectures have had on my education and my career. Thank you again for everything that you have done for me, and please know that your hard work and dedication have not gone unnoticed.

Finally, I would like to thank you all who participated in reviewing, and commenting on this paper. And also a special thanks to my friend Tianxiang Ji, who worked as a model for me to present my product prototype. Thank you for taking the time to participate in my final project at the end of a fulfilling and busy program.

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 Program : Master of Fine Arts in Design  
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### **Abstract**

This thesis aims to study Bag Rethinking, reducing stress for travel. The objectives of this research were 1) to confirm that there are target groups wishing for travel bag redesign, and 2) to identify target group's wants and needs. Then, the study finds out the best solution to fulfill their wants and needs on bag when traveling. The research methodology employed mixed method by starting with literature review, totaling four articles and journals. After that, the researcher conducted a survey to collect the wants and needs of bags from 43 participants. The researcher established a case study on five brands that are famous for their backpacks and three brands that are making backpacks more specifically for travelers. According to the research result and discussion, the researcher found out the most stressful reason for using backpacks in traveling is disorder of storage. The best way to solve this problem is to redesign the interior space of the backpack and establish order while maintaining storage efficiency. To achieve this purpose, the best way is to use isolated pad with Velcro design. The conclusion of this research involves rethinking the plan and implemented it. Overall, the needs and wants of the target group are fulfilled, while the basic appearance aesthetic remains.

(Total 67 pages)

Keywords: Bag, Backpack, Traveler, Customization

Student's Signature ..... Thesis Advisor's Signature .....

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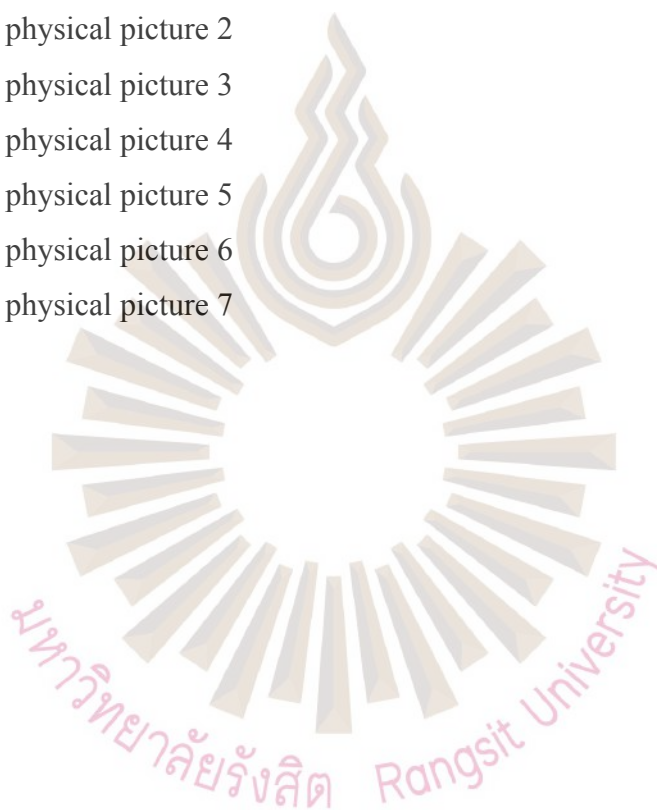
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# Chapter 1

## Introduction

### 1.1 Background Information

According to Roe (2023), In the dynamic landscape of global commerce, the esteemed iMarc Group meticulously assessed the burgeoning travel bags market, revealing that its valuation soared to an impressive \$17.1 billion U.S. in the year 2022. As wanderlust continues to grip the hearts of adventure seekers, travel statistics have witnessed an upward trajectory, with an ever-increasing number of individuals embarking on jet-setting escapades across the globe. Travel bags are a type of travel gear that is used by explorers, trekkers, tourists, and travelers to carry their clothes and other belongings. Duffel bags, wheeled backpacks, rolling luggage, weekenders, totes, and travel packs are the most common types of travel bags available in the market. The hard-side variants are manufactured using materials such as polypropylene, polycarbonate, and acrylonitrile-butadiene-styrene (ABS) and are suitable for carrying electronic gadgets and fragile products.

On the other hand, the durable and light-weight soft-side variants are manufactured using nylon, polyester, cotton, leather, and vinyl. These travel bags are available in a variety of sizes, patterns, and colors and can be customized according to the consumers' demands. The growing tourism industry, along with rapid urbanization across the globe, currently represents as one of the key factors driving the growth of the market. Furthermore, consumers are now more inclined to spend on premium and luxury travel bags to keep up with the ever-changing trends. Various product innovations, such as the launch of visually appealing and creative designs, along with eco-friendly variants, are also creating a positive outlook for the market. Consumers are increasingly adopting luggage and travel bags, which are made using natural and organic fabric dyes, organic canvas, recycled leather, and other eco-friendly materials. Other factors, including

aggressive promotional activities by brands and the development of the online retailing market that provides a hassle-free shopping experience to the customers while displaying a wide range of options to choose from, are projected to drive the market further. market that provides a hassle-free shopping experience to the customers while displaying a wide range of options to choose from, are projected to drive the market further.

Backpacks are a popular choice among young people for carrying their belongings while traveling. According to a poster on a popular travel blog The Broke Backpacker (2024), there are two-thirds of backpackers are between the ages of 20 and 25 years old. The article also point out that most backpackers are solo travelers, and out of solo travelers, over 80% are women. More young women are interested in backpacking than young men. The most popular reason to go backpacking is to experience new cultures. Over 80% of backpackers have stayed in hostels, and 21% of backpackers have also used Airbnb. Thailand and Vietnam have the most hostels in the world.

Backpacks have become an integral part of the lives of young people worldwide. They offer unparalleled convenience, versatility, and comfort. Whether navigating bustling city streets, embarking on weekend adventures, or heading to class, backpacks are the go-to choice. Their ergonomic design ensures weight distribution, making them comfortable for extended wear. Beyond utility, backpacks have become fashion statements, reflecting personal style. From sleek urban designs to rugged outdoor packs, there's a backpack for every occasion. Researchers and observers can recognize that backpacks symbolize readiness, style, and practicality when worn by young individuals. In conclusion, backpacks are a popular choice among young people for carrying their belongings while traveling. They are versatile, practical, and available in a variety of sizes, patterns, and colors. Backpacks are also a popular choice among students, but it is important to use them properly to avoid any health issues.

## **1.2 Problem Statement**

The advent of backpacks has revolutionized the way we carry our belongings, making them an indispensable accessory for travelers, students, and outdoor enthusiasts

alike. However, amidst the convenience they offer, a critical flaw persists in the design of traditional backpacks. This issue revolves around the difficulty users face in accessing their items, resulting in inconveniences that can significantly impact the overall experience of travelers during trips.



Figure 1.1 Group of hikers with backpacks

Source: Ban, 2014

Traditional backpacks are often characterized by a single, top-loading compartment, making it challenging for users to access specific items without rummaging through the entire contents. This limitation can be particularly frustrating when time is of the essence, such as during airport security checks or when trying to retrieve essential items quickly. The lack of specialized compartments or easily accessible pockets in traditional backpack designs contributes to disorganization. Users are forced to adopt makeshift organizational systems, such as packing cubes or pouches, to maintain order within their bags. This additional layer of complexity not only increases preparation time but also poses challenges in locating items promptly. Travelers often find themselves grappling with the inconvenience of having to remove the entire backpack to access items



stored at the bottom. This inefficiency is exacerbated in crowded or confined spaces, leading to avoidable stress and delays. The conventional design of backpacks places the burden of accessing items solely on the user's back. This can lead to physical strain, especially for those with mobility issues or back problems. The strain becomes more pronounced when attempting to retrieve items from the bottom of the backpack, as it requires awkward bending and reaching. The traditional top-loading design also poses security risks. When accessing items in crowded areas, users expose the entire contents of their backpacks to potential theft or loss. This vulnerability compromises the safety of valuables and adds an extra layer of anxiety for users, especially in unfamiliar or high-risk environments. The world has evolved, and so have the needs of individuals. Traditional backpack designs, rooted in older paradigms, may not align with the demands of modern lifestyles. With the increasing reliance on technology, travelers often carry electronic devices that require quick and secure access, a feature lacking in conventional backpacks.

In conclusion, the prevalent issues associated with traditional backpack designs highlight the need for a paradigm shift in the way we approach backpack innovation. The inconveniences stemming from limited accessibility, organizational challenges, inefficiency in retrieval, ergonomic strain, security concerns, and the failure to adapt to modern lifestyles underscore the urgency for reimagining backpack designs. Addressing these concerns will not only enhance user experience but also align backpacks with the evolving needs of today's dynamic world. As we delve into potential solutions, it becomes evident that the time is ripe for a revolution in backpack design that prioritizes accessibility, efficiency, and user well-being.

### **1.3 Questions for Research**

The landscape of backpack design is ripe for exploration and innovation. As I seek to address the inherent issues in traditional backpack designs, a comprehensive research endeavor becomes essential to shape the evolution of this everyday accessory. This part of the introduction aims to unveil a set of research questions that will guide a forward-thinking investigation into redefining backpack design, addressing user inconveniences, and aligning with the dynamic needs of contemporary lifestyles.

How can we enhance accessibility in backpack design to streamline the retrieval of items?

This question delves into the heart of the issue, exploring novel approaches and mechanisms to provide users with quick and effortless access to their belongings. Potential avenues include reimagining entry points, incorporating innovative zipping systems, or integrating technology to optimize accessibility.

What organizational strategies and features can be implemented to create a more efficient and user-friendly backpack experience?

The exploration of organizational solutions seeks to revolutionize how users interact with their backpacks. This question aims to uncover design elements such as modular compartments, customizable storage solutions, and intuitive organizational systems that simplify the process of packing and retrieving items.

How can we optimize the weight distribution and ergonomic aspects of backpacks to minimize physical strain on users?

Ergonomics is a pivotal aspect of backpack design, and this question focuses on understanding how to create designs that prioritize user comfort. Potential areas of exploration include adjustable strap systems, weight distribution mechanisms, and materials that offer both durability and lightweight functionality.

In what ways can technology be seamlessly integrated into backpack design to enhance convenience and adaptability to modern lifestyles?

As technology continues to shape our daily lives, exploring ways to integrate smart features into backpacks becomes paramount. This question delves into the possibilities of incorporating charging ports, RFID technology for security, or even smart organization systems that sync with digital devices.

How can security concerns associated with backpacks be addressed without compromising accessibility and user experience?

Balancing security and accessibility is a delicate challenge in backpack design. This question seeks to explore innovative security measures, such as hidden compartments, biometric locking systems, or anti-theft technologies, that can safeguard belongings without hindering ease of use.

The research questions outlined above serve as a comprehensive roadmap for delving into the future of backpack design. By addressing these questions, I can uncover innovative solutions, challenge existing paradigms, and contribute to the evolution of backpacks that not only meet but exceed the expectations of users in an ever-changing world. This exploration is not merely about redesigning an accessory; it is about redefining the way we carry and interact with our belongings, paving the way for a new era of convenience, efficiency, and user-centric design.

## **1.4 Research Methodology**

Embarking on the journey to redefine backpack design requires a meticulous and multifaceted research methodology. In this section, I outline five key research methods that will guide the exploration, iteration, and refinement of innovative backpack concepts. These methods include a thorough literature review, observational studies, prototyping and user testing, user surveys and questionnaires, and case studies focusing on popular backpacks in the market.

### **Literature Review: Building a Foundation of Knowledge**

A comprehensive literature review serves as the bedrock of any research endeavor. By delving into existing studies, articles, and publications related to backpack design, we can gain valuable insights into historical trends, user preferences, and emerging technologies. This method will inform the design process by synthesizing a broad understanding of the challenges and opportunities associated with traditional backpack designs, ensuring that our innovation is grounded in a well-informed context.

