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CSU44051 Human Factors Group 6

Human Factors Prototyping Assignment

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1. Introduction - Zehao Yu

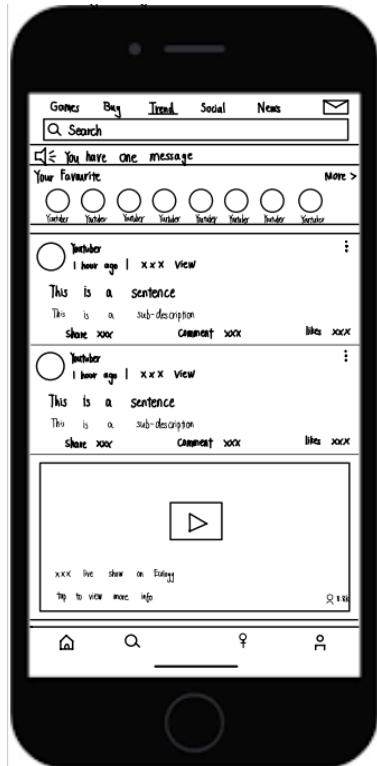
The main purpose of this report is to provide a coherent narrative regarding the design development of the application designed in the previous assignment. Our group designs digital social platforms aimed at promoting sustainable and eco-conscious living. The digital social platform contains four different scenarios, each containing a unique user experience. We adhered to human factors principles during the design process and aimed to create an application that is not only user-friendly but also actively contributes to environmental awareness. Through the app we hope to influence positive behavioural change among the user base by combining features such as gaming, second-hand retail, social and news with the concept of sustainability. This report will focus on describing the various stages of the design of the application, from low-fidelity models and high-fidelity models to heuristic analysis evaluation and social significance analysis. We built low-fidelity models and high-fidelity models for each scenario and used interaction flow diagrams in the report to detail how each task obtained information from previous tasks. At the same time, we also conducted a comprehensive analysis of the advantages and disadvantages of proposed design and detailed the design implications from the scenarios and HTA designed in the previous assignment.

2. Design implications from scenarios and HTA

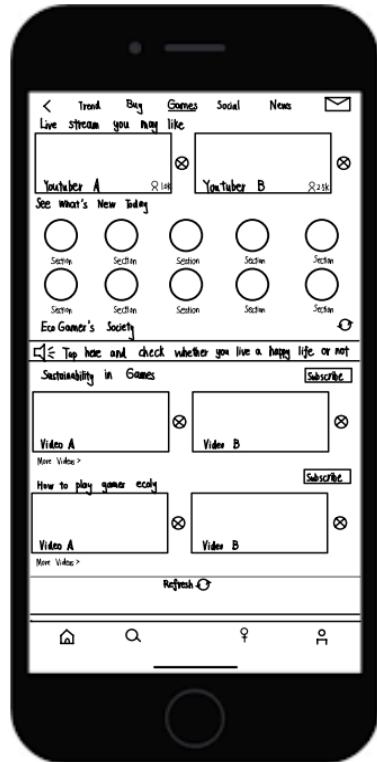
1. Easy Discovery and Download: The app should be easily discoverable in app stores, with a clear name and description emphasising its unique integration of gaming, social, news, second hand retail and sustainability.
2. User-Friendly Setup and Customization: Streamline the process of setting up a user profile, selecting personal preferences and sustainability interests/notification.
3. Community Integration and Accessibility: Ensure the app has a robust, easily navigable community section (using a HUD).
4. Engaging Sustainability Education Features: Include features like the "Sustainability Tips" notice and real-time energy consumption supervision.
5. Reward System to Encourage Sustainable Actions: Develop a reward system that motivates users to engage in eco-friendly activities when gaming including encouragement or user credits.
6. Efficient Navigation and Task Sequencing: Design the app's interface to facilitate the efficient completion of tasks in the order the user would prefer.
7. Sustainability Impact Tracking and Reporting: Incorporate features that enable users to track and report the environmental impact of their gaming and community activities, catering to the desire for assessing the environmental impact.
8. Enable collaboration on Sustainability Initiatives: Enable features that facilitate the organisation and participation in local sustainability initiatives, connecting users with the same goals together for environmental causes.
9. Ensuring the localised features to align with community sustainability: Implement geolocation features to emphasise local community involvement, promoting a community-driven and sustainable approach to users.
10. Dynamic Content Suggestions Based on User Behaviour: Implement machine learning algorithms to analyse user behaviour and preferences. Use this data to dynamically suggest content, challenges, or community groups that align with individual interests. This personalised approach enhances user engagement by delivering relevant and intriguing sustainability content tailored to each user's journey within the app.
11. Enhanced Social Connectivity Through Eco-Friendly Challenges: Introduce eco-friendly challenges within the community section, encouraging users to collaborate on sustainability initiatives. These challenges can involve collectively reducing carbon footprints, promoting zero-waste practices, or sharing tips on sustainable living. Enhance social connectivity by allowing users to form teams, track collective achievements and share success stories.

