

UniCycle

Second-hand trading app among university students

**(SDG12 – Ensure sustainable consumption and
production patterns)**



Aims and Objectives

- **Target User : 18-25 years old**

Our app, 'UniCycle', fundamentally serves as a conduit for student-to-student exchanges of second-hand items. In the current scenario, there's a growing trend and apparent need for second-hand transactions, especially among students who frequently require temporary or short-term use items. This rise is partly due to increased environmental awareness and a shift towards sustainable living practices. Recognizing this trend, UniCycle is built on the foundation of sustainable development and environmental consciousness. Its primary aim is to facilitate the reduction of consumption by providing a platform where students can easily trade, sell, or pass on their belongings, thus promoting the reuse and recycling of items and contributing significantly to a decrease in overall consumption and waste.

Problem Statement

Designing an app like UniCycle is a journey of discovery, research, and human-centred thinking. In essence, the process begins by identifying the challenges faced by our target audience – students engaged in second-hand trading. This approach helps us not just in understanding the problems, but also in aligning our solutions with the real needs and expectations of our users. With this perspective in mind, we will use the 5Ys approach to dive deep into the nuances of these challenges, exploring the rationale behind our design decisions and addressing the specific pain points of our users. Let's delve into some key 'Why' questions to uncover the objectives and strategies behind UniCycle.

1. Why was UniCycle created?

- UniCycle was created to provide students with an easy, secure, and efficient platform for buying and selling second-hand items, facilitating sustainable consumption and reducing waste.

2. Why do students need a platform specifically for second-hand trading?

- Students often deal with transient needs for items like textbooks, electronics, and furniture. A dedicated platform caters specifically to their changing requirements, providing a tailored and efficient solution for their buying and selling needs.

3. Why is ensuring transaction security and reliability a priority for UniCycle?

- Ensuring security and reliability is essential to build trust among users, reduce the risk of fraud, and create a safe trading environment. This is vital for maintaining the integrity of the platform and ensuring user satisfaction.

4. Why is setting reasonable prices for items important on UniCycle?

- Reasonable pricing ensures fairness for both buyers and sellers. It makes second-hand items accessible to more students while allowing sellers to get fair compensation for their goods. This balance is crucial for a healthy and active marketplace.

5. Why does UniCycle focus on environmental sustainability?

- By encouraging reuse and recycling of items, UniCycle aims to reduce waste and minimise environmental impact. This aligns with the growing awareness and responsibility towards sustainable living practices, particularly among the younger generation.

Overall, the problem statement approach has been instrumental in shaping the development of UniCycle. It allowed us to pinpoint and understand the specific challenges faced by students in the second-hand market. Through this approach, we gained valuable insights into the necessity of a secure, efficient platform tailored for student needs, highlighting the importance of fair pricing and transaction reliability. Additionally, the problem statement brought to light the environmental aspect of second-hand trading, aligning UniCycle with the principles of sustainability and responsible consumption. By exploring various 'Why' questions, we uncovered new angles and considerations, further refining UniCycle's role not just as a trading platform but as a tool for fostering a culture of thoughtful consumption among students. This in-depth understanding has been crucial in ensuring that UniCycle effectively addresses the real needs of its users, paving the way for a more sustainable and connected student community.

Background Research

The development of a mobile application addressing environmental challenges necessitates foundational background research. This research equips developers with a nuanced understanding of the complexities and nuances of environmental degradation, particularly issues stemming from overconsumption. By integrating data on consumer behaviour, resource utilisation, and policy shifts into the app's design, developers can create a tool that not only informs but also prompts actionable change. This approach ensures the application is not merely informative but also functionally relevant in promoting sustainable practices. The background study will be briefly elucidated below in four sections

1. **Environmental Problems Caused by Overconsumption:** The global trend of overconsumption significantly exacerbates environmental issues. The production and disposal of goods like shoes, clothing, and electronics contribute to pollution, ecosystem collapse, and climate change. For instance, the vast production of shoes involves resource-intensive processes and results in long-lasting waste in landfills. The trend in the Western world, especially in the U.S., shows a marked increase in consumption over the decades, which is unsustainable at a global scale (Syal, 2022) .
2. **Resource Waste in Contemporary Consumption Habits:** Modern societies, particularly in affluent regions, are characterised by consumption patterns that far exceed sustainable limits (Net Impact, 2020) . This results in the depletion of natural resources and environmental degradation. Studies show that a small portion

of the world's population is responsible for a large majority of global resource consumption, leading to significant disparities and environmental strain.

3. **Role of Second-hand Markets in Resource Conservation:** The second-hand market can play a critical role in addressing these challenges by promoting the reuse and recycling of goods. This helps reduce the demand for new production, subsequently lowering the strain on natural resources and decreasing waste production. In addition, this market segment can contribute to a more circular economy, where products are kept in use for longer, thus reducing the overall environmental footprint (Frost, 2020).
4. **Government Policies and Public Awareness on Environmental Protection:** The increased awareness of environmental issues and the rising demand for sustainable practices are driving changes in government policies and consumer behaviour. These include measures to promote eco-friendly practices, encouragement of sustainable designs in business, and the consideration of green economy models (University of New South Wales, 2020). The growing recognition of the importance of reducing overconsumption and promoting sustainable lifestyles is crucial for environmental protection efforts.

In conclusion, the multifaceted issues of overconsumption, resource waste, the effectiveness of second-hand markets, and evolving government policies and public awareness, form a comprehensive framework for understanding environmental sustainability. An application rooted in detailed research across these areas can serve as an instrumental platform for advocacy and action. It can educate users, encourage

sustainable consumption, and foster an environment conducive to responsible resource management. Such a tool, developed with a foundation in rigorous research, holds the potential to make significant contributions to the discourse and practice of environmental conservation.

Market Research

The market research for second-hand trading platforms, especially those targeting student communities and with a focus on sustainability, shows a vibrant and growing sector.

Platforms like eBay and Vinted highlight the significant market potential.

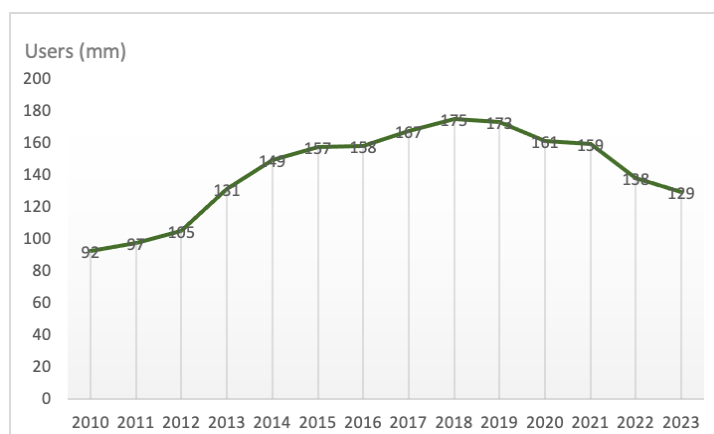
Figure1: eBay annual revenue 2005 to 2022 (\$bn)

(Note: In the third quarter of 2014, eBay began reporting revenue independently of PayPal)



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Figure2: eBay annual users 2010 to 2023 (mm)

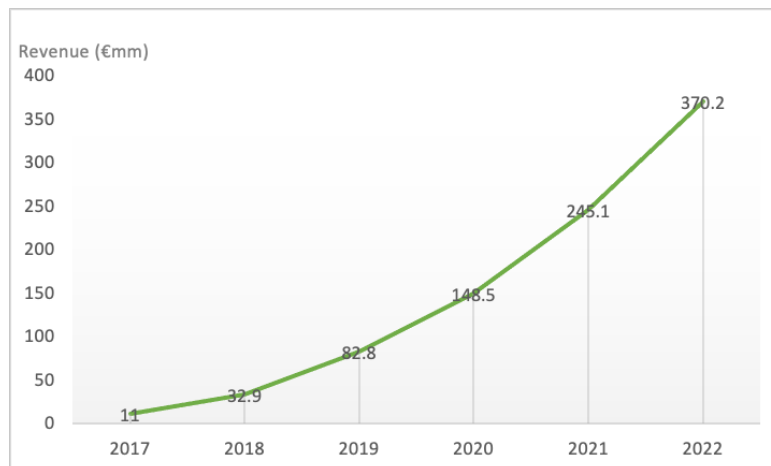


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eBay, a well-established player in this domain, generated a revenue of \$9.7 billion in

2022, with a substantial user base of 138 million active users and over 18.3 million sellers (Curry, 2024). This indicates the extensive reach and acceptance of online second-hand trading.