### **Observational Studies: Understanding User Behavior and Pain Points**

Observational studies provide a hands-on approach to understanding how users interact with their backpacks in real-world scenarios. By closely observing individuals during their daily activities, travel experiences, or outdoor adventures, we can identify specific pain points and usability issues. These observations will contribute vital qualitative data that informs the design process, guiding the creation of a backpack that seamlessly integrates into users' lives while addressing their unique needs.

### Prototyping and User Testing: Iterative Design for User-Centric Solutions

Prototyping and user testing represent a dynamic and iterative phase in the research process. By creating tangible prototypes based on initial design concepts, we can conduct user testing sessions to gather direct feedback. This method allows for hands-on exploration, uncovering usability challenges and receiving valuable input from users regarding features, materials, and overall functionality. Iterative prototyping ensures that the final design is not only innovative but also user-centric, aligning with the preferences and expectations of the target audience.

### User Surveys and Questionnaires: Quantifying User Preferences and Needs

To complement qualitative insights gained through observational studies, user surveys and questionnaires offer a quantitative approach to understanding user preferences and needs. By reaching a broader audience, we can collect data on specific features, design elements, and preferences that matter most to potential users. This method helps in identifying trends, preferences, and priorities, providing a statistical foundation for decision-making in the design process.

### Case Studies: Analyzing Successful Backpack Designs in the Market

Examining popular backpacks currently available in the market through case studies provides a valuable benchmark for innovation. By dissecting the successes and shortcomings of existing designs, we can identify trends, materials, and features that resonate with users. This method ensures that our design not only pushes the boundaries of innovation but also aligns with market expectations, considering factors such as pricing, branding, and consumer perceptions.



In combining these five research methods—literature review, observational studies, prototyping and user testing, user surveys and questionnaires, and case studies—we establish a comprehensive and robust methodology for crafting the future of backpack design. Each method contributes unique insights, ensuring that our innovative approach is informed by a deep understanding of user needs, industry trends, and the broader market landscape. As we navigate through this multifaceted research journey, the synthesis of qualitative and quantitative data will guide the design process towards creating a backpack that not only addresses current challenges but also sets new standards for convenience, accessibility, and user satisfaction.

## **1.5 Importance of the Research**

As we delve into the realm of backpack design, it is crucial to explore the deeper significance of why we should care about crafting innovative solutions for this everyday accessory. The importance extends beyond mere utility, transcending into realms of convenience, efficiency, and even societal well-being. In this section, we unravel the profound reasons why the design of a backpack is not merely a matter of aesthetics but a pivotal aspect that influences the way we live, travel, and interact with the world.

The backpack, in its various forms, has become an integral part of our daily lives. It accompanies us through our journeys, whether it be commuting to work, traveling the globe, or navigating the challenges of academia. It serves as an extension of ourselves, carrying the tools, essentials, and personal items that define our daily routines. As such, the design of a backpack is not just a utilitarian consideration but an opportunity to create a seamless extension of the user's lifestyle and identity.

Travel, whether for leisure or business, is a fundamental aspect of modern life. The design of a backpack directly impacts the travel experience by influencing accessibility, organization, and comfort. An intelligently designed backpack can transform the way we navigate airports, explore new cities, and embark on outdoor adventures. By prioritizing features that ease the challenges of travel, we contribute to an

overall enhancement of the travel experience, fostering a positive impact on the well-being of individuals.

In the fast-paced rhythm of contemporary life, efficiency is key. A well-designed backpack streamlines daily operations by providing quick access to essentials, facilitating organization, and minimizing the time spent searching for items. The convenience offered by an intelligently crafted backpack extends beyond personal satisfaction; it contributes to increased productivity and a reduction in stress, allowing individuals to navigate their daily tasks with greater ease.



Figure 1.2 Girl wearing a regular everyday backpack

Source: Bellis, 2016

The ergonomic design of a backpack is directly linked to the physical well-being of its user. Traditional backpacks, with their often-uncomfortable weight distribution and limited adjustability, can contribute to discomfort and even long-term health issues. By prioritizing ergonomics in backpack design, we can mitigate physical strain, promote

proper posture, and contribute to the overall health and well-being of individuals, particularly those who rely on backpacks as a constant companion.

In an era marked by rapid technological advancements, backpacks have the potential to serve as carriers of innovation. The integration of smart features, sustainable materials, and cutting-edge technologies not only aligns backpacks with the contemporary needs of users but also reflects the progress of society as a whole. By pushing the boundaries of backpack design, we contribute to the integration of technological advancements into everyday life.

The importance of designing a better backpack extends to environmental considerations. The fashion and accessories industry, including backpacks, has a significant ecological footprint. By prioritizing sustainable materials, eco-friendly manufacturing processes, and circular design principles, we can contribute to a more sustainable future. Designing backpacks with a focus on environmental impact underscores a commitment to responsible consumption and production practices.

Beyond functionality, the design of a backpack often serves as a form of personal expression and cultural representation. Design elements, colors, and styles communicate individuality, contributing to a diverse and vibrant tapestry of personal styles. Understanding the cultural and societal significance of backpack design allows us to create products that resonate with a broad audience, fostering inclusivity and a sense of belonging.

In conclusion, the significance of designing a better backpack transcends the boundaries of a mere functional accessory. It encompasses elements of personal expression, efficiency, well-being, and societal impact. The pursuit of innovation in backpack design is not just about creating aesthetically pleasing products; it is a commitment to enhancing the quality of life for individuals, addressing the evolving needs of society, and contributing to a more sustainable and interconnected world. As we continue to explore the frontiers of backpack design, let us keep in mind the profound

impact that a well-crafted backpack can have on the daily experiences and well-being of individuals across the globe.



## **Chapter 2**

### **Literature Review**

#### **2.1 What makes a good travel bag**

Eagle (2016) conducted a comparison study on the features, usability, and load-carrying design of recreational and travel backpacks, with a focus on travel applications. The research involved analyzing backpacks considering various factors, including their suitability for travel.

It is essential to delve into the intricate details and critical analysis presented within the research. The thesis provides an in-depth comparison of the features, usability, and load carrying design of recreational and travel backpacks, specifically focusing on their applications in travel. This chapter of reviewing aims to reflect on the key points, methodologies, and findings of the research, providing a comprehensive analysis and critical evaluation.

To commence the reflection, it is imperative to provide a brief overview of the research thesis: The study conducted by Zoe Eagle, under the supervision of Richard Stone, Caroline Krejci, and Ellen McKinney in Ames, Iowa in 2016, delves into the comparison of recreational and travel backpacks. The authors aimed to evaluate the features, usability, and load carrying design of these backpacks, particularly in the context of travel applications. The background of the study underscores the significance of backpacks as essential gear for travelers and outdoor enthusiasts, highlighting the need for a comprehensive analysis of their design and functionality. The methodology employed in the research thesis is fundamental to understanding the rigor and validity of the findings. Zoe Eagle utilized a systematic approach to compare the features, usability, and load carrying design of recreational and travel backpacks.



The data collection process involved the selection of a diverse range of backpacks from various manufacturers, encompassing different sizes, materials, and carrying capacities. The authors employed both qualitative and quantitative measures to assess the backpacks, including user feedback, ergonomic evaluations, and load-bearing tests. This comprehensive methodology ensured a holistic and thorough analysis of the backpacks under consideration.

The research thesis presented several key findings that shed light on the differences between recreational and travel backpacks, particularly in the context of their usability and load carrying design. One of the significant findings was the emphasis on ergonomic features in travel backpacks, such as padded straps, adjustable hip belts, and ventilated back panels, which contribute to enhanced comfort during extended travel. In contrast, recreational backpacks were found to prioritize lightweight construction and external attachment points for gear, catering to outdoor activities such as hiking and camping. The analysis of these findings underscores the specialized design considerations inherent in each type of backpack, tailored to the distinct needs of travelers and outdoor enthusiasts.

The implications of the research extend beyond the academic realm, offering practical insights for both consumers and manufacturers of backpacks. The differentiation between recreational and travel backpacks elucidates the importance of aligning the design features with the intended application, ensuring optimal functionality and user experience. For consumers, the research highlights the significance of selecting a backpack that aligns with their specific travel or outdoor activity requirements, considering factors such as comfort, storage capacity, and durability. Manufacturers can leverage these findings to refine their product offerings and innovate design elements that cater to the evolving needs of the market.

	<b>Travel</b>	<b>Recreation</b>
<b>Advertised Features</b>	Laptop compartment Adjustable torso Carry-on size iPad/tablet compartment Removable daypack Checkpoint-friendly Wheeled	Adjustable torso Sleeping bag compartment Raincover Suspended mesh back panel Ultralight Removable daypack
<b>Capacity</b>	Range: 18-85 L <ul style="list-style-type: none"> <li>• 11-20 (1)</li> <li>• 21-35 (3)</li> <li>• 36-50 (8)</li> <li>• 51-75 (9)</li> <li>• 76-100 (5)</li> </ul>	Range: 20-105 L <ul style="list-style-type: none"> <li>• 11-20 (2)</li> <li>• 21-35 (22)</li> <li>• 36-50 (63)</li> <li>• 51-75 (90)</li> <li>• 76-100 (18)</li> <li>• 101-150 (4)</li> </ul>
<b>Number of Options</b>	26	182
<b>Brands</b>	Deuter(5) Eagle Creek (2) Osprey (8) Pacsafe(1) REI (5) Timbuk2 (4) Zoot (1)	Arc'teryx(5) Black Diamond (1) Deuter(19) Granite Gear (14) Gregory (50) JanSport(3) Kelty(9) Mammut(1) MountainHardwear(3) Mountainsmith(3) Osprey (36) Patagonia (2) REI (15) Sierra Designs (1) The North Face (20)
<b>Price</b>	\$50.00-\$99.99 (4) \$100.00-\$199.99 (18) \$200.000-\$499.99 (4)	\$20.00-\$49.99 (1) \$50.00-\$99.99 (17) \$100.00-\$199.99 (104) \$200.00-\$499.99 (64)

Table 2.1 Differences in features, variety, and availability  
between backpacks designed for travel  
and backpacks designed  
for recreation.

Source: Eagle, 2016

It is essential to acknowledge the limitations of the study, which provide opportunities for future research and expansion of the existing findings. The research thesis primarily focused on a specific set of backpacks available in the market, and the findings may not be universally generalizable to all products. Future research endeavors could encompass a broader sample size and incorporate longitudinal studies to assess the long-term durability and performance of the backpacks. Additionally, exploring the integration of technological advancements, such as smart fabrics and wearable tech, in backpack design presents a compelling avenue for further investigation.