3. Low-fidelity prototypes

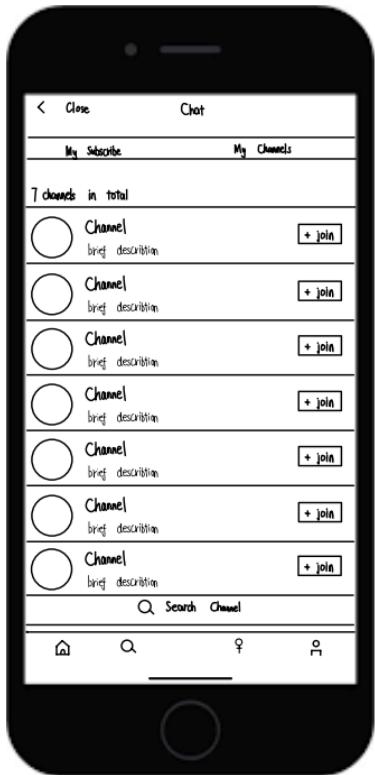
3.1 Eight paper prototype screens (4 pages)



1. Home Page – Minjuan Luo: The first sketch appears to show the trending among users, with navigation tabs for various sections of the app. A prominent search bar is at the top, and there's a message notification feature. Below, there are circular icons for favourite channels or users, followed by a feed of posts with options to share, comment, and likes. At the bottom, there is a media player for featured content.

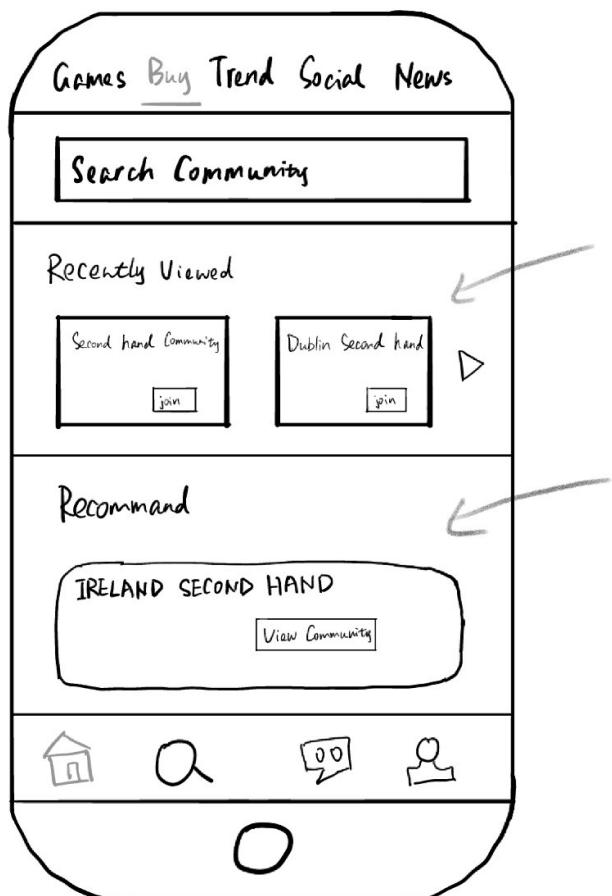


2. Game Page – Minjuan Luo: The second sketch appears to show the Game page where users can view live streams and subscribe to different sections or influencers. This page has a more interactive component with subscription options and a special feature that invites users to reflect on their lifestyle.