Figure3: Vinted annual revenue 2017 to 2022 (€mm)



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Vinted, focusing on buying and selling pre-owned clothes and accessories, saw its revenue grow to €370.2 million in 2022, from €245.1 million the previous year, showcasing rapid growth in the sector focused on specific categories like apparel (Wylie, 2024).

Furthermore, studies indicate the importance of community-based mechanisms in enhancing trust and transaction intentions on second-hand platforms. Elements like interest groups, feedback mechanisms, and dispute resolution are crucial in building trust among users, which is especially important due to the uncertainties associated with second-hand goods. This community-based approach can be vital for platforms like UniCycle, aiming to serve student communities where trust and security are paramount considerations (Liu et al, 2023).

Another study focusing on the drivers of consumer participation in online second-hand transactions reveals key insights. The use of second-hand platforms is more likely among younger individuals, internet-savvy users, and those with some price-consciousness and environmental awareness(Hinojo et al, 2022). This aligns well with the student demographic targeted by UniCycle. The study also emphasizes the role of digital platforms in enhancing connectivity and efficiency in transactions, reducing costs, and building user reputation, which are critical aspects for the success of second-hand trading platforms.

Overall, the research suggests a promising landscape for platforms like UniCycle, especially if they can effectively integrate community-based features, focus on user trust and security, and align with the environmental and economic consciousness of their target user base.

Customer Research

In the dynamic and evolving landscape of second-hand trading, understanding the nuances of our customer's experiences is vital. This Customer Research segment is dedicated to exploring the diverse **needs, preferences, motivations, and behaviours** of our users – the students. Our focus is on delving deep into their everyday challenges and aspirations as they navigate the world of second-hand transactions. By engaging directly with our audience through surveys, interviews, and observational studies, we aim to garner authentic insights that will drive the continuous improvement and innovation of the UniCycle platform. This research is not just about gathering data; it's about connecting with our user community, understanding their lifestyle, and aligning our services with their values and needs.

Needs:

Why do users choose UniCycle?

Users turn to UniCycle because it meets their essential need for a reliable, user-friendly platform that facilitates the exchange of second-hand goods among students. The key user needs include:

- For students with budget constraints, the primary need is to access affordable second-hand goods, such as textbooks and dorm essentials.
- Caregivers and active members of student organisations require a platform that lets them efficiently manage sales and purchases, reflecting their roles on campus.
- The student body at large, particularly those engaged in environmental clubs or initiatives, needs a marketplace that aligns with their sustainability values.

Preferences:

Understanding consumer preferences helps UniCycle stay in touch with its users.

Students prefer an app that offers quick access to available goods and services. They are likely to favour:

- An interface that's easy to navigate, helping them to find or list items quickly.
- Features that allow for quick communication between buyers and sellers, such as in-app messaging or notifications.
- A robust rating system that offers insights into a seller's reliability and the item's condition, ensuring that trust is established within the transaction process.

Motivations:

Understanding consumer motivation can drive engagement with UniCycle.

On a deeper level, the motivations for using UniCycle could be:

- A desire to find value in second-hand goods that might otherwise be discarded, tying into a broader ethos of reducing waste.
- The emotional satisfaction that comes from engaging in eco-friendly practices, such as reusing and recycling items.
- The community aspect, where students feel a sense of belonging and connection to their peers through shared values and actions.

Behaviour:

In order to provide a better presentation and user experience for the app, we designed

an evaluation questionnaire for user behaviour, selected two specific targets– Sarah and Jake that are most likely to become users of our app, and conducted a corresponding Q&A survey.

User 1: Sarah, College Sophomore

Q1: "When you think of buying or selling second-hand goods, what platforms do you wish existed, and why?"

Sarah: "I would love a platform specifically for students where we can trade items we need for school life, like textbooks and dorm accessories. Something very student-oriented."

Q2: "How often would you engage in second-hand transactions if there was an ideal platform, and what would you expect from it?"

Sarah: "Probably quite often, especially at the start and end of semesters. I'd expect it to be easy to use, safe, and cater specifically to the kinds of things students need and want to buy or sell."

Q3: "Imagine the last time you needed a second-hand item. How would you want the process to go on an ideal platform?"

Sarah: "I'd want to easily find what I'm looking for, communicate directly with the seller, and arrange a quick and safe exchange, preferably on or near campus."

Q4: "What factors would convince you to use a new app for your second-hand transactions?"

Sarah: "Convenience, a student-focused approach, and a sense of community and safety

would be key factors."

Q5: "What features would you prioritise in a new second-hand trading app for students?"

Sarah: "Definitely a great search function, safety features for transactions, and a rating system for users."

User 2: Jake, Graduate Student

Q1: "What platforms do you think are lacking in the current market for buying and selling second-hand goods, especially for students?"

Jake: "There's a gap for a student-focused platform. Something that really understands our specific needs and schedules."

Q2: "How frequently would you use a well-designed second-hand trading platform?"

Jake: "I'd use it quite often, maybe several times a month. Especially for selling stuff I no longer need."

Q3: "Describe your ideal experience selling a second-hand item to fellow students."

Jake: "I'd post an ad easily, communicate with potential student buyers, and make a quick, secure sale. I'd also like to see some sort of verification for student status."

Q4: "What would motivate you to switch to a new app designed for second-hand trading among students?"

Jake: "A platform that makes transactions smoother and quicker for busy students would definitely attract me."