In conclusion, the academic research thesis about the bag in traveler's perspective offers a comprehensive analysis of the features, usability, and load carrying design of recreational and travel backpacks. The research contributes valuable insights into the distinct characteristics of these backpacks, catering to the diverse needs of travelers and outdoor enthusiasts. The rigorous methodology, key findings, practical implications, and future research directions underscore the scholarly significance of the study, paving the way for continued exploration and innovation in backpack design and functionality

## 2.2 Ergonomic of the Backpack

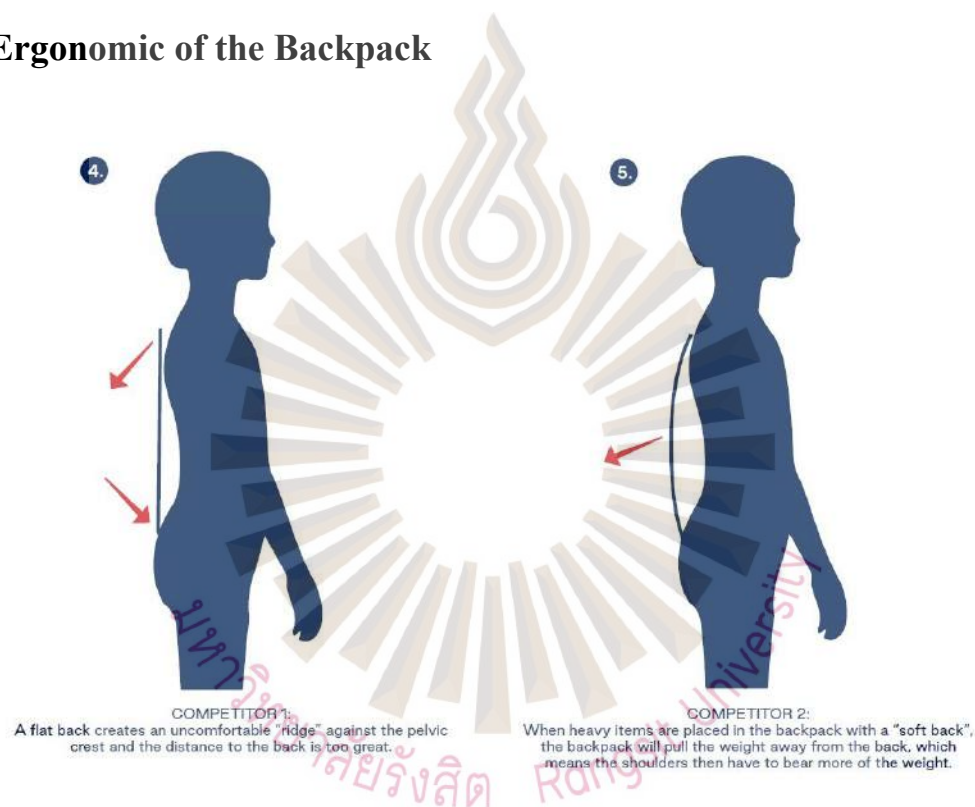


Table 2.2 Ergonomic design direction of the Backpack

Source: Beckmann, 2021

The development and experimental verification of an ergonomic backpack is a significant topic in the field of product design and ergonomics. The article Development and Experimental Verification of an Ergonomic Backpack (Ramadan 2020) presents a comprehensive study on the design and testing of an ergonomic backpack. In this reflection thesis, I will delve into the key aspects of the thesis, including the background, methodology, findings, and implications of the study.



The introduction of the thesis provides a brief overview of the importance of ergonomic design in backpacks and the potential impact on user comfort and health. It sets the stage for the research by highlighting the need for a systematic approach to the development and testing of ergonomic backpacks.

The background section of the thesis discusses the existing literature on ergonomic design principles and their application in backpacks. It outlines the key ergonomic factors that contribute to user comfort and safety, such as weight distribution, shoulder strap design, and back support. The authors provide a comprehensive review of previous studies and highlight the gaps in the existing research that motivated their current investigation.

The methodology section is a critical component of the thesis, as it details the systematic approach used by the researchers to develop and test the ergonomic backpack. The authors describe the design process, including the use of advanced modeling and simulation techniques to optimize the backpack's ergonomic features. They also outline the experimental procedures used to validate the design, including user trials and ergonomic assessments.

The findings of the study are presented in a detailed manner, with a focus on the performance of the ergonomic backpack in real-world scenarios. The authors provide quantitative data on key ergonomic metrics, such as pressure distribution on the shoulders and back, as well as user feedback on comfort and usability. The findings highlight the effectiveness of the design in reducing the risk of musculoskeletal disorders and improving overall user satisfaction.

The implications of the study are discussed in the context of their potential impact on the design and development of ergonomic backpacks. The authors emphasize the importance of integrating ergonomic principles into product design to enhance user experience and prevent long-term health issues. They also suggest future research directions, such as the application of advanced materials and technologies to further improve the ergonomic performance of backpacks.

As an objective reader, the thesis represents a significant contribution to the field of product design and ergonomics. The researchers' systematic approach to developing and testing the ergonomic backpack establishes a robust foundation for future advancements in this domain. The comprehensive review of existing literature and the rigorous methodology employed in the study instill confidence in the validity of the findings.

Moreover, the implications of the study resonate with the growing importance of ergonomic design in consumer products. As individuals become more conscious of the impact of everyday items on their health and well-being, the need for ergonomically optimized products, such as backpacks, becomes increasingly apparent. This thesis serves as a reminder of the critical role that research and innovation play in addressing these evolving consumer needs.

In conclusion, the thesis "Al-Tayyar, Sultan N. and Ramadan, Mohamed Z. Development and Experimental Verification of an Ergonomic Backpack" is a significant contribution to the field of product design and ergonomics. It provides valuable insights into the development and testing of ergonomic backpacks and underscores the importance of integrating ergonomic principles into product design. The thorough methodology and compelling findings of the study position it as a noteworthy reference for researchers, designers, and practitioners seeking to enhance the ergonomic performance of consumer products.

### **2.3 Backpack Production Materials**

Backpacks are an essential item for travelers, hikers, and students alike. They provide a convenient and secure way to transport items from one place to another. As such, it is important to understand the materials used to construct backpacks, as these materials can drastically affect the quality and durability of the bag. This thesis will discuss the materials used to construct backpacks, as well as the advantages and disadvantages of each material.



Figure 2.1 Nylon

Source: Denis, 2019

The most commonly used material for backpacks is nylon. Nylon is a synthetic material that is lightweight, durable, and water-resistant. It is also relatively inexpensive, making it a popular choice for backpack manufacturers. Nylon is used to make the main body of the bag, as well as the straps and other components.

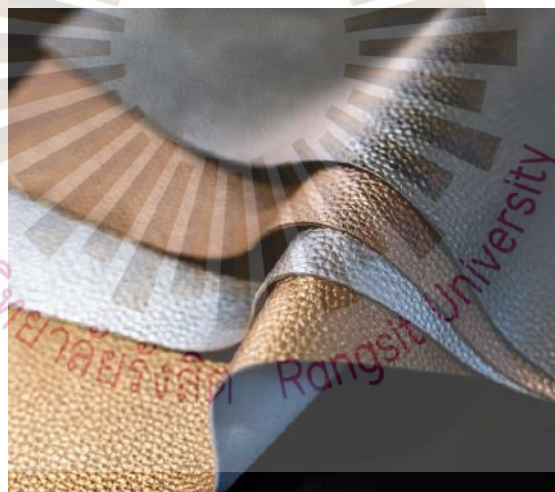


Figure 2.2 Leather

Source: Sikkema, 2019

Leather is another popular material used to construct backpacks. Leather is a natural material, making it a more durable and long-lasting option than nylon. Leather is also relatively water-resistant, though it is not as lightweight as nylon. Leather backpacks are usually more expensive than nylon backpacks, and they require more maintenance.

Cotton is another material used to make backpacks. Cotton is a natural material that is lightweight and breathable, making it a comfortable option for carrying heavy items. Cotton backpacks are usually more affordable than leather or nylon backpacks, but they are not as durable or water-resistant.

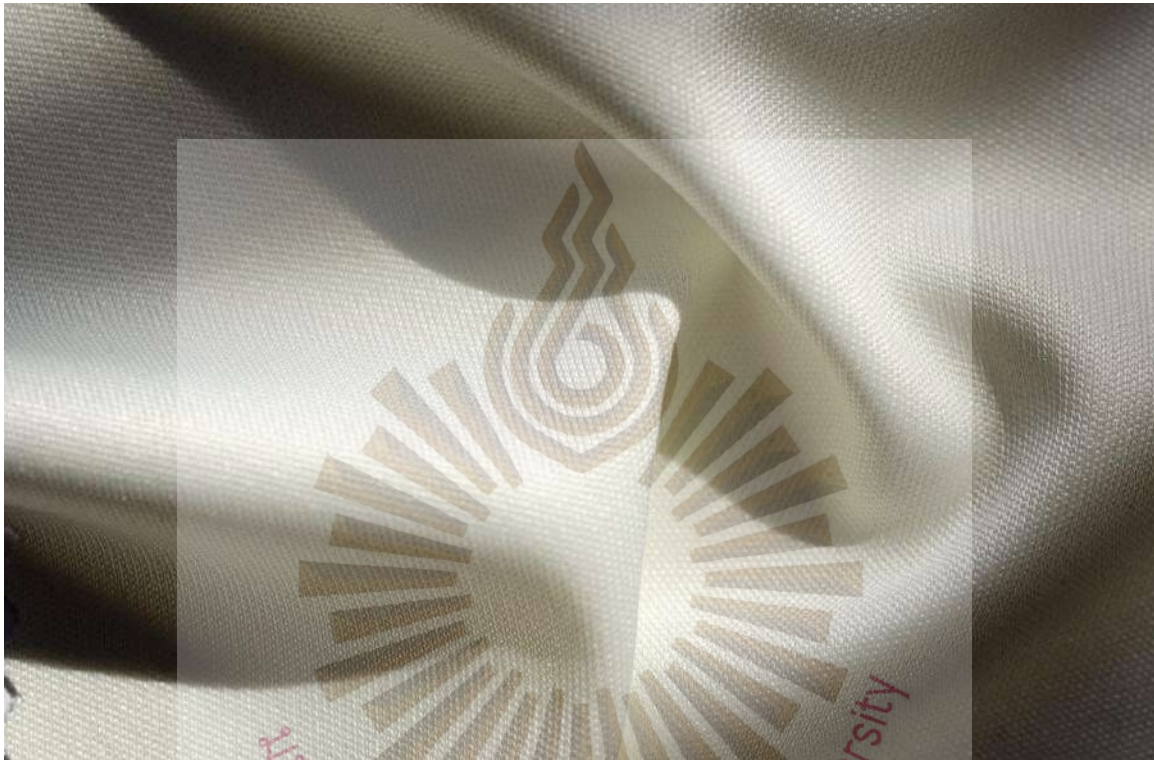


Figure 2.3 polyester

Source Hutchison, 2023

Polyester is another synthetic material used to make backpacks. Polyester is lightweight and durable, and it is also water-resistant. Polyester is usually less expensive than nylon, making it a popular choice for backpack manufacturers.



Figure 2.4 Canvas

Source: Sewport Support Team, 2024



Finally, canvas is a natural material used to make backpacks. Canvas is a heavy-duty material that is extremely durable and water-resistant. Canvas backpacks are usually more expensive than nylon or polyester backpacks, but they are more stylish and long-lasting.

Each material used to construct backpacks has its own advantages and disadvantages. Nylon is lightweight and durable, but it is not as water-resistant as other materials. Leather is more durable and water-resistant, but it is also more expensive and requires more maintenance. Cotton is lightweight and breathable, but it is not as durable as other materials. Polyester is lightweight and durable, but it is not as water-resistant as other materials. Finally, canvas is extremely durable and water-resistant, but it is also more expensive than other materials.

In conclusion, there are a variety of materials used to construct backpacks, each with its own advantages and disadvantages. When choosing a backpack, it is important to consider the material used to construct the backpack, as this can affect the quality and durability of the bag. Nylon, leather, cotton, polyester, and canvas are all popular materials used to construct backpacks, and each has its own advantages and disadvantages. Ultimately, it is up to the individual to decide which material is best suited for their needs.

## **2.4 Gender Differences in Using Backpack**

Backpacks, now ubiquitous accessories integral to our daily routines, necessitate an understanding of the varied preferences across consumer segments, thereby enabling businesses to customize their offerings more effectively. In the article of Gender differences in Buying Behavior and Brand preferences towards Backpack (Menon, 2015), there is a investigation delves into the determinants that sway men and women in their backpack purchases, emphasizing the balance between practicality and aesthetic allure. Employing a mixed-methods research strategy, the study combined quantitative data from a survey of 236 individuals, focusing on attributes like price, durability, capacity, comfort, and the presence of additional features, with qualitative insights from observational

studies and focused group discussions to gauge social and emotional values tied to brand preferences.

The findings reveal a pronounced utilitarian focus among men, who value durability, zip quality, and overall functionality above all, highlighting a preference for backpacks that can endure regular wear and tear without compromising on value for money. Conversely, women display a propensity toward epistemic values, with design and aesthetics taking precedence in their decision-making process. The importance of color, pattern, and the general visual appeal of a backpack significantly influences women's choices, fostering an emotional connection to well-designed products and thereby enhancing brand loyalty. Interestingly, the study notes that color, often a pivotal factor in other product categories, holds negligible importance for both genders in the context of backpack selection, underscoring the unique criteria consumers apply to these products (Menon, 2015).