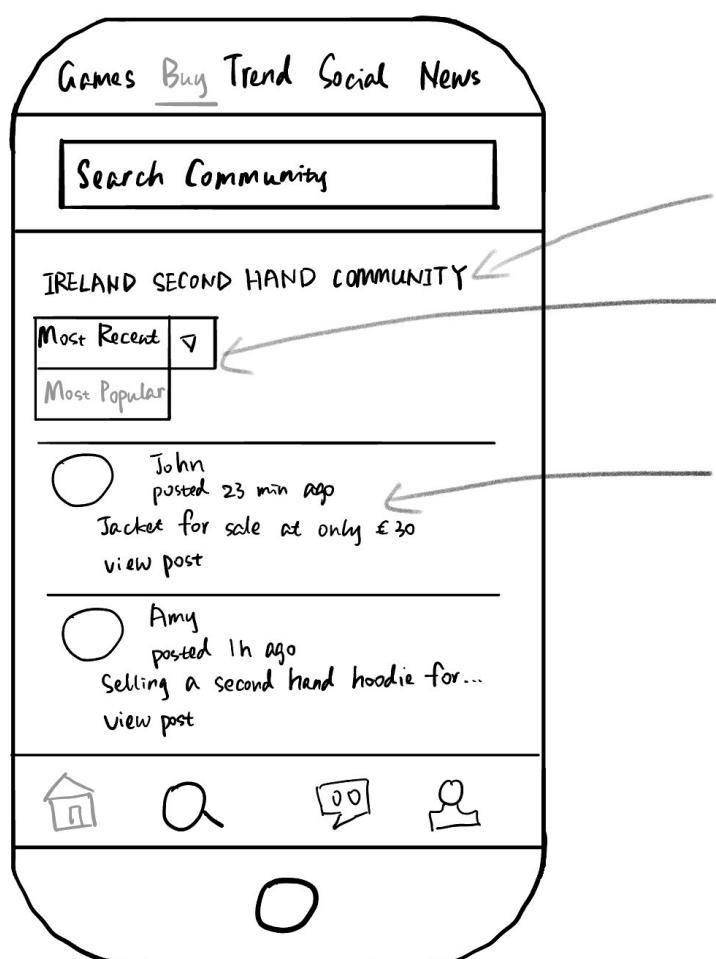


3. Chat/Community Screen – Minjuan Luo: The third sketch shows a chat or community interface where users can search for and join different channels. This allows for interaction within the gaming community, which is crucial for fostering the social aspect of the app.

Buy Page (Liwen Liu)



Shows the content recently viewed by the user, swipe right to view more



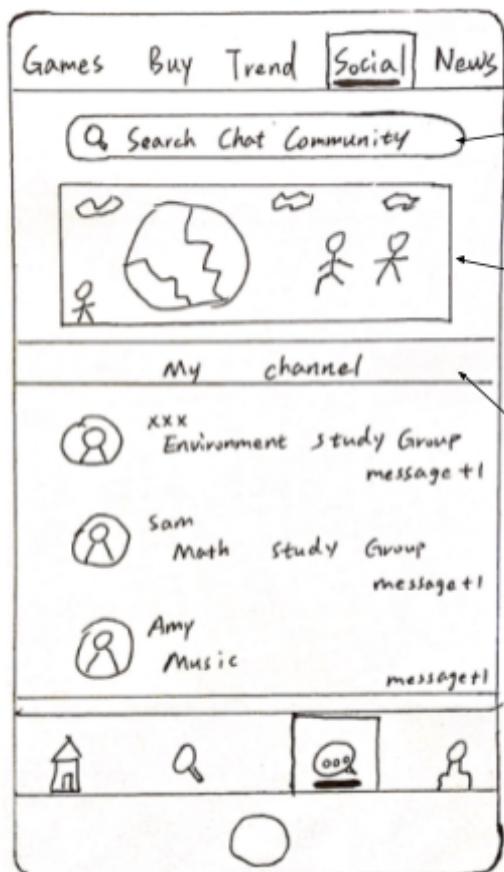
Current community

Can choose to view by most recent or most popular

Scroll down to view all posts in the community

This page displays the second hand community opened by the user. Users can view posts within the community by most recent or based on popularity.

Social Page (Yingzheng Pan)

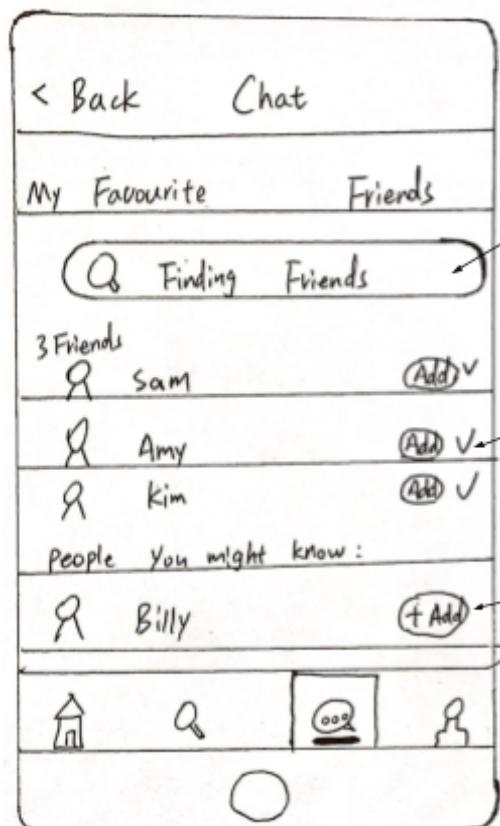


Users can search chat communities based on their preferences.

Show the chat community with personalised recommendations

Users can scroll down to see all messages in their channels.

This page displays the personal recommendation chat community and total channels of the user in the app. Users can choose their preferred chat community and view all messages in the My channel part.



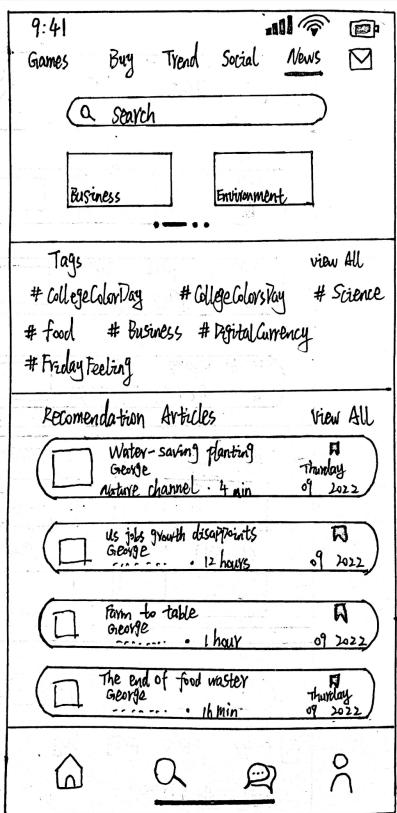
Users can search for people they want to chat with.