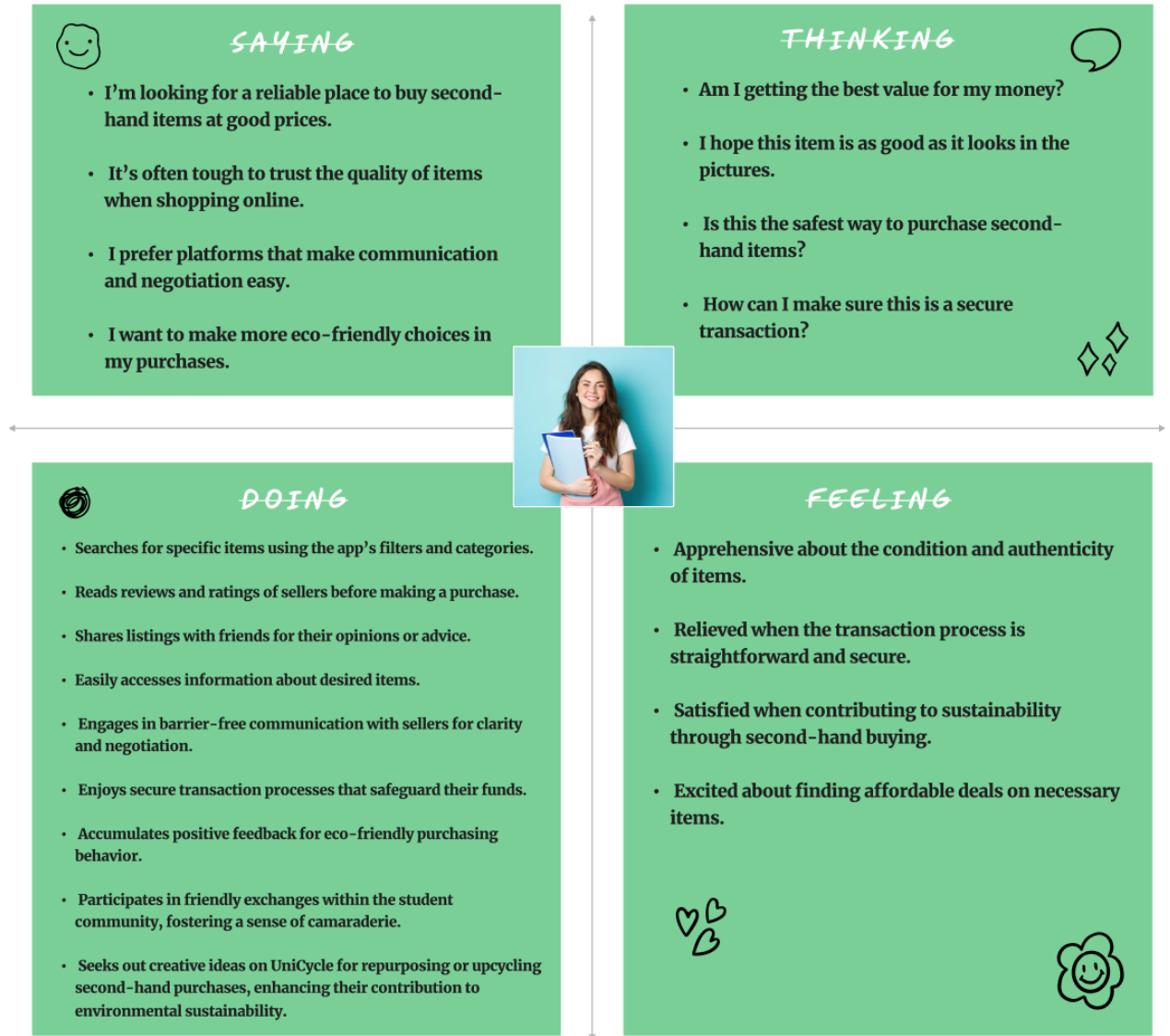
Q5: "What improvements or features would you suggest for a new app dedicated to student second-hand trading?"

Jake: "Better categorization for items, a reliable review system, and maybe a way to integrate with the university's systems for trust and ease of access."

The pre-launch survey reveals key behaviours: students prioritise convenience, efficiency, and community focus in a second-hand trading app. They show a preference for an app that aligns with their academic calendar and lifestyle, highlighting the need for UniCycle to offer a streamlined, secure, and student-centred trading experience. This insight is critical for tailoring UniCycle to meet the specific habits and preferences of its target user base.

Empathy Mapping

- For the Student Buyer:



- For the Student Seller:



User Personas

User1:



NAME
Emily

AGE
21

GENDER
Female

LOCATION
Manchester, UK

JOB
Undergraduate student majoring in Environmental Science

BEHAVIORS

- Lives in a shared student house, budget-conscious due to limited student loan.
- Actively involved in university's sustainability initiatives.
- Prefers buying second-hand to reduce carbon footprint and support circular economy.
- Balances part-time job with studies, valuing convenience and efficiency in transactions.

PERSONALITY

Eco-aware,
Thrifty,
Resourceful

GOAL

Find affordable, good-quality second-hand textbooks and clothes.

Ensure purchases align with her values of environmental responsibility.

Minimize waste by purchasing items that have been pre-loved.

User2:



NAME
Alex

AGE
23

GENDER
Male

LOCATION
London, UK

JOB
Graduate student in Business Management

BEHAVIORS

- Enjoys refurbishing and upcycling items to sell for a profit.
- Involved in campus entrepreneurship clubs, constantly looking for new business opportunities.
- Seeks to build a reputation on campus as a go-to person for quality second-hand goods.
- Very active on social media, utilizing it to market his items.

PERSONALITY

Enterprising,
Socially-aware,
Communicative

GOAL

Create a reliable stream of income from selling second-hand items.

Build a strong profile on the app with excellent ratings and reviews.

Offer sustainable choices to peers, promoting a reduce-reuse-recycle mindset.

Expand his network within the student community by providing value and establishing trust.

Brand Identity

- **Logo**



The logo creatively merges the core concept of your UniCycle app by incorporating both the academic and sustainable aspects of its mission. The graduation cap symbolises the student-focused approach, directly appealing to the app’s primary user base—students. Meanwhile, the recycling symbol reflects the app’s commitment to sustainability and the circular economy, emphasising the reuse and repurposing of goods. The use of green not only resonates with the eco-friendly aspect but also signifies growth and renewal, which are key to the philosophy of second-hand trading. Together, these elements present a clear visual message that UniCycle is about promoting a sustainable future through a student-centric marketplace.

- **Colour Palette**



In our app design, the primary use of green is a deliberate choice to echo the values at the core of my app’s philosophy. Green represents vitality, sustainability, and prosperity—principles that are foundational to the app’s mission. It's a colour that speaks to the heart of an eco-conscious community, embodying the spirit of renewal and responsible living. White, used as a secondary colour, complements the green with