In conclusion, understanding the nuanced gender-specific backpack buying behaviors and usage patterns offers businesses a strategic advantage in crafting products and marketing strategies that resonate with their diverse clientele. This complexity arises from an intricate interplay of practical and aesthetic considerations, societal expectations, cultural influences, and individual preferences, which together shape the decisions of men and women differently. Men's and women's approaches to selecting backpacks—whether for professional, educational, or personal use—highlight the need for industry stakeholders to adapt to the evolving market by aligning product attributes with these varied preferences. Moreover, recognizing these differences goes beyond mere commercial benefit; it is crucial for breaking down the gender stereotypes associated with everyday accessories like backpacks. As society progresses towards more inclusive perspectives, fostering an environment where choices are made based on personal comfort and practicality rather than adhering to traditional gender norms becomes essential. This research not only guides companies in navigating consumer dynamics but also emphasizes the importance of embracing and understanding the nuances that exist within

gender-specific preferences, thereby contributing to a more inclusive and adaptive approach in the backpack industry.



## **Chapter 3**

### **Mixed Research Methodology Approach**

#### **3.1 Questionnaires Survey**

3.1.1 Unlocking Design Brilliance: The Power of Surveys in Crafting the Perfect Backpack

Embarking on the journey of designing a backpack tailored for travelers requires more than just creativity and innovation; it demands a deep understanding of the end-users' needs and preferences. One invaluable tool that stands out in gathering this crucial information is the survey. In this article, we explore the importance of conducting a survey and how it serves as the compass guiding the course of future backpack design.

3.1.2 User-Centric Design:

Surveys allow designers to step into the shoes of their target audience. By posing questions about the preferred type of bag, common challenges faced with existing backpacks, and desired features, we gain insights into the user's daily experiences. This user-centric approach ensures that the final product is not just aesthetically pleasing but also genuinely functional and practical.

3.1.3 Identifying Pain Points:

One of the primary goals of a survey is to uncover the pain points users experience with their current backpacks. Whether it's discomfort, lack of storage space, or difficulty in accessing items, understanding these challenges enables designers to address and rectify them. This targeted problem-solving approach is the key to creating a backpack that seamlessly integrates into the user's travel lifestyle



#### 3.1.4 Prioritizing Features:

The survey's multiple-choice questions, such as selecting the most important features, empower respondents to prioritize elements based on their preferences. This aids designers in focusing on the aspects that matter most to the majority, ensuring that the final backpack is not overloaded with unnecessary features but instead finely tuned to meet users' top priorities.

#### 3.1.5 Tailoring Design to Traveler Types:

Travelers come in various types, each with unique preferences and requirements. The survey's question about the type of traveler helps in segmenting the responses, allowing for a nuanced understanding of diverse needs. Whether the user is a minimalist, a tech-savvy adventurer, or a business traveler, this segmentation guides designers in creating a versatile backpack that caters to a wide range of travel styles.

#### 3.1.6 Built-In Storage Preferences:

The query about interest in a built-in storage compartment provides critical insights into the evolving needs of modern travelers. As technology becomes an integral part of travel, understanding whether users desire specialized storage for gadgets or accessories helps in integrating cutting-edge solutions into the backpack design.

#### 3.1.7 Iterative Improvement:

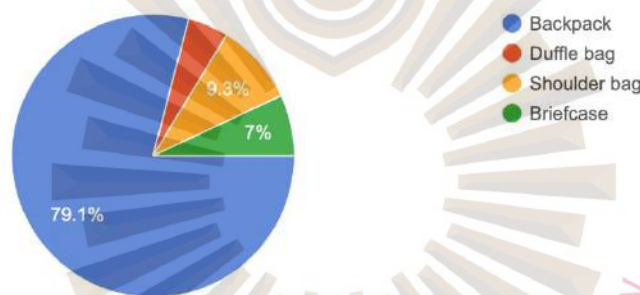
The survey is a dynamic process that fosters iterative improvement. As the design progresses, periodic surveys allow designers to validate their assumptions, gather feedback on prototypes, and refine features based on real-world testing. This iterative approach ensures that the final backpack is not just a design but a product that has been shaped and honed by the voices of its future users.

In conclusion, the significance of conducting a comprehensive survey in the backpack design process extends far beyond a mere data-gathering exercise. It serves as the compass, the guiding star that directs designers through the intricate maze of user preferences, ensuring that the final product is not just a backpack but a transformative

companion crafted to enhance the very essence of the travel experience. The survey responses become the eloquent voices shaping the narrative of the backpack's design journey. Each insight, every preference shared, contributes to the creation of a product that transcends the boundaries of utility. It's not merely about addressing the practical needs of the traveler; it's about elevating the mundane act of carrying belongings into an experience of seamless convenience, comfort, and style.

In the conducted questionnaire survey, over 40 responses were collected. These answers are expected to impact future backpack design directions. Next, to delve into the data in detail, with the visualized graph of the questionnaire.

What kind of bag you prefer for traveling  
43 responses



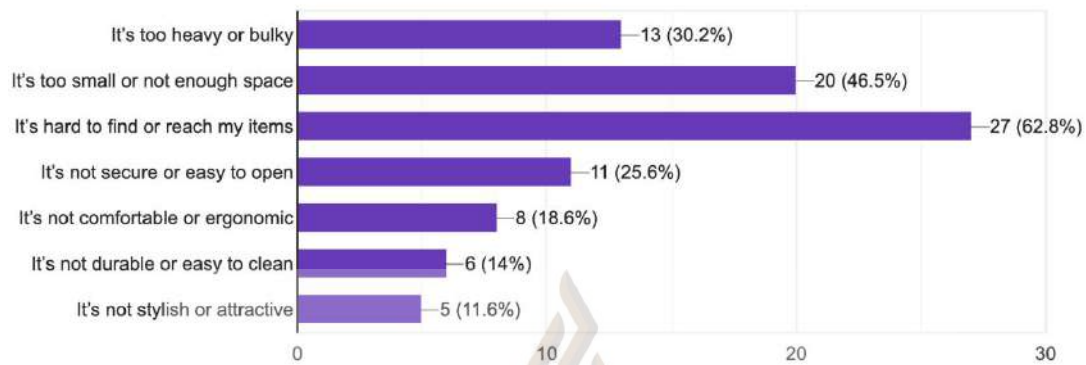
### Question 1

Figure 3.1 Question 1

Source: Researcher

What are some of the problems or challenges you face with your current backpack? (Select all that apply)

43 responses



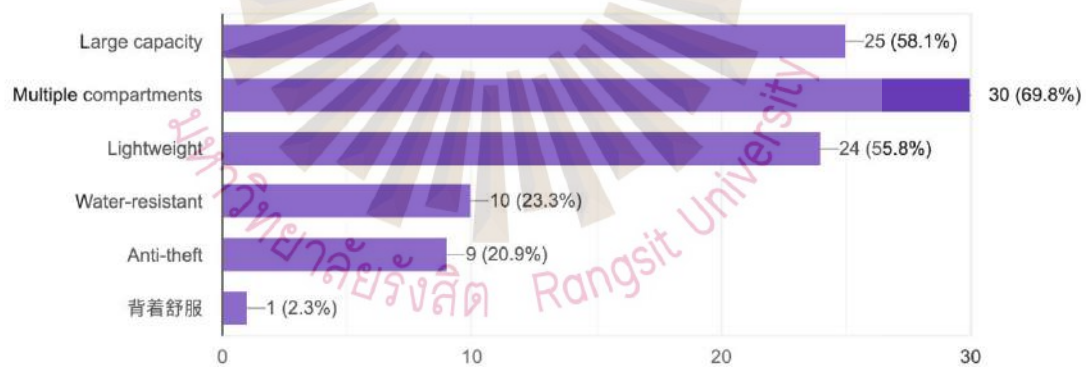
### Question 2

Figure 3.2 Question 2

Source: Researcher

Which of the following features are most important to you in a backpack for traveling? (Select up to three options)

43 responses



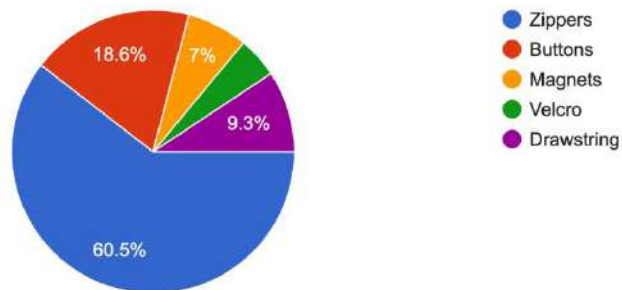
### Question 3

Figure 3.3 Question 3

Source: Researcher

Which of the following types of closures do you prefer for your backpack?

43 responses



#### Question 4

Figure 3.4 Question 4

Source: Researcher

How do you organize your backpack and access your items easily?

43 responses



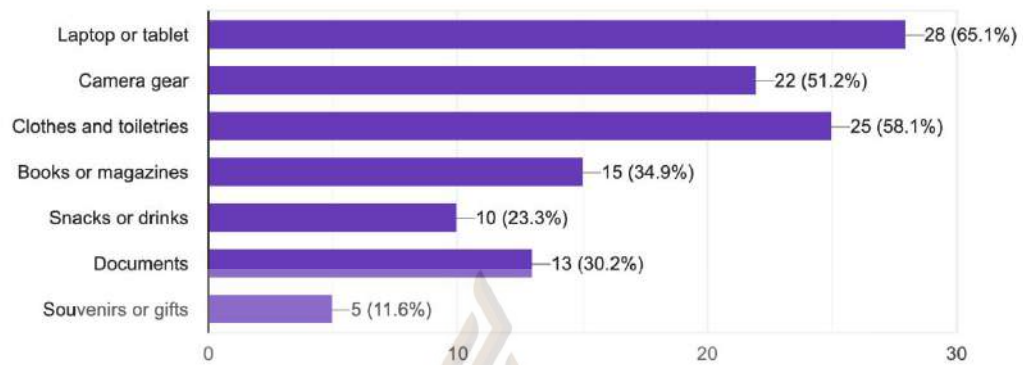
#### Question 5

Figure 3.5 Question 5

Source: Researcher

What are the most common items you carry in your backpack when traveling? (Select up to three options)

43 responses



### Question 6

Figure 3.6 Question 6

Source: Researcher

What kind of traveler do you think you are?

43 responses



### Question 7

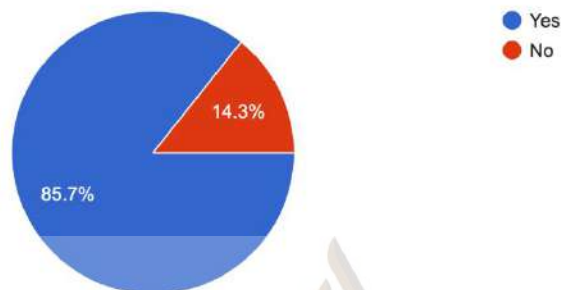
Figure 3.7 Question 7

Source: Researcher



Are you interested in the built-in storage compartment inside the bag?

42 responses



### Question 8

Figure 3.8 Question 8

Source: Researcher

Based on the results of the questionnaire, several insightful conclusions were drawn. To begin with, backpacks emerged as the favored choice over other types of bags, especially in the context of travel. This preference suggests that focusing on backpacks for redesign could capture a larger target audience.

One significant issue identified with backpacks is the challenge of quickly locating items within them. This problem is rooted in a traditional design compromise where storage efficiency is sacrificed for increased capacity.

Consequently, the hypothesis was formed that there would be a demand for internal partitioning within backpacks to improve organization. This feature was included in a subsequent question, and the responses confirmed the initial assumption, indicating a strong interest in partitioning functionalities among users.

Regarding closure mechanisms, zippers remain the most preferred option, despite not being as durable as anticipated. It appears that familiarity outweighs the potential

benefits of alternative closures, such as magnets, which, despite their advantages in security and speed, have not gained widespread acceptance.