Users can connect and chat with their friends.

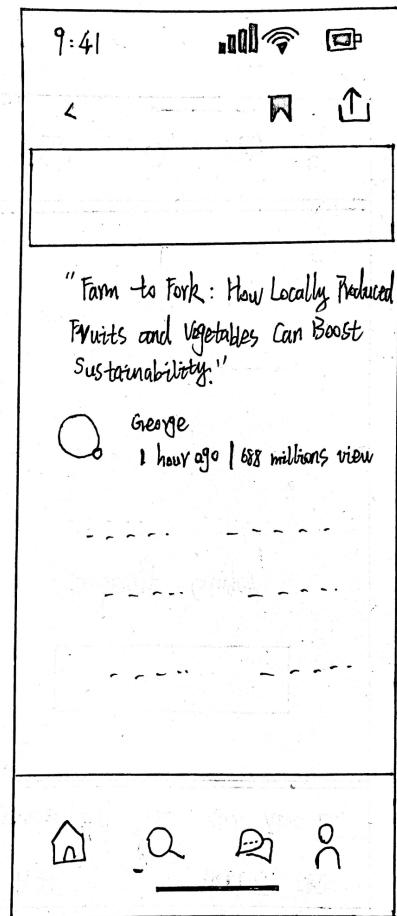
Recommend people you might be interested in or who are in the same chat group as you.

This page displays a chat system that allows users to chat with their friends, as well as the chance to chat with people who share your interests.

News Page (Zehao Yu)