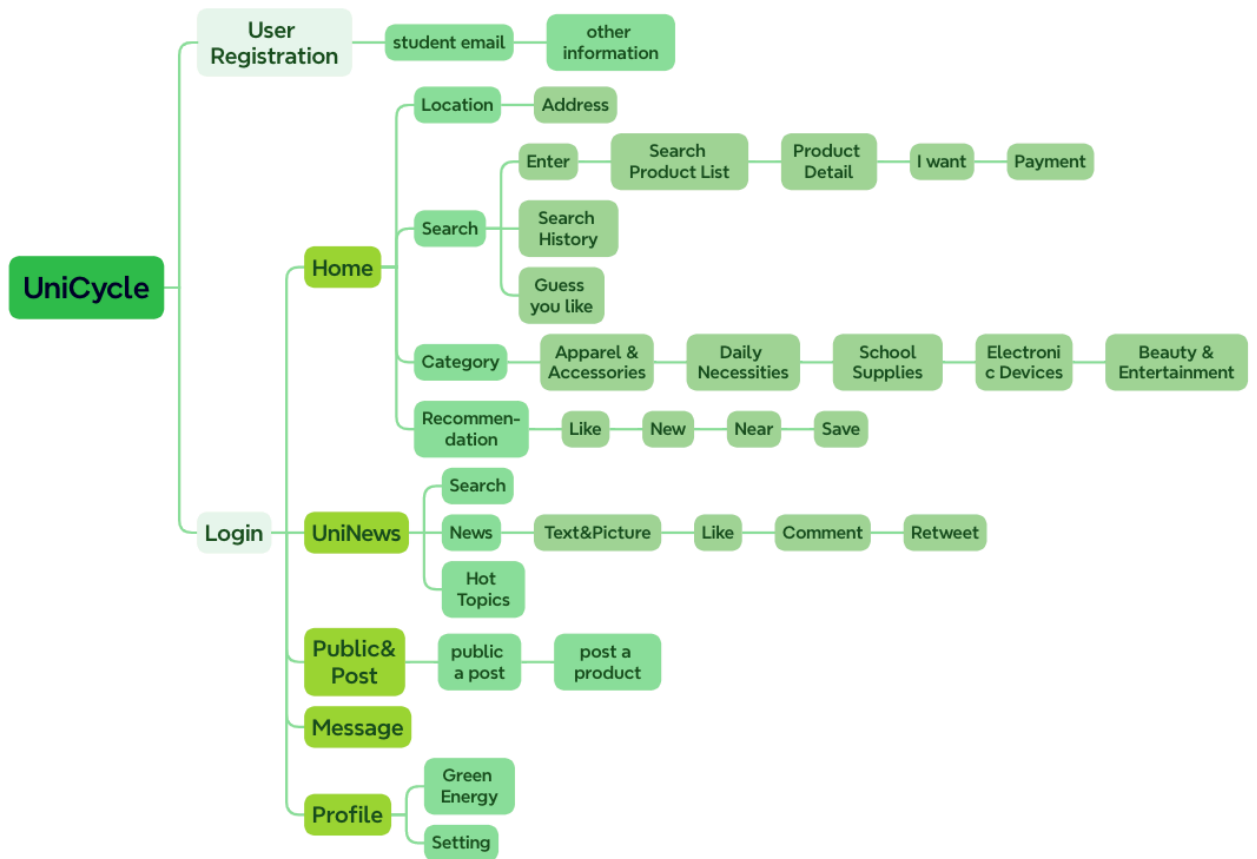
its connotations of simplicity, clarity, and purity. In app design, white space is crucial for usability, creating a clean and uncluttered interface that enhances user experience and focuses attention on key elements. Together, green and white create a visual harmony that is both aesthetically pleasing and functionally effective, inviting users to engage with an app that is as committed to the environment as it is to providing a seamless user experience.

- **Cartoon Illustration Design**



These cute cartoon illustrations we designed were used in the app to make the app more interesting, give users a nice visual experience, and further personify the UniCycle app's ethos. The owl, traditionally a symbol of wisdom, is adorned with a graduation cap, which directly connects to the student demographic of the app. The owl's association with knowledge and learning makes it a fitting mascot for an app that serves the academic community. Holding a box featuring the recycling symbol, the owl conveys the app's dedication to environmental sustainability and the circular economy. The green colour of the owl reinforces the app's commitment to eco-friendly practices, making it clear that UniCycle is not just a platform for trade but also a proponent of intelligent and responsible consumption. This logo charmingly blends the app's focus on education, sustainability, and community in a memorable and appealing way.

App Architecture

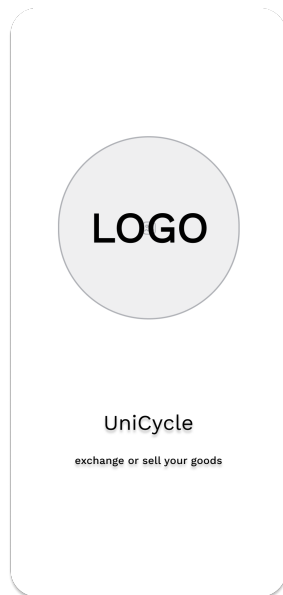


Made on Xmind by Chaoqi Zheng

Wireframes & GUIs

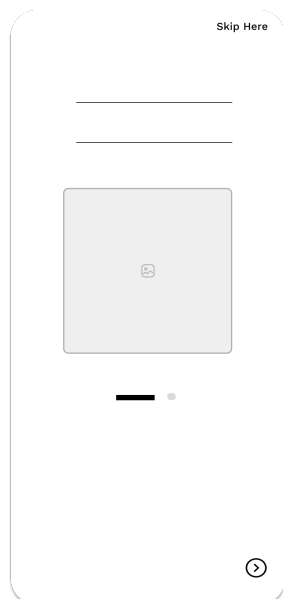
Wireframes Designed on Figma by Chaoqi | GUIs Designed on Figma by Chaoqi & Meijing

1.



This is the start-up page of UniCycle, when users tap the app this will be the first screen they see.

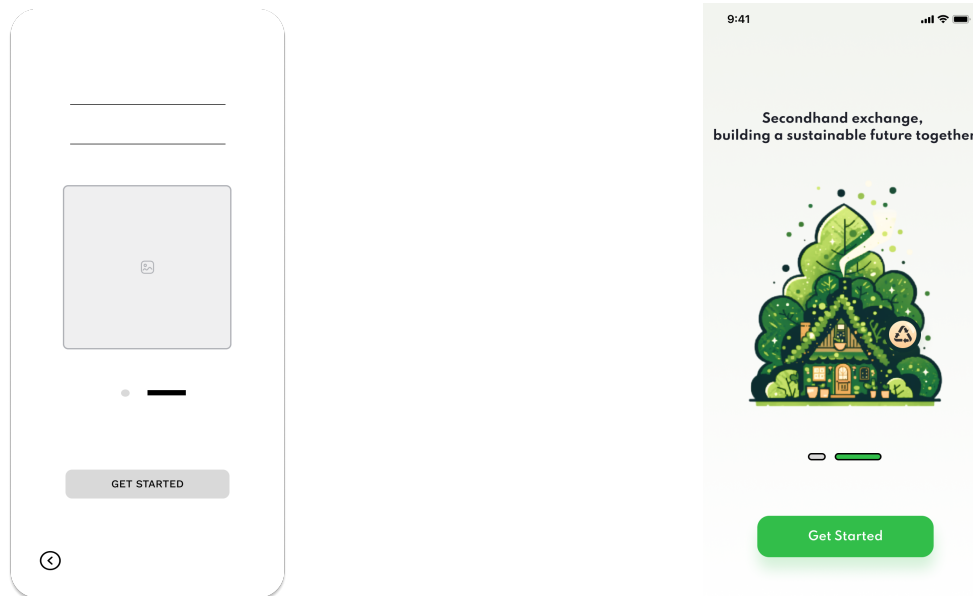
2.



The second start-up page, some new users may not be sure of the purpose of the app

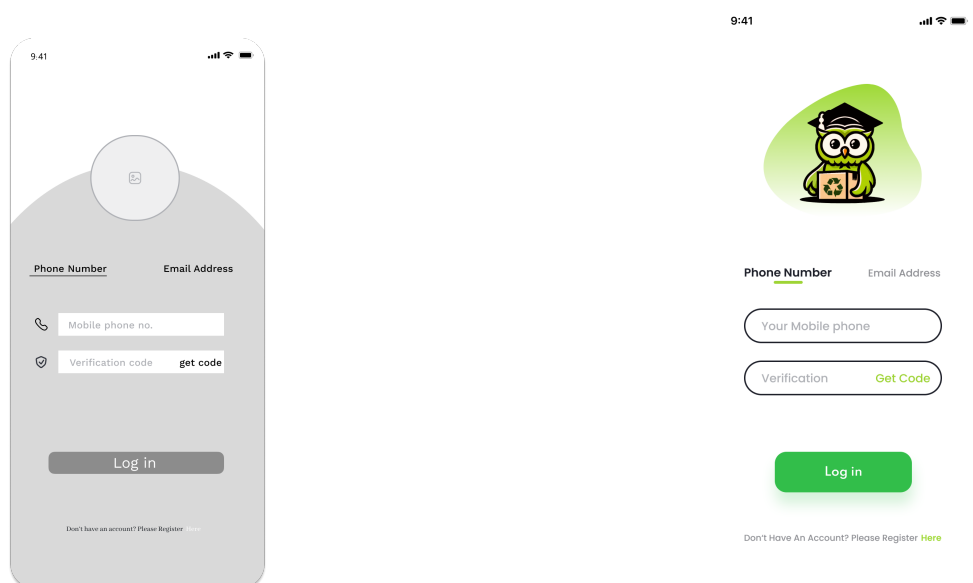
the first time they use it, but the text on the start-up page gives a short and clear explanation of the purpose. If you are an experienced user who is already familiar with the app, you can click "Skip Here" in the upper right corner of the interface to reach the login screen.