Then there is the issue of organizing habits. Most people choose to store in layers, and many people choose to use packing cubes or organizers to store different items separately.

The next question is about the specific items to be stored. Laptops and tablets are the items that appear the longest, followed by clothes, and then camera gear. Obviously, in this era, everyone wants to leave video records during their travels, and the popularity of camera gear has exceeded my expectations.

Finally, the general direction is to design more reasonable storage partitions for backpacks. In the last question, the survey inquired about respondents' views on this concept, with 85% expressing interest. This indicates that the questionnaire not only yielded precise information on target user needs but also validated the design direction once again.

### 3.2 Case Study



Figure 3.9 The north face logo

Source: The north face official website, 2023

The North Face, a renowned brand in outdoor and adventure gear, offers a diverse range of backpacks designed to cater to the needs of various activities, from hiking to daily commuting. A notable example from their collection is the backpack, known for its durability, functionality, and iconic design.

#### Advantages:

**Durability:** The North Face backpacks are built with high-quality materials, ensuring durability in rugged environments. This makes them suitable for outdoor adventures and extended use.

**Functionality:** The brand focuses on providing functional features, including multiple compartments, hydration system compatibility, and ergonomic designs. These features enhance the overall user experience, especially for those with specific needs during outdoor activities.

**Comfort:** The North Face pays attention to comfort, incorporating padded shoulder straps and back panels, as well as adjustable straps. This ensures that the backpack can be customized to fit various body types, reducing discomfort during extended wear.

**Design Aesthetics:** The iconic design of The North Face backpacks is not only functional but also stylish. The brand's commitment to aesthetic appeal makes their backpacks versatile for both outdoor adventures and urban settings.

#### Disadvantages:

**Price:** The North Face backpacks are often positioned at a premium price point compared to some competitors. While the quality justifies the cost for many, it may be a limiting factor for budget-conscious consumers.

**Weight:** Some models, particularly those designed for extensive outdoor use, may be heavier compared to ultralight backpacks. This could be a consideration for users prioritizing minimal weight for activities such as long-distance hiking.

**Limited Innovation:** While The North Face consistently delivers reliable and well-designed backpacks, there might be a perception of a lack of groundbreaking innovation compared to newer entrants in the market. This could be a consideration for users seeking cutting-edge features.

The North Face backpacks excel in delivering durable, functional, and aesthetically pleasing products. The brand's commitment to quality is evident in the materials and construction of their backpacks, ensuring longevity in demanding conditions. The emphasis on user comfort and versatility makes these backpacks suitable for a wide range of activities. However, the premium pricing may deter some potential

customers, especially those seeking budget-friendly options. Additionally, while The North Face consistently delivers reliable products, there may be room for increased innovation to stay competitive in a market that is constantly evolving with new features and technologies.

In a strict evaluation, The North Face backpacks are commendable for their established reputation, durability, and thoughtful design. Users willing to invest in a reliable and stylish backpack with a focus on performance will find these products well-suited to their needs.

YOREPEK, a brand known for its affordable yet feature-rich backpacks, offers a range of products suitable for various purposes, including travel, business, and everyday use which stands out for its practical design and affordability.

#### Advantages:

**Affordability:** YOREPEK backpacks are competitively priced, making them accessible to a wide range of consumers. This affordability is coupled with a good balance of features, offering value for money.

**Spacious Design:** The backpack boasts ample storage space with multiple compartments, making it suitable for those who need to carry a variety of items. This design is particularly advantageous for students, professionals, or travelers who require organized storage.

**USB Charging Port:** Many YOREPEK backpacks, come equipped with a built-in USB charging port. This feature allows users to charge their devices conveniently on the go, adding a layer of functionality to the backpack.

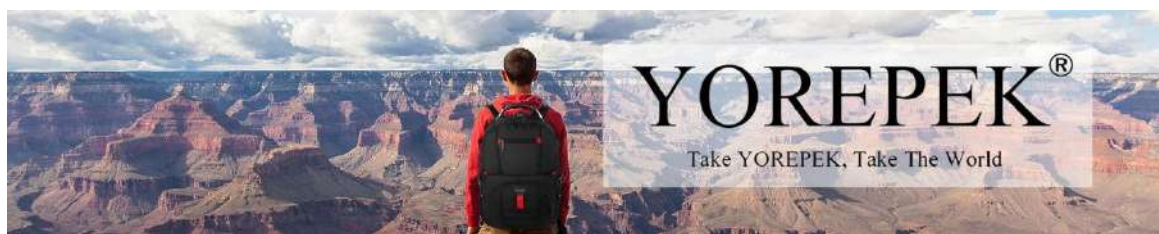


Figure 3.10 Yorepek logo

Source: Yorepek official Store on Amazon, 2023

**Comfortable Wear:** YOREPEK pays attention to user comfort by incorporating padded shoulder straps and breathable back panels. This ensures that users can comfortably carry the backpack for extended periods without experiencing discomfort.

**Disadvantages:**

**Durability:** While YOREPEK backpacks offer good value for their price, some users may find that they are not as durable as premium brands. The materials and construction may not withstand rugged outdoor use as effectively.

**Design Aesthetics:** While functionality is a strong suit, the design aesthetics of YOREPEK backpacks may not be as sleek or stylish as some higher-end alternatives. This could be a consideration for users who prioritize a more fashionable look.

**Limited Advanced Features:** YOREPEK backpacks provide essential features, but they may lack some advanced features offered by more premium brands. Users looking for cutting-edge technology or specialized compartments may need to explore other options.

YOREPEK backpacks, offer an affordable and practical solution for users seeking a well-rounded backpack for everyday use, commuting, or light travel. The balance of features, including USB charging ports and ample storage, caters to the needs of a broad audience. However, the durability of YOREPEK backpacks may not match that of more expensive brands, making them better suited for casual use rather than rugged outdoor activities. The design aesthetics are functional but may not appeal to those seeking a more stylish or premium appearance.

In a strict evaluation, YOREPEK backpacks present a compelling option for budget-conscious consumers seeking reliable functionality. They excel in providing practical features at an affordable price, making them a suitable choice for students, professionals, or individuals with diverse daily needs.





Figure 3.11 Jansport logo

Source: Jansport official website, 2023

JanSport, a well-established brand in the backpack industry, has garnered a reputation for its iconic designs and durable products. Recognized for its classic look and functionality.

#### Advantages:

**Durability:** JanSport is synonymous with durability. The brand is renowned for using high-quality materials and robust construction methods, ensuring their backpacks withstand the test of time and various environments.

**Timeless Design:** The classic aesthetic of JanSport backpacks appeals to a wide audience. The timeless design is not only stylish but also versatile, making it suitable for students, professionals, and outdoor enthusiasts alike.

**Ample Storage:** JanSport backpacks, typically feature spacious interiors with multiple compartments. This design allows for organized storage of belongings, catering to the needs of individuals with diverse carrying requirements.

**Lifetime Warranty:** One of the distinctive advantages of JanSport is its commitment to quality, backed by a lifetime warranty. This assurance provides consumers with confidence in the brand's products and reinforces JanSport's commitment to customer satisfaction.

#### Disadvantages:

**Limited Advanced Features:** While JanSport excels in durability and classic design, some users may find their backpacks lacking in advanced features compared to newer brands.

This could be a consideration for individuals seeking cutting-edge technology or specialized compartments.

**Price Point:** JanSport backpacks, while offering excellent durability, are often priced at a mid-range to slightly higher range. This may pose a challenge for budget-conscious consumers who are looking for more affordable options.

**Design Variability:** While the classic JanSport design is iconic, the brand may be perceived as having limited design variability compared to other more fashion-forward brands. This could be a drawback for users seeking a wider range of stylistic options.

JanSport backpacks, earn high marks for their enduring durability, timeless design, and ample storage capacity. The brand's commitment to quality is underscored by the lifetime warranty, offering consumers peace of mind and a sense of investment in a long-lasting product. However, the limited incorporation of advanced features and the mid to slightly higher price point might make JanSport backpacks less appealing to those seeking cutting-edge technology at a lower cost. For fashion-forward individuals, the classic design may be a strong positive, but the perceived lack of design variability could be a potential drawback.

In a strict evaluation, JanSport backpacks prove to be a reliable and enduring choice for those prioritizing durability and a timeless aesthetic. The brand's reputation for quality, backed by a lifetime warranty, solidifies its position as a trustworthy option for a diverse range of users.



Figure 3.12 Matein logo

Source: Matein official website, 2023

MATEIN, a brand recognized for its focus on practicality and functionality, offers a range of backpacks catering to the needs of students, professionals, and travelers. Known for its organizational features and modern design.

#### Advantages:

**Organizational Excellence:** MATEIN backpacks shine in organizational capabilities. Multiple compartments, dedicated laptop sleeves, and strategically placed pockets make these backpacks ideal for users who prioritize order and accessibility.

**Tech-Friendly Features:** Many MATEIN backpacks come equipped with tech-friendly features, such as USB charging ports and cable compartments. These innovations enhance the backpack's functionality, catering to the needs of modern users who rely on electronic devices.

**Affordability:** MATEIN backpacks are often positioned at an affordable price point, providing users with a budget-friendly option without compromising on essential features. This affordability makes them accessible to a broad range of consumers.

**Comfortable Design:** The ergonomic design of MATEIN backpacks ensures user comfort during prolonged use. Padded shoulder straps and back panels contribute to a comfortable carrying experience, particularly beneficial for those with active, on-the-go lifestyles.

#### Disadvantages:

**Durability Concerns:** While MATEIN backpacks offer a range of features at an affordable price, some users may express concerns about long-term durability. The materials and construction might not match the ruggedness of premium brands, impacting longevity.

**Design Aesthetics:** While functional, the design aesthetics of MATEIN backpacks may not be as stylish or iconic as some higher-end alternatives. Users seeking a more fashionable or distinctive appearance might find the designs to be more utilitarian.

**Limited Innovation:** MATEIN backpacks excel in practical features but may lack some advanced or cutting-edge innovations found in more premium brands. Users looking for the latest in backpack technology may need to explore other options.

MATEIN backpacks, present a compelling option for budget-conscious consumers seeking a well-organized and tech-friendly backpack. The focus on functionality, affordability, and user comfort positions these backpacks as practical solutions for students, professionals, and travelers. However, concerns about long-term durability and a less distinctive design may be factors to consider. While MATEIN backpacks excel in meeting essential needs, users seeking a balance between style and substance may find other brands more appealing.

In a strict evaluation, MATEIN backpacks offer excellent value for their price, providing essential features for everyday use. They stand out as reliable options for users prioritizing organization and tech-friendly attributes within a budget.



Figure 3.15 Tzowla logo

Source: Tzowla Official Store on Amazon, 2023

TZOWLA, a brand recognized for its affordable and practical backpacks, professionals, and travelers. Known for its budget-friendly approach, this backpack emphasizes functionality and durability.

Advantages:

**Affordability:** TZOWLA backpacks, are competitively priced, making them an attractive option for budget-conscious consumers. This affordability provides accessible solutions without compromising on essential features.

**Spacious Design:** The backpack offers ample storage space with multiple compartments, allowing for organized storage of various items. This design caters to the needs of students and professionals who carry a diverse array of belongings.

**USB Charging Port:** Many TZOWLA backpacks come equipped with a built-in USB charging port, enhancing convenience for users who need to charge their devices on the go. This feature adds a layer of functionality to the backpack.

**Durable Construction:** Despite the budget-friendly pricing, TZOWLA backpacks are often praised for their durable construction. The use of sturdy materials contributes to the backpack's ability to withstand everyday wear and tear.

#### Disadvantages:

**Limited Aesthetic Variety:** While functional, TZOWLA backpacks may lack the aesthetic variety and stylish designs offered by some higher-end brands. Users seeking more fashionable or unique options might find the designs to be more utilitarian.