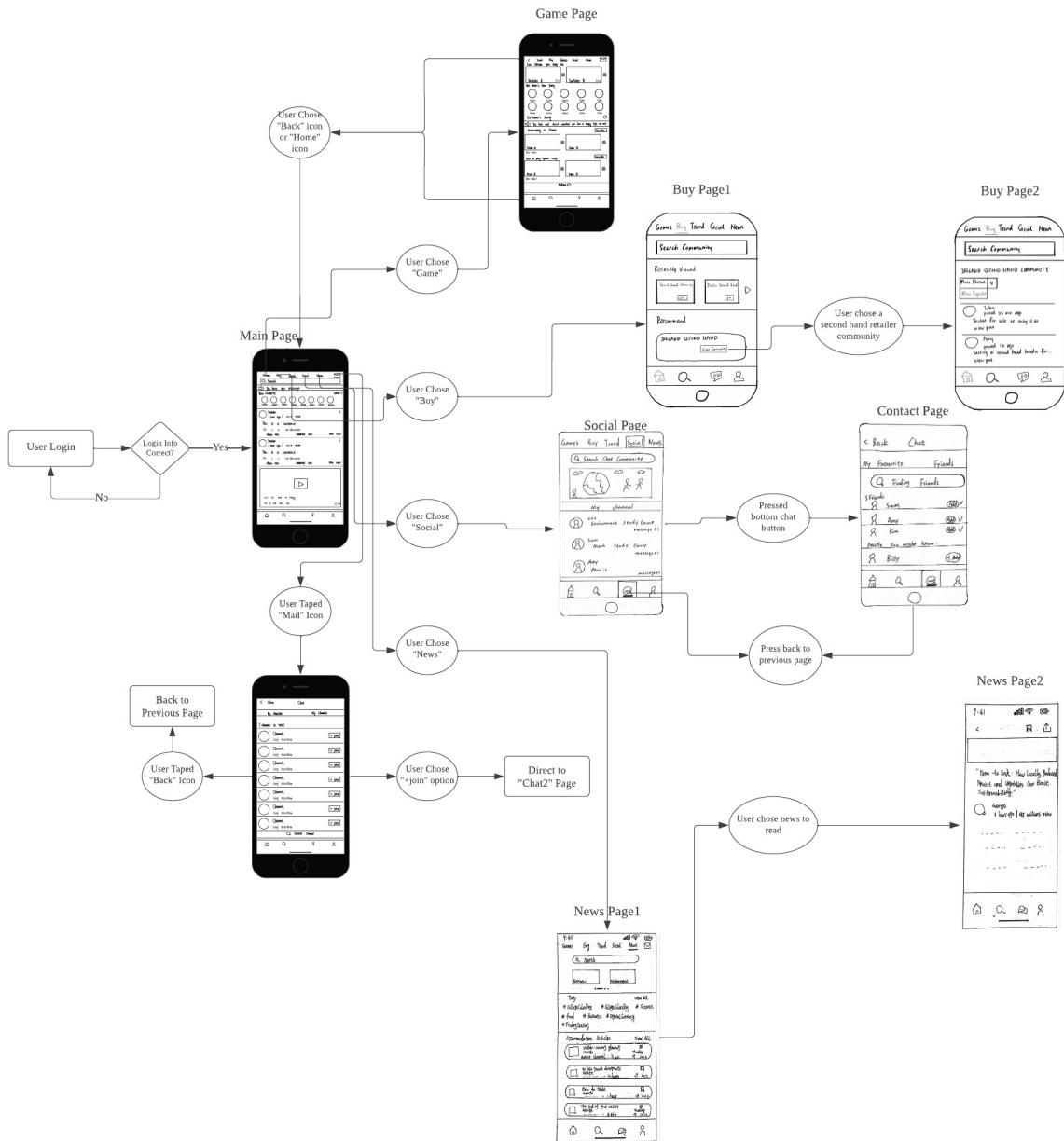


The first sketch shows the overall structure of the News page. There are navigation tabs and a search bar at the top. There are tags in the middle for filtering news or articles. Below are the popular news pushed by the system with options such as favourites and likes.



The second sketch shows a page for viewing news or articles. In the upper left corner of the top of the page there is an icon to return to the previous page, and in the upper right corner there are icons to collect and share. Below is the title and text of the article as well as author information.

3.2 Interaction flow diagram (2 pages)



3.3. Overall Design explanation - Yingzheng Pan

Our app features a user-friendly interface with easy navigation. The sustainability sections like second-hand retailers, news, gamification elements and sustainable socialism are clearly defined and easily accessible from the main screen. To enhance user experience, the app offers personalised content recommendations based on

individual interests and activities. Users have the option to choose the relevant recommended content based on their preferences. This could include favourite retailers, personalised sustainability news feeds and suggested chat communities. For the gamification, which encourages sustainable practices by incorporating gamification elements. Users can see lots of eco-games stuff in the game part and they can learn a lot about games in eco and sustainability. Users can also join the gamification community about eco and sustainability easily and efficiently. For the news part, which presents sustainability news in a format that is easy to consume. Use concise language, infographics, and multimedia elements to convey information about water saving, energy saving, and food waste in an engaging manner. Our app will tailor the news feed based on user interests and behaviours. If a user frequently engages with content about water conservation, the app prioritises delivering more content related to this topic, which makes the design of news sections to ensure they are engaging and encourage users to stay informed about environmental issues.

For the socialism part, which implements smart recommendation algorithms to suggest relevant chat communities based on user preferences, location, and past interactions. For example, if a user is interested in reducing plastic waste, the app can recommend chat communities focused on plastic-free living. Users can see all messages in their channels and can chat with their friends or add people they want to chat with by using the chat function in the socialism part, which provides users an efficient way to know more about eco and sustainability and chat with the people who have the same hobby effectively in our app.

For the second-hand retailers part, which allows users to easily search for second-hand products based on categories or sustainability certifications. The app implements filters to help users find items that align with their eco-friendly preferences. Our app provides detailed information about each product's sustainability aspects, such as its environmental impact, origin and any certifications it has. The app uses machine learning algorithms, taking into account such as user preferences, behaviours and feedback to provide personalised recommendations. The second-hand retailers section suggests items based on user preferences, promoting a circular economy.

Our social app can provide a seamless and enjoyable experience for users while promoting sustainability and eco-conscious living. The overall design of the social app is centred around providing a user-friendly, engaging and sustainable experience. By incorporating human factors principles, the app aims to inspire positive behaviour change and create a supportive community focused on environmental consciousness.

4. Analysis of the low-fidelity prototypes (4 pages)

4.1 strengths and weaknesses of the proposed design - Minjuan Luo

Strengths:

1. Integrated Social Features: The design integrates social elements like messaging, community engagement, and content sharing, which encourages user interaction.

2. Focus on Sustainability: The inclusion of sustainability-focused sections like "Eco Gamer's Society" aligns with the app's eco-conscious objective.
3. User Engagement: The UI sketches show features for user engagement such as notifications, live stream suggestions, and interactive media content.
4. Clear Navigation: The tabbed navigation and search functionality are well-placed for easy access and user-friendliness.
5. Search Functionality: The inclusion of a search bar within the page allows users to quickly find communities or discussions, which is user-friendly
6. Engagement: The “Recently Viewed” and “Recommend” sections suggest a tailored experience, potentially increasing user engagement by showing items of relevance
7. Social Proof: Displaying the number of views on a post provides social proof, which can be influential in user decision-making

Weaknesses:

1. Cluttered Layout: The design may appear cluttered with many elements competing for attention along with a lack of visual hierarchy, which could make it difficult for users to identify the most important sections, which can overwhelm users.
2. Ambiguous Icons: Some icons may not be intuitive or clearly labelled, which could lead to confusion regarding their function.
3. Content Discovery: While there are sections for trends and communities, it's not evident how users discover new games or sustainability features, which are key aspects of the app's purpose.
4. Oversimplification: While the design is clear, it may be too simplistic and could benefit from additional contextual information or visual cues to guide the user.
5. Too Little Information Display: The amount of information displayed about each channel or community is minimal, which may not be enough to engage users or inform them about the community's purpose
6. Visual Hierarchy: There is a lack of visual hierarchy, important elements do not stand out enough compared to less important information
7. Functionality Description: There is no indication of what happens when a user “View Community” or “View Post”. Providing clarity on these actions is important for a good user interface.
8. Information Density: There's a lot of unused space, and the information density could be increased to provide more value in the same amount of screen space