3.



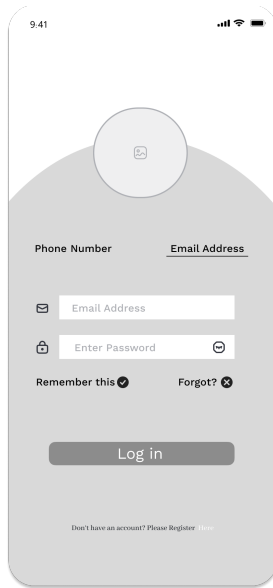
The third start-up page, click “Get Started” to reach the login screen.

4.



Users can fill in the phone number to receive the verification code to login.

5.



9:41

Phone Number Email Address

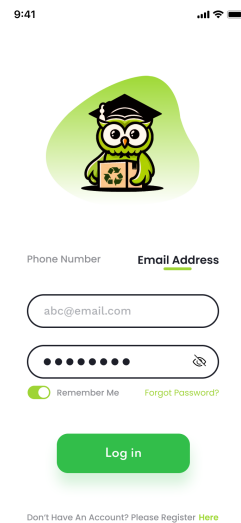
Email Address

Enter Password

Remember this ☒ Forgot? ☒

Log in

Don't have an account? Please Register [Here](#)



9:41

Phone Number Email Address

abc@email.com

•••••

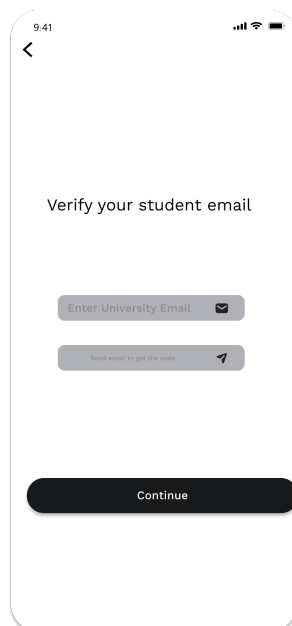
☒ Remember Me [Forgot Password?](#)

Log in

Don't Have An Account? Please Register [Here](#)

Users can also log in by filling in their email address and entering their password.

6.



9:41

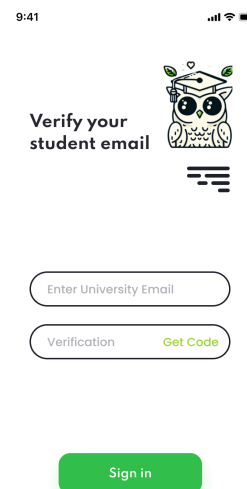
<

Verify your student email

Enter University Email

Send email to get the code

Continue



9:41

Verify your student email

Enter University Email

Verification [Get Code](#)

Sign in

If you are a new user, you need to register first. Registration is divided into two steps, the first step is to verify the student email address, which is very important. Because this will limit the user's identity to university students only, which can avoid certain risks to a large extent, and protect the user's transaction security.

7.

Register

Name Authentication

Set Password :

Confirm Password :

University :

Upload Student ID Card

Confirm

Register

Name Authentication

Set Password

Confirm Password

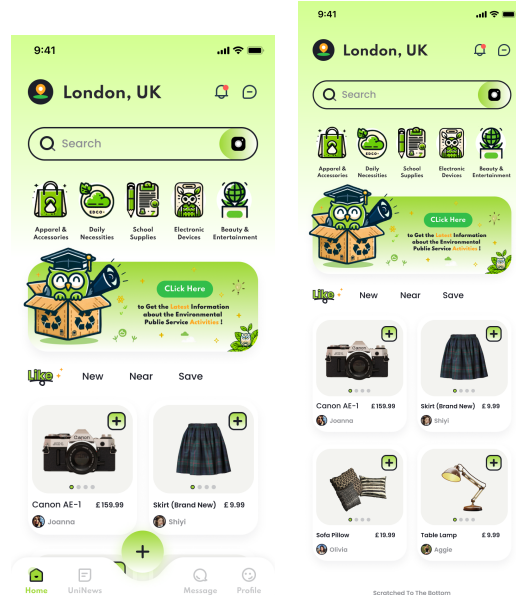
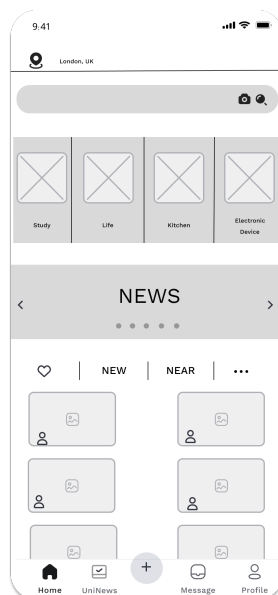
University

Upload Student ID Card

Confirm

The second step of registration. You will need to fill in your name and university, set a password, and upload your student id card. Finally, click "Confirm" to complete your registration.

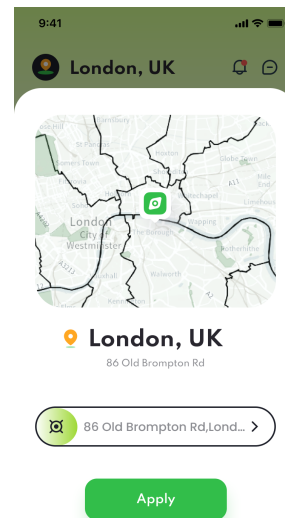
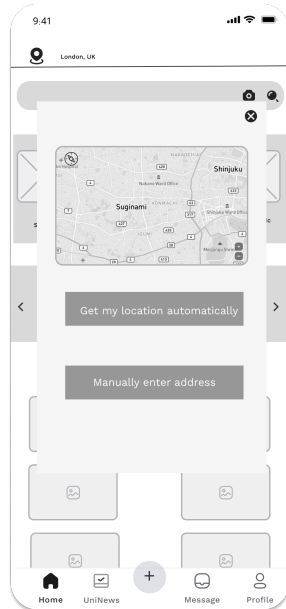
8.



Home page of the app. In this page, users can quickly view the categories of second-hand items, search for items they are interested in and learn about the latest news

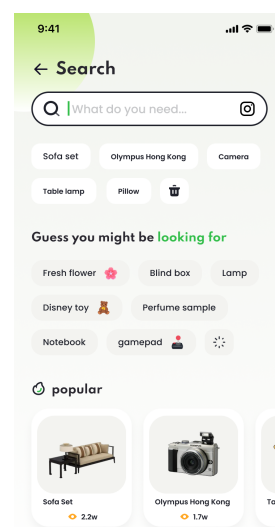
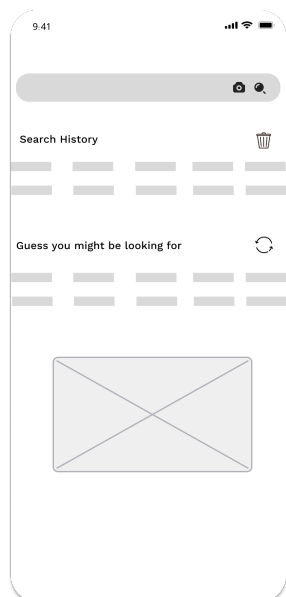
about environmental protection that is updated every day. The app also recommends second-hand items based on distance, preferences, recent postings, etc.