**Potential Durability Concerns:** Although generally durable, some users may express concerns about long-term durability compared to premium brands. Intensive use or exposure to rugged conditions might impact the backpack's longevity.

**Limited Advanced Features:** TZOWLA backpacks provide essential features but may lack some of the advanced or cutting-edge innovations found in more expensive alternatives. Users looking for the latest in backpack technology may need to explore other options.

TZOWLA backpacks, emerge as practical and budget-friendly solutions for users seeking functionality without breaking the bank. The emphasis on affordability, coupled with ample storage and a USB charging port, positions these backpacks as versatile choices for everyday use. However, considerations should be given to the limited aesthetic variety and potential durability concerns with extensive use. While TZOWLA backpacks fulfill essential needs, users seeking a blend of style and robustness may explore other brands.



In a strict evaluation, TZOWLA backpacks offer commendable value for their price, presenting reliable options for those prioritizing affordability and functionality. They serve as reliable companions for students and professionals seeking practical solutions without compromising on essential features.

### 3.3 Special Case Study



Figure 3.14 Peak Design logo

Source: Peak Design official website, 2023

Peak Design, known for its commitment to innovative design and functionality, introduces a backpack line that stands out for its unique features tailored to meet the needs of modern travelers. One of their exemplary models is the Everyday Backpack Zip, showcasing a marriage of aesthetics and functionality.

#### Unique Design Features:

**FlexFold Dividers:** Peak Design incorporates FlexFold dividers into their backpacks, offering a customizable internal layout. This feature allows travelers to adapt the interior space based on their specific gear and organization preferences.

**MagLatch Closure System:** The MagLatch closure system is a distinctive design element that combines the simplicity of a magnetic closure with the security of a ladder lock. This innovative approach provides quick access to the main compartment while ensuring a secure closure.

**Adjustable Straps and Configurations:** Peak Design backpacks often feature versatile strap configurations, allowing users to adjust the backpack's size and shape based on their

needs. This adaptability caters to various travel situations, from daily use to more extended excursions.

**Tech-Friendly Integrations:** Recognizing the importance of technology in modern travel, Peak Design incorporates tech-friendly features such as dedicated laptop compartments, cable management, and quick-access pockets for electronic devices.

#### Evaluation from a Traveler's Perspective:

Peak Design backpacks, receive high praise from a traveler's perspective due to their innovative design and adaptability. Here's a comprehensive evaluation:

**Functionality:** The unique design features, such as the FlexFold dividers and MagLatch closure, enhance the functionality of the backpack. Travelers can easily organize their belongings and access them efficiently, making it ideal for dynamic travel scenarios.

**Versatility:** The adjustable straps and configurations make Peak Design backpacks versatile companions for different travel situations. Whether it's a day trip or an extended journey, the backpack can be adapted to suit varying needs, providing a seamless experience for travelers.

**Durability:** While emphasizing design innovation, Peak Design does not compromise on durability. The use of high-quality materials and robust construction ensures that the backpack can withstand the rigors of travel, offering reliability over the long term.

**Tech-Friendly Design:** The integration of tech-friendly features aligns with the needs of modern travelers who rely on electronic devices. Dedicated laptop compartments and thoughtful cable management contribute to a hassle-free travel experience.

**Aesthetic Appeal:** Beyond functionality, Peak Design backpacks boast a sleek and modern aesthetic. The thoughtful design not only enhances usability but also contributes to a stylish and contemporary look that resonates with travelers who appreciate both form and function.

In conclusion, Peak Design backpacks, exemplified by the Everyday Backpack Zip, earn high marks for their innovative design, functionality, and adaptability. From the unique FlexFold dividers to the MagLatch closure system, these backpacks are

thoughtfully crafted to cater to the diverse needs of travelers seeking a perfect blend of style and practicality.



Figure 3.15 Arc'teryx logo

Source: Arc'teryx official website

Arc'teryx, a brand synonymous with technical innovation and outdoor performance, introduces a line of backpacks that exemplify their commitment to precision design and durability. Showcasing a unique blend of advanced materials and functionality.

#### Unique Design Features:

**Advanced Materials:** Arc'teryx backpacks often utilize cutting-edge materials such as weather-resistant and durable fabrics. This ensures that the backpack can withstand various environmental conditions, making it suitable for adventurous travelers.

**RotoGlide™ Hipbelt:** A distinctive feature in many Arc'teryx backpacks, the RotoGlide™ hipbelt allows for a dynamic and comfortable movement. It adjusts to the user's movements, providing enhanced stability and load distribution during extended periods of wear.

**AC<sup>2</sup> (Advanced Composite Construction):** The AC<sup>2</sup> construction is a hallmark of Arc'teryx design, employing laminated materials for increased durability and weather resistance without compromising weight. This feature contributes to the backpack's performance in challenging climates.

**Streamlined Design:** Arc'teryx backpacks often feature a streamlined and minimalist design, focusing on essential features and reducing unnecessary bulk. This approach enhances the overall aesthetic appeal while maintaining functionality.

#### Evaluation from a Traveler's Perspective:

Arc'teryx backpacks, offer a compelling option for travelers seeking technical excellence and durability. Here's a comprehensive evaluation from a traveler's perspective:

**Durability and Weather Resistance:** The utilization of advanced materials and AC<sup>2</sup> construction ensures that Arc'teryx backpacks are durable and highly resistant to varying weather conditions. This makes them an excellent choice for travelers embarking on outdoor adventures in diverse landscapes.

**Comfort and Stability:** The RotoGlide™ hipbelt, designed to adapt to the user's movements, provides exceptional comfort and stability. This feature is particularly advantageous for travelers who engage in activities that require extended wear, ensuring a comfortable experience even during strenuous activities.

**Versatility:** While Arc'teryx backpacks are designed with outdoor performance in mind, their versatility makes them suitable for various travel scenarios. Whether navigating urban environments or exploring natural landscapes, the backpack's streamlined design and technical features offer adaptability.

**Minimalist Aesthetics:** The minimalist and streamlined design of Arc'teryx backpacks contributes to a sophisticated and modern aesthetic. Travelers seeking a sleek and understated look will appreciate the balance between form and function that these backpacks offer.

**Organization and Accessibility:** While prioritizing simplicity, Arc'teryx backpacks do not compromise on organization. Thoughtfully placed compartments and accessible features contribute to an efficient packing and unpacking process, enhancing the overall travel experience.

In conclusion, Arc'teryx backpacks, are a superb choice for travelers seeking technical excellence, durability, and versatility. From advanced materials to innovative features like the RotoGlide™ hipbelt, these backpacks cater to the needs of adventurers and outdoor enthusiasts, offering a reliable companion for various travel experiences.



Figure 3.16 Shimoda logo

Source: Shimoda official website, 2023

SHIMODA is a brand that specializes in adventure camera bags for travel, landscape, and outdoor photographers. Their Explore Series v2 backpacks are the latest products that offer several new features and improvements over their previous versions. The Explore Series v2 backpacks come in three sizes: 25L, 30L, and 35L, which are designed to fit different carry-on regulations and personal preferences. The backpacks are made of durable, water-repellent, and color-resistant material that can withstand harsh environments and frequent use. The backpacks also have a ventilated and adjustable harness system that provides comfort and airflow for the wearer. The backpacks have multiple access points for the camera gear, which are stored in modular core units that can be customized according to the user's needs. The backpacks also have dedicated pockets for filters, laptop, passport, documents, and other accessories. The backpacks have wireless lavalier microphone attachment points on the shoulder straps and a side handle that can be used as a luggage handle pass-through.

From a traveler's perspective, the backpacks made by SHIMODA have many advantages and some disadvantages.

Some of the advantages are:

The backpacks are versatile and adaptable to different situations and environments. They can be used for hiking, camping, city exploration, and other types of travel.

The backpacks are spacious and organized, allowing the user to carry and access their camera gear and other essentials easily and securely.

The backpacks are ergonomic and comfortable, reducing the strain and fatigue on the user's body and enhancing their mobility and performance.

The backpacks are stylish and functional, blending in with the surroundings and expressing the user's personality and taste.



Some of the disadvantages are:

The backpacks are expensive, costing between \$299 and \$349 depending on the size and core unit. They may not be affordable for some travelers or photographers who have a limited budget.

The backpacks are heavy, weighing between 3.3 and 4.4 pounds without the core unit and camera gear. They may add extra burden and inconvenience for the user who has to carry them for long periods of time or on public transportation.

The backpacks are specialized, catering mainly to adventure and outdoor photographers who need to protect and access their camera gear frequently. They may not be suitable for travelers or photographers who have different preferences or requirements for their backpacks.

Overall, the backpacks made by SHIMODA are unique and innovative products that offer a lot of benefits and features for travel, adventure, and landscape photographers. They are well-designed, well-made, and well-reviewed by many users and experts. However, they also have some drawbacks and limitations that may affect the user's satisfaction and experience.

## Chapter 4

### Project Development

#### 4.1 Attempt 1

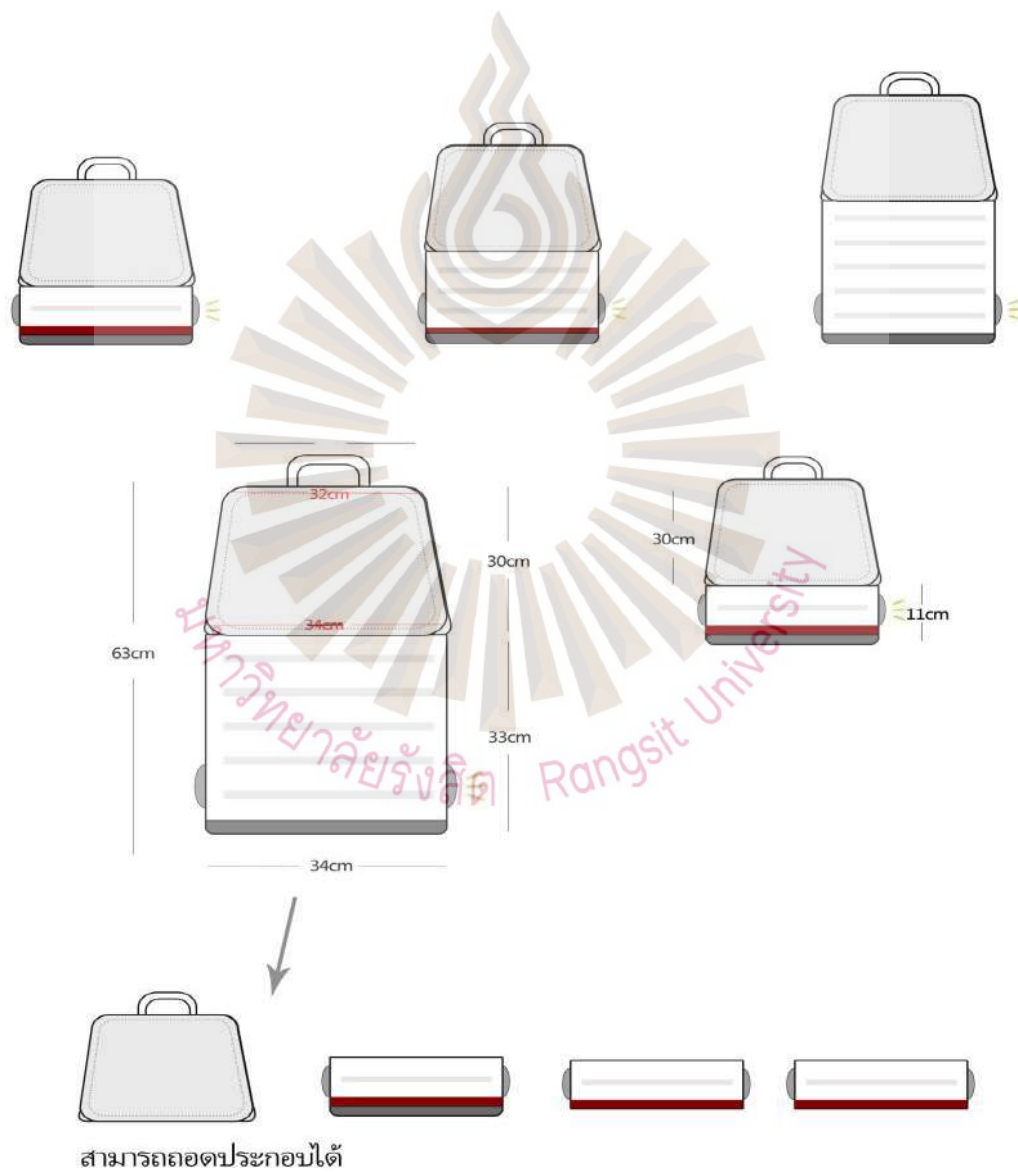


Figure 4.1 First Draft of my design  
Source: Researcher

In Figure 4.1, the backpack is divided into different sections. The upper section is designated for storing items of importance such as documents, electronic devices, cameras, and other delicate items. The lower section consists of three independent storage compartments, embodying a modular design approach. This is underpinned by the rationale that while the capacity of a backpack is generally fixed, a variable capacity significantly enhances its utility. Moreover, the adaptable storage space is particularly apt for items like clothing, allowing for flexibility in usage. It's not always necessary to utilize all three compartments; one or two can be used as needed, providing additional storage space. This flexibility also addresses a common issue encountered during travel: the ability to leave most belongings at an accommodation to lighten the load, yet finding the backpack unnecessarily large and empty. With the proposed design, a more compact and manageable backpack is achievable upon reaching the destination.