4.2 Heuristic evaluation (2 pages)

Heuristics	List of Violation	Recommendation	Severity (1 to 5)
1. Visibility of System Status (Heuristic 1):	1. There's no status indicators for ongoing processes, like downloads or uploads.	Include process visualisation to help users understand the current percentage of the procedure.	2

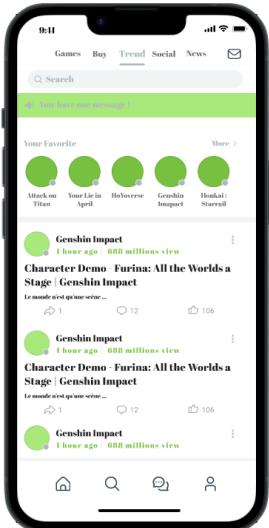
2. Match between System and the Real World (Heuristic 2):	Lack of familiar visual cues for users to understand an object's status and functionality.	Changing the appearance of a button when clicked lets users confirm that their action has been registered.	4
3. User Control and Freedom (Heuristic 3):	1. It's not evident if there are options to undo actions, which is a common need for users.	Include undo options in certain pages that need to enter credentials or personal info.	4
4. Consistency and Standards (Heuristic 4):	1. The function of some icons (like the circles on the screen) is not immediately clear, which could lead to inconsistency in the user's understanding.	Include text description for every ambiguous icon in order to describe functionality.	1
5. Error Prevention (Heuristic 5):	1. There are no clear indications of error prevention mechanisms, such as confirmation dialogs before performing irreversible actions. 2. The design doesn't show how errors will be communicated to the user.	Include error detection and display feedback by using texts in red colour under certain buttons/boxes that are in need of user input.	5
6. Recognition Rather Than Recall (Heuristic 6):	1. The lack of labels on some icons could force users to recall their functions, which is not ideal.	Label the icon if necessary or use identical/obvious icons in every page to help users understand the usage.	1
7. Flexibility and Efficiency of Use (Heuristic 7):	The lack of accelerators like touch gestures for login and keyboard shortcuts for interfaces and sections switching.	Add more efficient login methods like fingerprint login and add shortcuts to easily navigate back to the previous section.	2

8. Aesthetic and Minimalist Design (Heuristic 8):	<p>1.The design contains elements that may not be necessary, potentially violating the minimalist design principle.</p> <p>2.Some screens appear cluttered, which could distract from the main content.</p>	Restructure the screen and simplify certain functionality in order to make the design language straight forward.	4
9. Help Users Recognize, Diagnose, and Recover from Errors (Heuristic 9):	<p>1.The design does not provide information on error messages or help systems for users to diagnose and recover from issues.</p> <p>2.Clear error messaging is essential and should be visible.</p>	Based on the existing error detection, provide further guidance for users to recover from system issues that are caused by error input. Which means a clear button for error input is essential.	2
10. Help and Documentation (Heuristic 10):	<p>1.There is no indication of help or documentation features in the design.</p> <p>2. Users may need assistance to understand the sustainability features or to learn how to use the app effectively.</p>	Include certain documentation for guidance and help users that met difficulty using the help have a better understanding of the design logic.	1

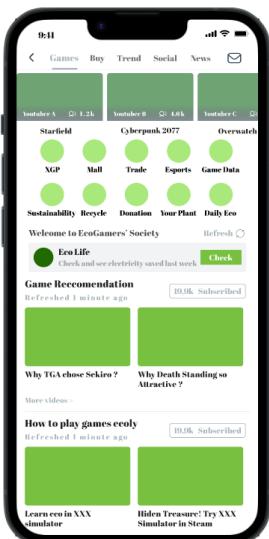
5. High-fidelity prototypes (8 pages)

5.1 Eight digital prototypes screens (4 pages)

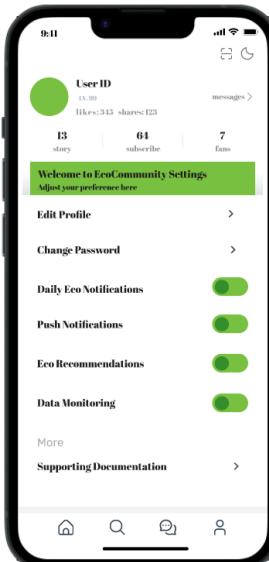
Minjuan Luo



1. Main Page: This screen shows a clear, modern interface with a top status bar and navigation tabs. The search bar, message notifications, and personalised content such as "Your Favorite" games are neatly presented. Content feeds display social media-style posts with view counts and engagement options.