9.



Clicking on the location icon on the top right corner of the homepage can automatically locate the user's position, and based on the user's location, the app can recommend second-hand goods posted by other students in the vicinity.

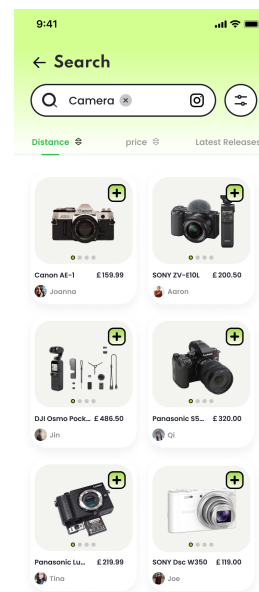
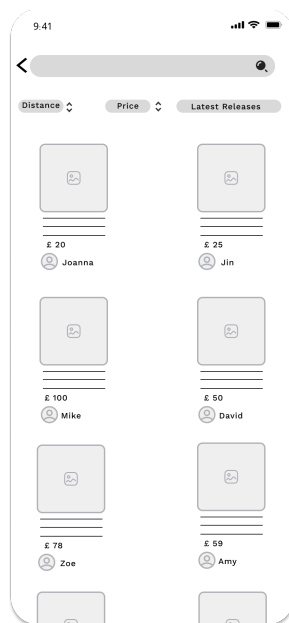
10.



Clicking on the search box on the homepage brings up this interface, which allows

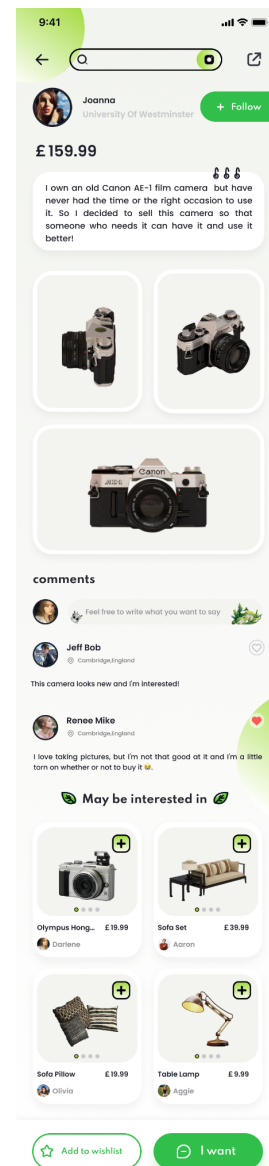
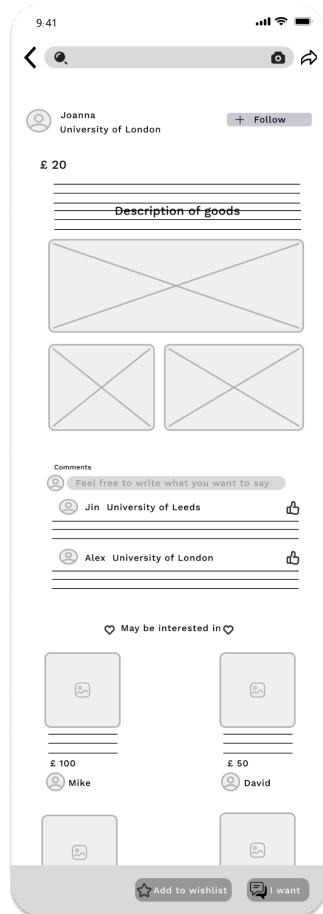
users to search for second-hand items of their interest on their own. On this page, users can also view their history search, and the app will also recommend items that they may be interested in and items that have been trending recently, based on their browsing history.

11.



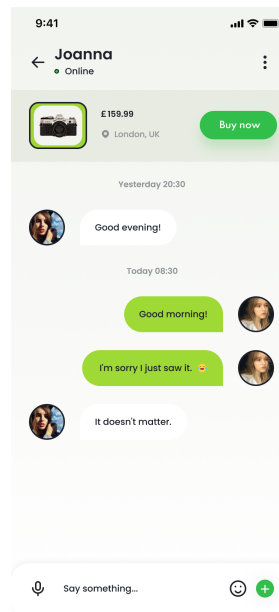
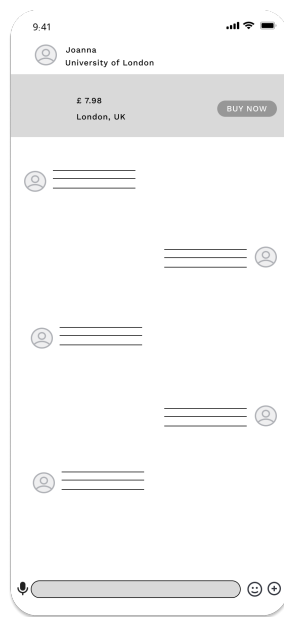
When the user enters the desired product in the search box and clicks search, the product list page will appear. Take searching for used cameras as an example, the system can also sort the products according to price, distance and posting time to help users better buy the second-hand items they want according to their personal needs.

12.



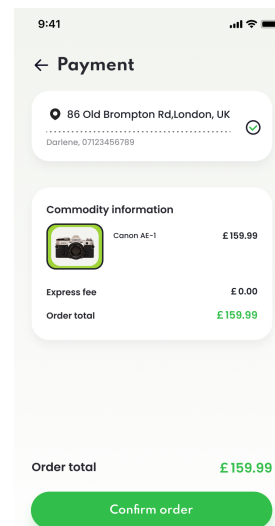
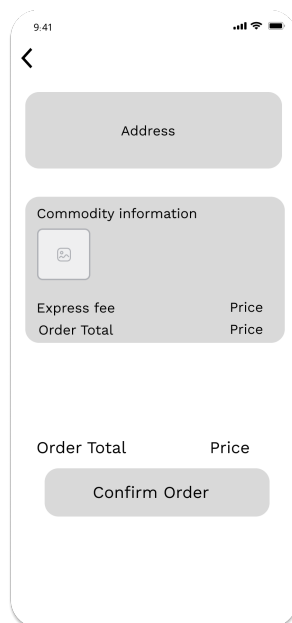
This is the product detail page. On this page, buyers can easily access the seller's personal information, product pricing, detailed descriptions, photos or videos of the product, as well as reviews from other users. Buyers can also leave their own comments on the product. Additionally, the app will recommend similar products to buyers, providing them with more options and enhancing user experience. Furthermore, the "share" button in the top right corner allows buyers to conveniently share the product with friends and family. At the bottom of the page, options to add the product to the wishlist and make a purchase are provided.

13.



When clicking on the "I want" button from the previous interface, buyers are directed to this page. Here, buyers can communicate with sellers to obtain more accurate, detailed information about the product.