An additional feature not depicted in the sketch pertains to the upper storage area, which includes partitions made of sponge. These partitions are highly flexible and can conform to uniquely shaped items, such as cameras, ensuring they are securely held in place and preventing movement within the backpack. This detail will be illustrated in the physical drawings.

Next, the following images are the physical showcases of design attempt 1. Multiple functions and the overall outlook while wearing by a person are demonstrated in the images.

The photograph of the backpack in actual carrying state. To help understand the general size of the backpack, the model is about 180cm, the backpack just covers the entire back area.





Figure 4.2 First attempt of physical object

Source: Researcher



Figure 4.3 First attempt of physical object

Source: Researcher

The top of the backpack has handles. And there is a quick-release buckle in front of the handle.





Figure 4.4 First attempt of physical object

Source: Researcher

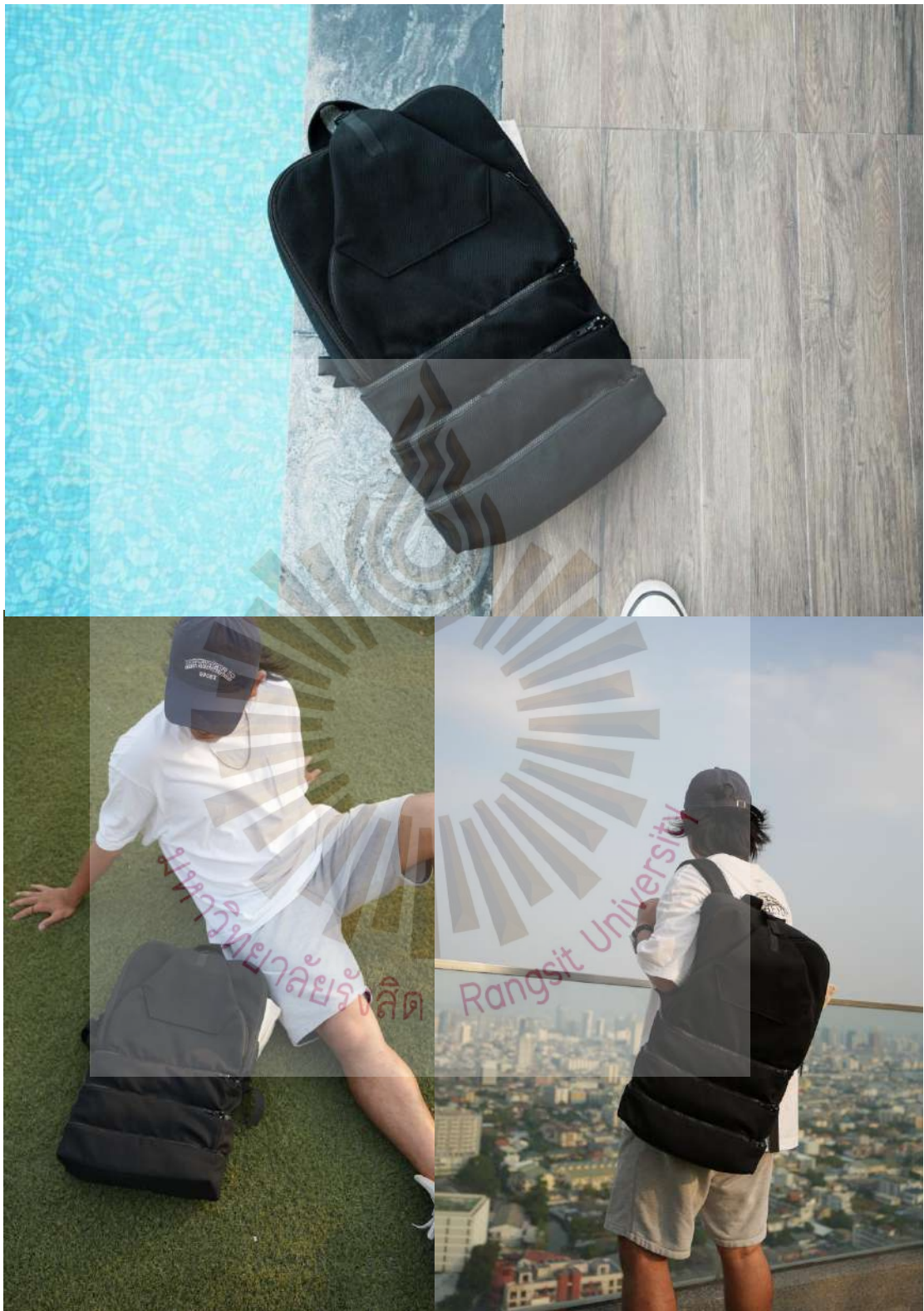


Figure 4.5 First attempt of physical object

Source: Researcher





Figure 4.6 First attempt of physical object

Source: Researcher





Figure 4.7 First attempt of physical object

Source: Researcher

Attempt 1 summary: The backpack looks good to go, but in fact it still has some flaws and some materials need to be upgraded. Additionally, there will be some minor modifications to the interior of the backpack. The material of the zipper will be upgraded, this time the zipper is not smooth enough. The internal design of the backpack will be shown in the next part. The inner materials of the bag are all made of Velcro fur, which greatly improves the plasticity of the isolation board.

## 4.2 Attempt 2

# Bag Rethinking

## Travel Essentials for a stress-Free Journey

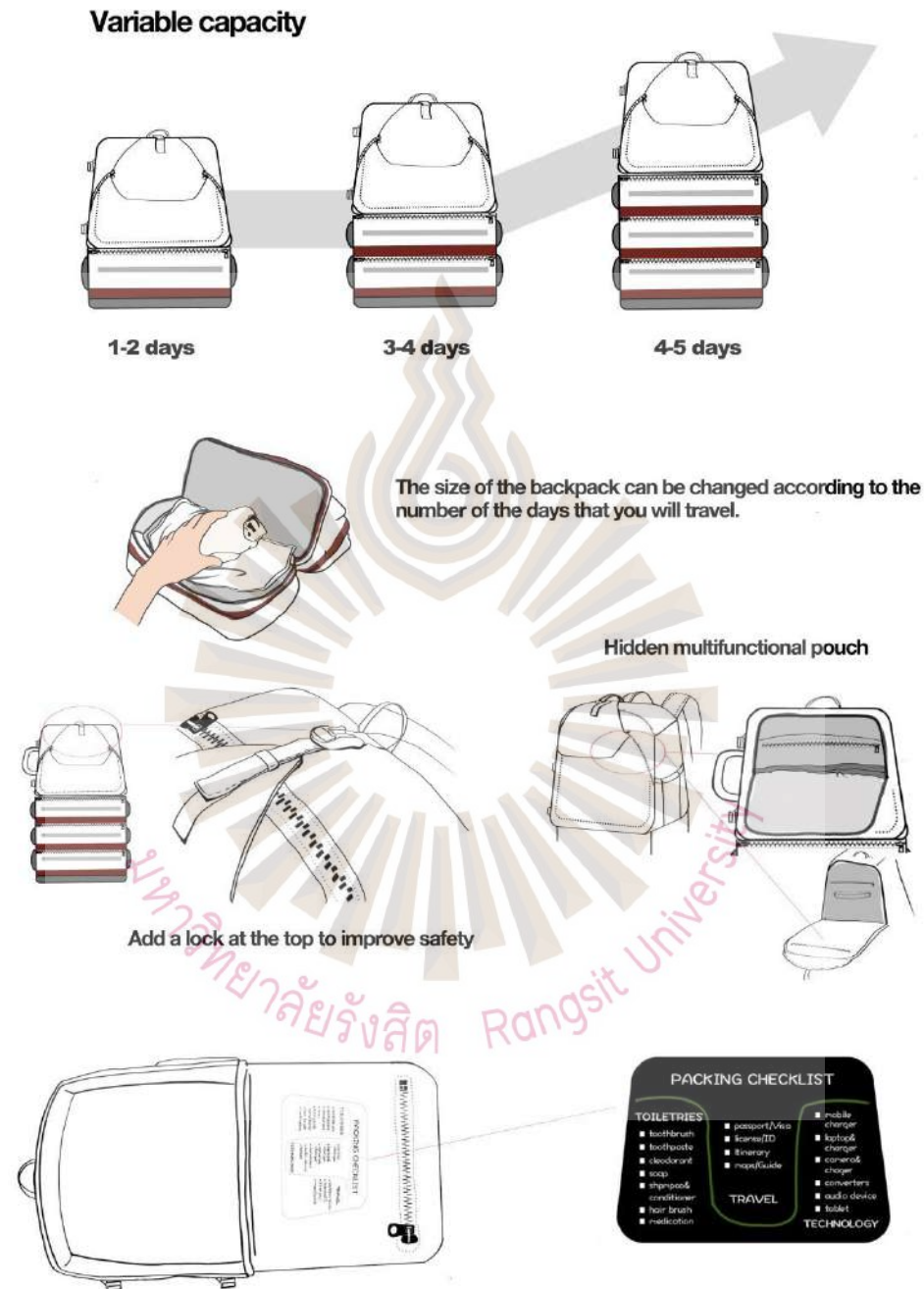


Figure 4.8 Second Draft of my design

Source: Researcher



For the second version of the backpack, there is specific guidelines for the number of days of use and degree of expansion. Additionally, the small reminder list is attached inside the backpack as can be seen in the images down below (Figure 4.8). To remind people store the things that they need to bring for travel, like some must have travel documents. Every time the backpack is opened or closed, the user will have the opportunity to see this page as a reminder, which sometimes can be a life-saver.



Figure 4.9 Second attempt of physical object

Source: Researcher

As can be seen in the image above (Figure 4.8). This is the specific design of the internal storage space. The isolation board is made of sponge and can be shaped at will. The ends of both sides of the isolation board are hooked surfaces of Velcro, and the inside of the entire backpack is the fur surface of Velcro. Therefore, users can adjust the shape of the partition according to the things they want to put in, so that the things inside the backpack can be better stored instead of rolling around in the backpack. Even if not using the shaping function, partitions are a must-have item for partitioning. Once partitioned,

the storage efficiency will be greatly improved, and the efficiency of finding things in the backpack will also be greatly improved.