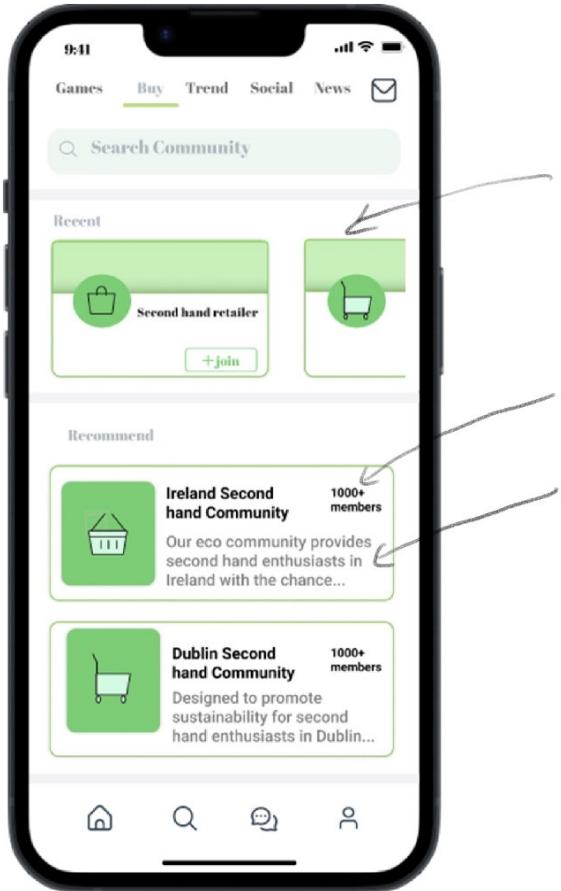


2. Game Page: The game-specific page highlights various gaming and sustainability sections such as "Recycle," "Your Plant," and "Daily Eco." It suggests a community aspect with "EcoGamers' Society" and offers game recommendations and educational content about playing games sustainably.



3. Settings Page: The settings page shows a high-fidelity design of a user settings page for the "EcoCommunity" mobile app. The interface includes a user ID section with social statistics, options to edit the profile and password, and toggles for various notifications, indicating customizable settings. The app emphasises ecological engagement with features like "Eco Recommendations" and "Data Monitoring".

Buy Page(Liwen Liu)

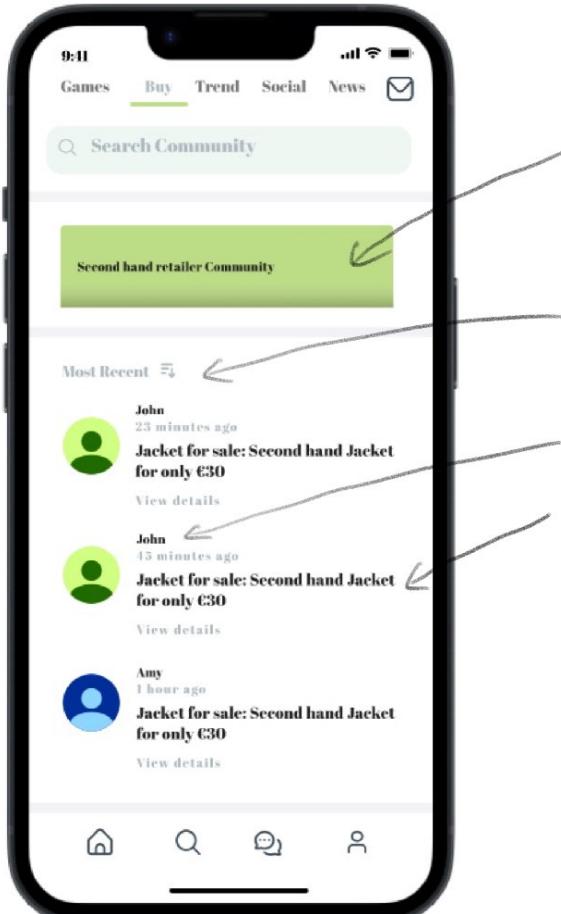


Previously viewed contents

Number of members in the community

Brief introduction of the community

This page displays second hand communities where users can sell or buy second hand stuff. Users can click on a community to view posts and activities.