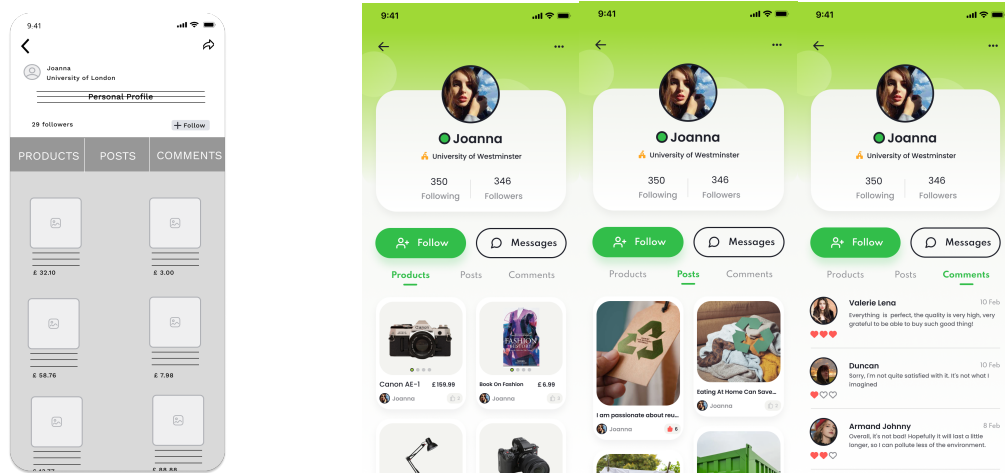
14.



When the seller decides to make a purchase and clicks on the "buy now" button from the previous interface, they are directed to the payment page. On this page, sellers can modify their address, view shipping costs, product prices, and the total amount. Once

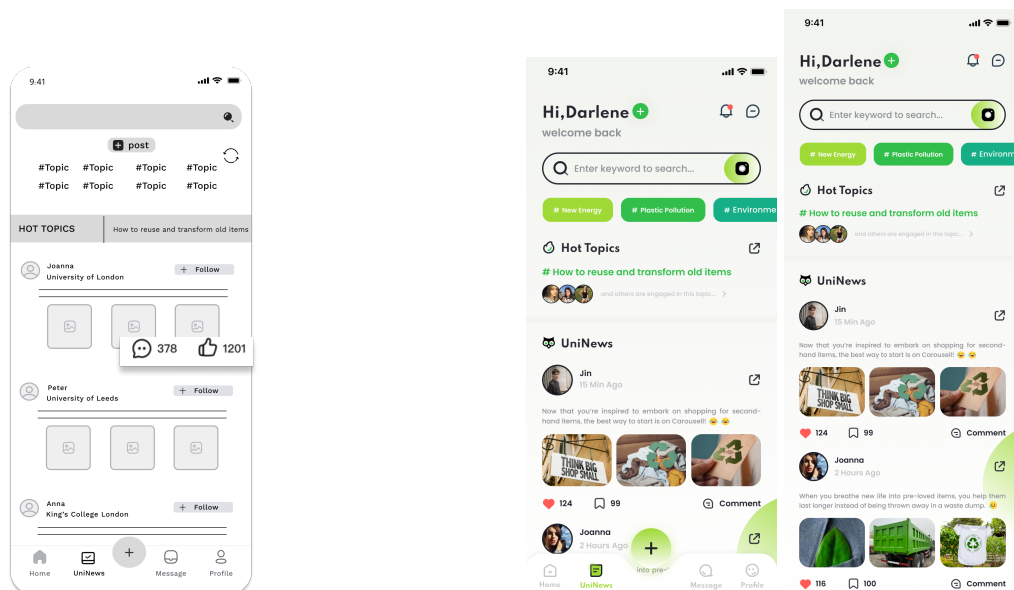
everything is confirmed, they can proceed with the payment.

15.



If a buyer wishes to gain a more detailed understanding of the seller's personal information, they can do so by clicking on the seller's profile picture to access the seller's profile page. On this page, buyers can view the seller's personal information, listed products, posts, and reviews from other buyers. This allows buyers to discern and make better decisions regarding their purchases.

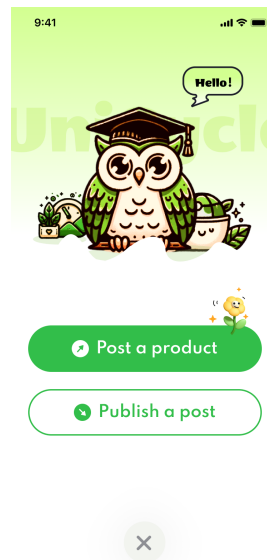
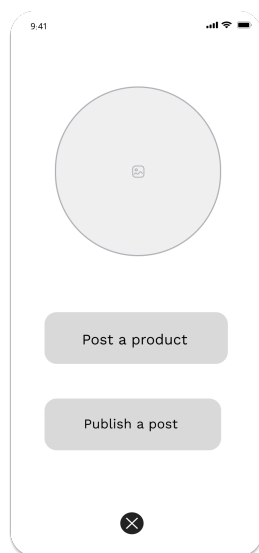
16.



This is the "UniNews" interface. Users can post articles related to environmental

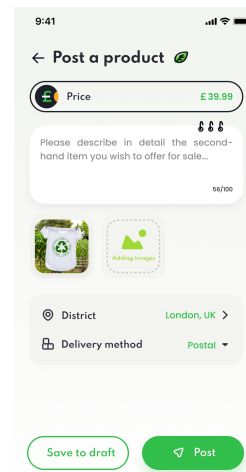
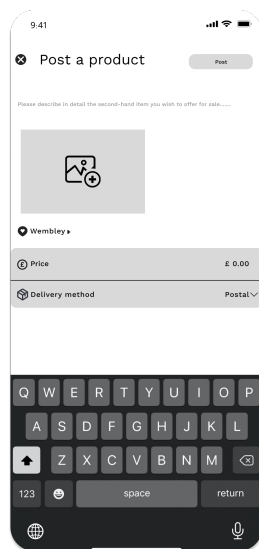
protection, overconsumption, and other relevant topics. They can also share interesting stories and ideas on how to reuse and repurpose second-hand items. Users can quickly browse daily trending topics, search for posts by using keywords, comments, like their favourite posts, and follow users whose content interests them. This interface aligns with the purpose of our app, striving to reduce overconsumption and promote sustainability.

17.



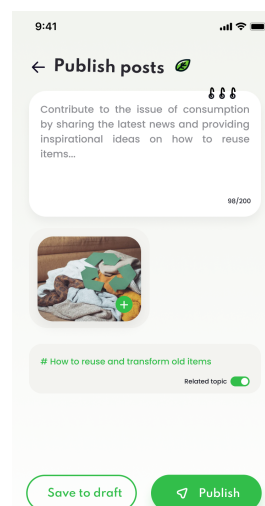
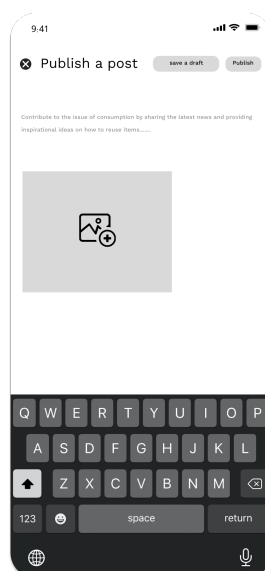
Clicking the “+” button on the tab bar will take users to this page, where they can quickly public a post or post a product they want to sell.

18.