Figure 4.10 Second attempt of physical object

Source: Researcher



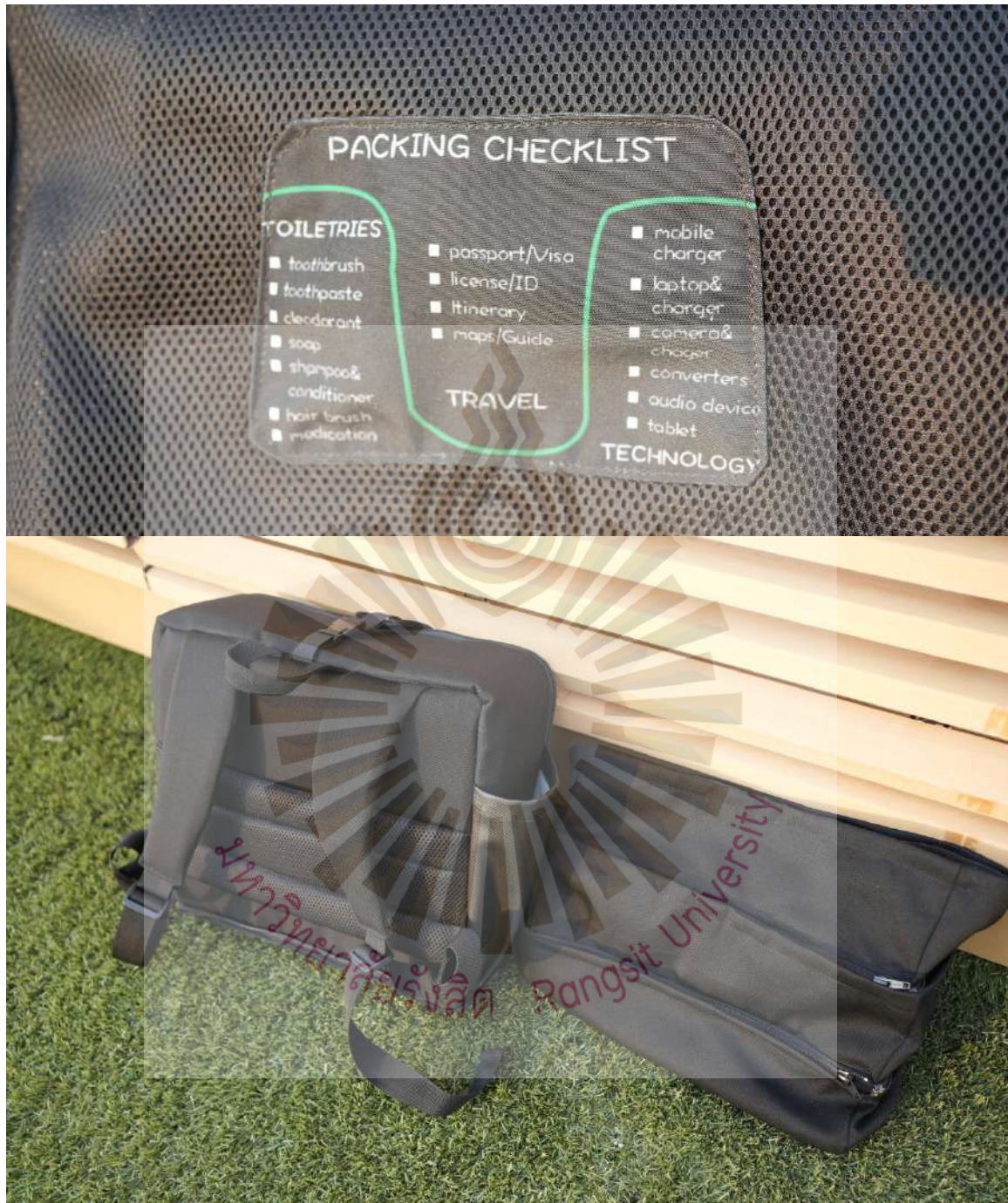


Figure 4.11 Second attempt of physical object

Source: Researcher





Figure 4.12 Second attempt of physical object

Source: Researcher

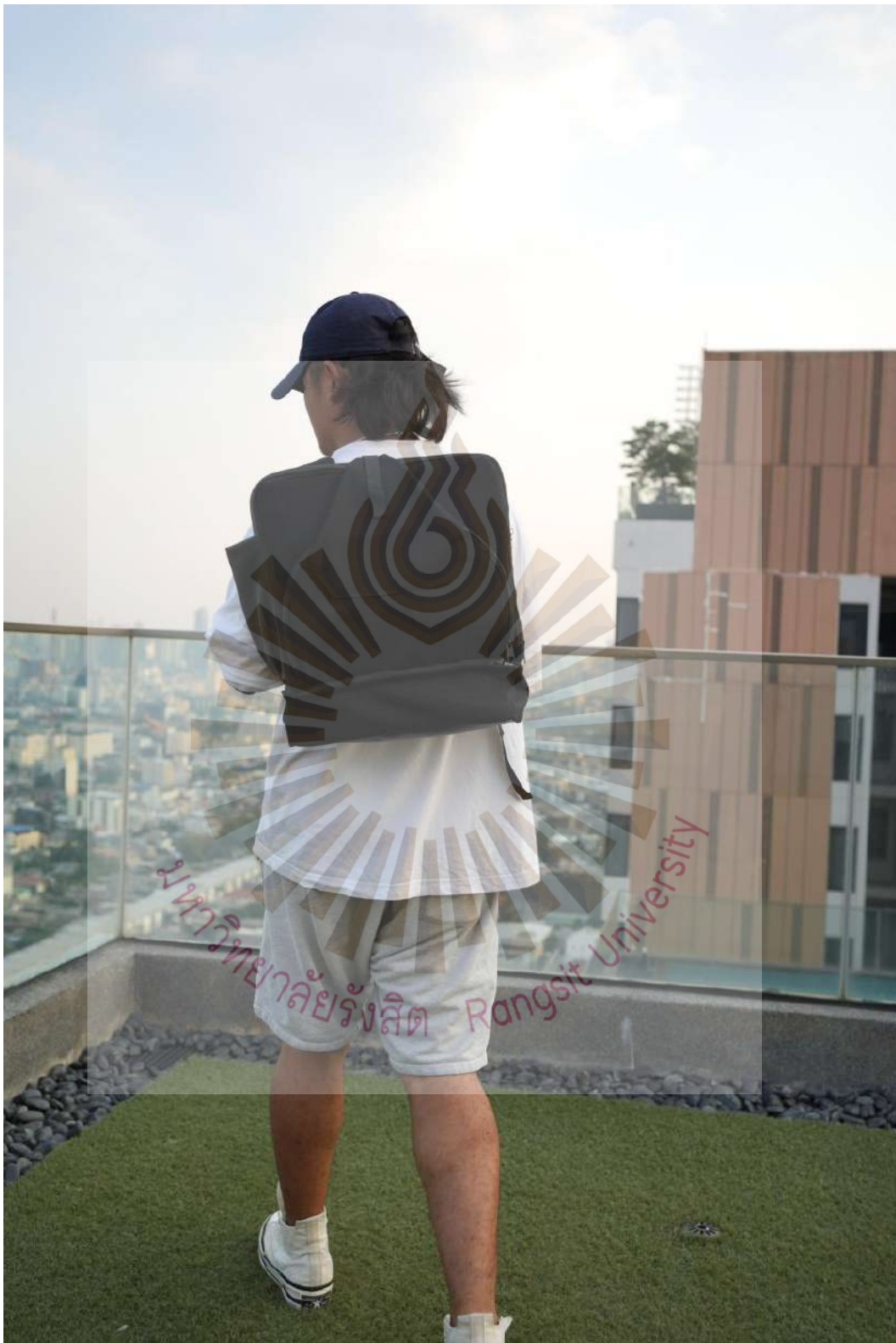


Figure 4.13 Second attempt of physical object

Source: Researcher





Figure 4.14 Second attempt of physical object

Source: Researcher

These two photos show the state of the backpack: the lower modular part has been removed, leaving only one layer of storage space. Much more smaller and also reducing some weight. Looking better as well, perfect for daily use.



Figure 4.15 Second attempt of physical object

Source: Researcher

Summary of Attempt 2: In the development of the second product, beyond the upgrades previously discussed, the material for the side pouch intended for water carriage was switched to leather. Given water's weight, leather offers not just waterproof qualities but also enhanced durability. The increased friction provided by leather reduces the likelihood of items slipping out. Furthermore, it's important to highlight that the entire interior has been lined with the rough side of Velcro, enabling users to create custom arrangements and designs beyond the initial configuration provided.

## **Chapter 5**

### **Conclusion**

#### **Unleash Your Journey: The Ultimate Travel Companion Redefines Backpacking**

In today's vast and ever-changing world, having a reliable travel companion is essential. The newly designed backpack, while not flashy or extravagant, is a practical and thoughtful solution for travelers. It's not just a bag; it's a functional embodiment of convenience, adaptability, and the spirit of adventure. Whether exploring bustling cities or remote trails, this backpack is there to support people on every step of the way.

##### **Personalisation:**

Embedded within the newly designed backpack, there's an innovation that challenges the ordinary. This backpack boasts a groundbreaking separation layer — a feature shaped by user interaction that defies convention. Beyond its practical advantages, this customizable element optimizes organization and adjusts to the unique needs and preferences of each traveler, providing an unmatched level of personalization. Imagine a backpack that carries essentials and also grows with its user, becoming an intimate extension of their journey and enhancing the essence of the travel experience.

##### **Even more personalization:**

This newly designed backpack takes personalization to new heights by incorporating removable storage layers. These adaptable layers can be effortlessly added or reduced, setting a fresh standard for versatility in the world of backpacks. No longer constrained by a one-size-fits-all approach, users can now tailor their backpack to meet the specific storage demands of each adventure. This adaptability ensures that travelers are consistently well-equipped and ready to tackle the dynamic challenges that lie ahead.

### A Humble Approach to Design:

The newly crafted backpack goes beyond mere practicality; it carries a subtle yet profound symbolism—a connection to the very essence of travel. The ability to shape its separation layer extends beyond a mere design feature; it metamorphoses into a metaphor for shaping our journeys, both in tangible and intangible ways. This backpack serves as a dynamic canvas for personal growth and discovery, reflecting the unique path each traveler treads. It fosters a genuine connection, encouraging self-discovery and enlightenment.

### Embrace Freedom:

Every adventurer seeks freedom, and this backpack empowers them to embrace it fully. Its adaptable design liberates from conventional constraints, allowing for a nomadic lifestyle. Exploring uncharted territories with unwavering confidence becomes the norm, knowing that the backpack not only keeps pace but also elevates the journey. It symbolizes boundless possibilities, offering a gateway to a world waiting to be explored.

### Aesthetics with Purpose:

While functionality remains paramount, this carefully crafted backpacks blend aesthetics seamlessly. With attention to detail and firmness in style, a good visual experience is also taken care of. Whether navigating the city or conquering nature, it demonstrates the harmonious combination of form and function, captivating those who have the opportunity to learn about this prototype. Its understated elegance heralds the adventures to come, waiting to become a new generation of backpacker companions.

### Material Choice:

The meticulous choice of materials for this backpack stands as a testament to our unwavering commitment to durability and sustainability. Crafted from high-quality, eco-friendly materials, the backpack not only endures the rigors of travel but also minimizes its environmental footprint. By making a conscious choice to carry this backpack, the responsible traveler contributes to a more sustainable and environmentally conscious approach to exploration.



### Versatility Redefined:

Versatility isn't just a feature but a hallmark of this newly designed backpack. From navigating cityscapes to embarking on wilderness treks, the backpack effortlessly transitions between diverse environments. Its remarkable adaptability ensures that whether for a digital nomad with a laptop in tow or a nature enthusiast armed with camping gear, this backpack stands alone as the ultimate travel companion—a true all-encompassing solution for the modern explorer.

In conclusion, there are some down-to-earth words to be said about this newly designed backpack, which combines many advantages, promising a bright and possibility-filled future. The design and production process have incorporated a wealth of innovative ideas, with the final presentation realizing at least 90% of these concepts. While the description above may seem conceptual, it's important to note that the final version is already in use, and the experience has been very positive. Based on the actual work involved in the production process, it can be responsibly declared that both the economic and time costs of production are excellent, making it a product ready for mass production.





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