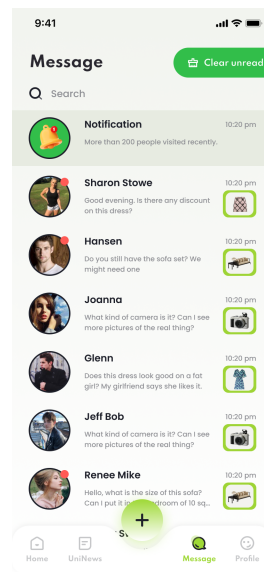
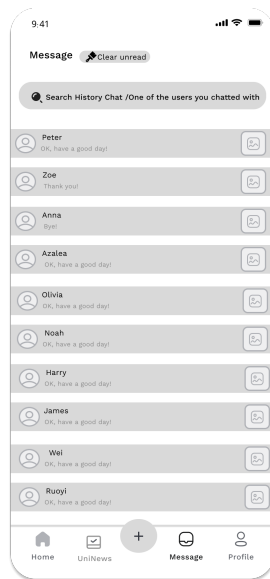
On this interface, users can list their second-hand items for sale. They can upload images and videos of the items, provide detailed descriptions to attract potential buyers, set prices, specify the location, and select preferred shipping methods. Additionally, if the listing is not yet complete, users can save it as a draft for future publication.

19.



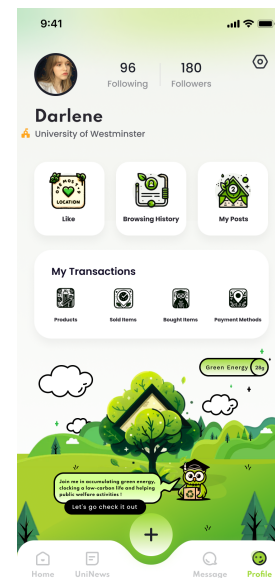
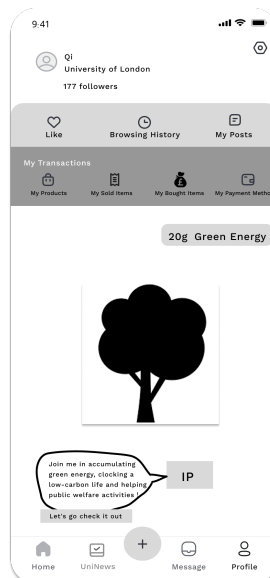
On this interface, users can create posts and attach popular topic tags to attract more viewers. If the post is not yet ready, users can also save it as a draft to publish later.

20.



Clicking the "Message" button on the tab bar will take users to this interface. Here, users can view their inbox, including messages received from other users and system notifications.

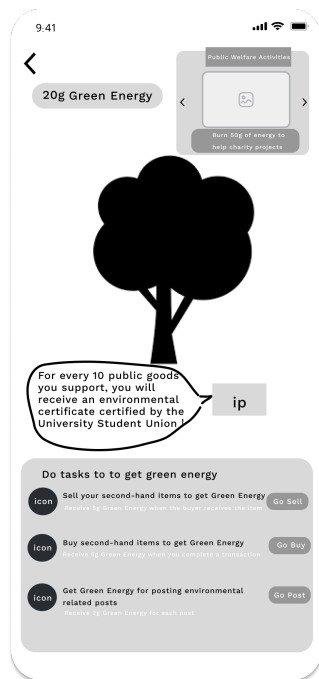
21.



Clicking the "Profile" button on the tab bar will take you to this interface. This is the user's personal information page, where users can quickly view their liked posts, browsing history, and posted posts. Additionally, they can quickly view their listed second-hand items, sold second-hand items, purchased second-hand items, and

manage their payment methods. Most importantly, at the bottom of this interface, a gamified feature for collecting "Green Energy" is set up. Clicking "Let's go check it out" will take them to the detailed page about "Green Energy".

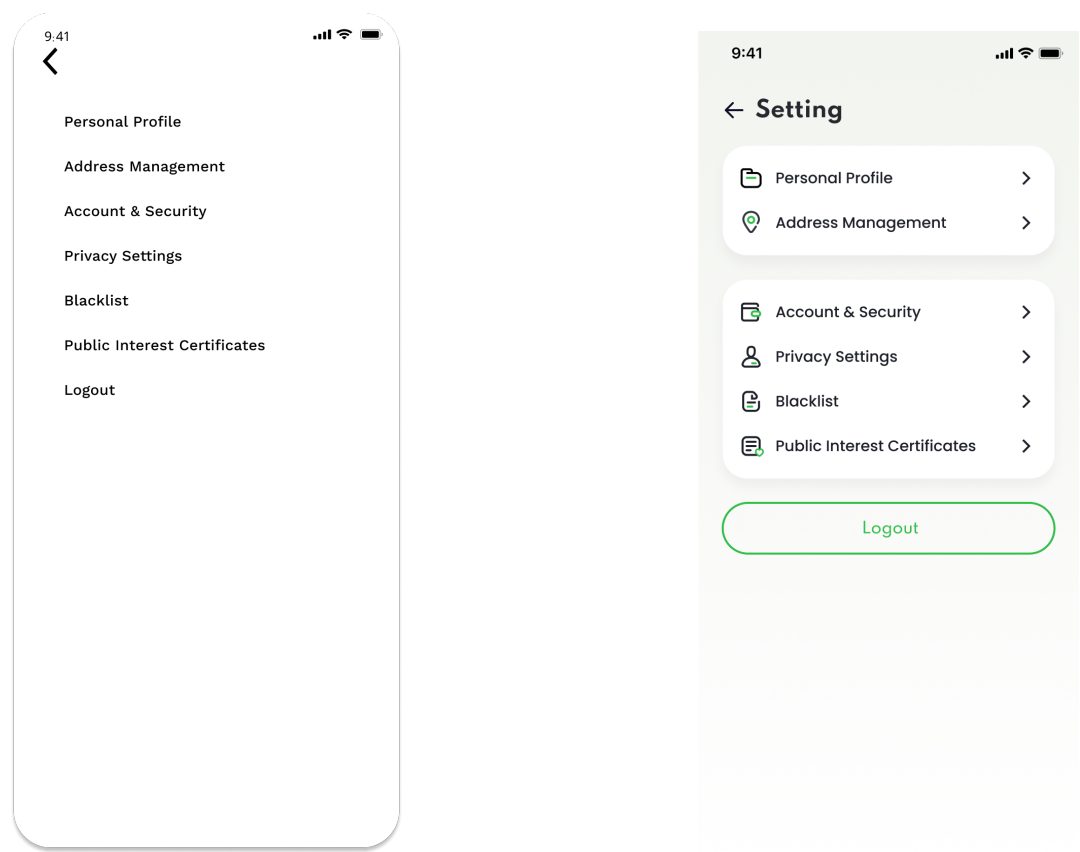
22.



This is the detailed page about "Green Energy". On this page, users earn green energy by completing tasks within the app. Whenever they successfully sell a second-hand item, purchase a second-hand item, or publish a post, they receive corresponding green energy points. This incentivizes users to use the app more frequently, increasing engagement. When users collect a certain amount of green energy, they can donate it to support environmental causes. Additionally, after completing a certain number of charitable actions, users can receive a certificate issued by the university student council. This page encourages users to support environmental initiatives in a fun and engaging manner, contributing to the goals of reducing overconsumption and

promoting sustainability.

23.



This is the settings interface.

Derivatives Design

Designing derivatives can extend brand recognition and user engagement.



Sticker | Designed by Chaoqi Zheng

The sticker is designed in green, which is the primary colour of our app, emphasising brand consistency. Featuring our app's logo at the centre of the sticker enhances brand recognition and reinforces our app's identity.



Canvas bag | Designed by Chaoqi Zheng

Two colours, black and white, are chosen for the canvas bags to offer variety and cater to different user preferences. The bags feature cartoon illustrations, adding a fun and engaging element while also expanding brand recognition. This kind of design is not only interesting but also serves to enhance our app's visibility and appeal.

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