Current community

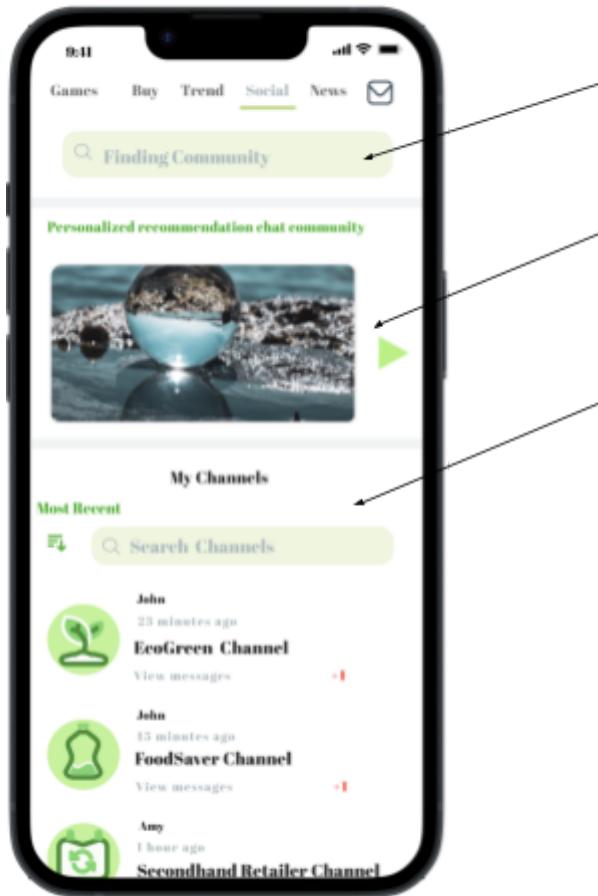
View by most recent posts

User who sent the post

Title of the post

This page displays the second hand community opened by the user. Users can scroll down to view all posts in the community.

Social Page (Yingzheng Pan)



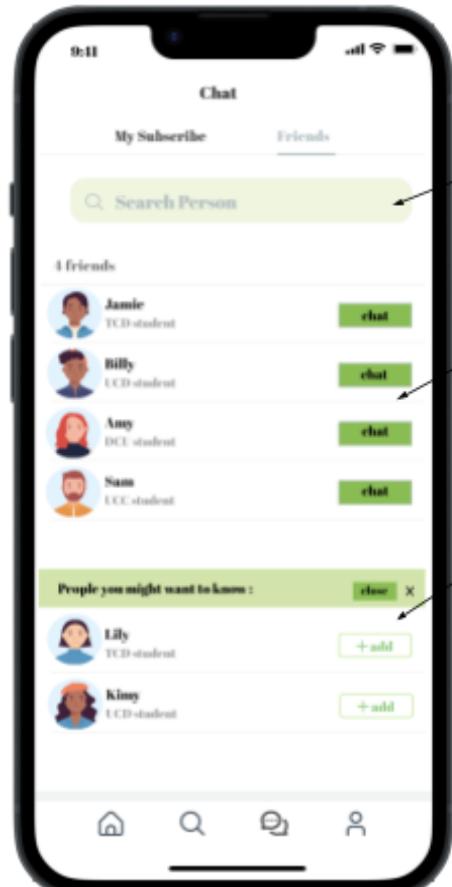
Users can search and find chat communities that interest them.

Recommend some user personalised recommended chat community.

Total channels of the users and users can view all messages in their channels.

This social page displays the personal recommendation chat community and total channels of the user. Users can search and choose their preferred chat community. Users can view all messages of their channels in the My channels section.

Contact Page (Yingzheng Pan)



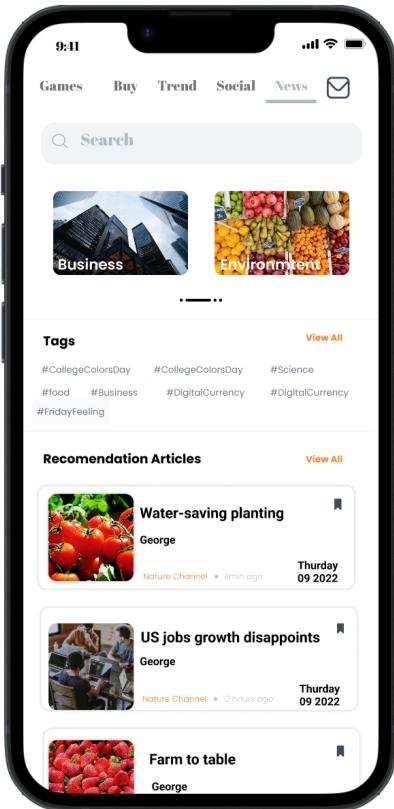
Users can search for and add people they are interested in and want to know.

Choose different friends to chat with

Recommend people who have the same interests as the user or are members of the same chat community.

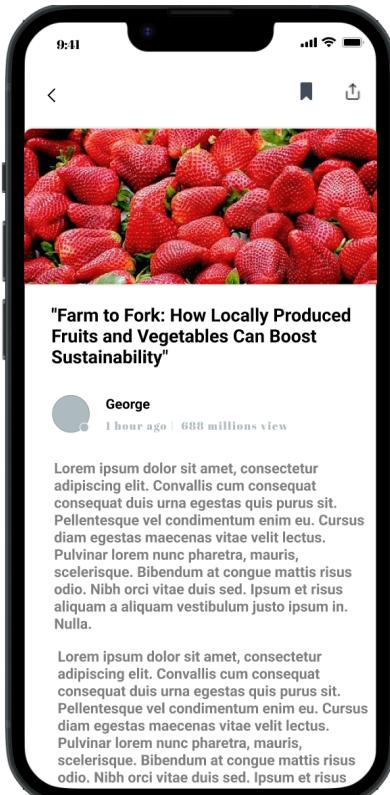
This contact page displays the chat system. Users can search for people they are interested in and click the chat button to chat with friends. Users can also use this contact page to add and chat with people they might know or interested in.

News page1 (Zehao Yu)



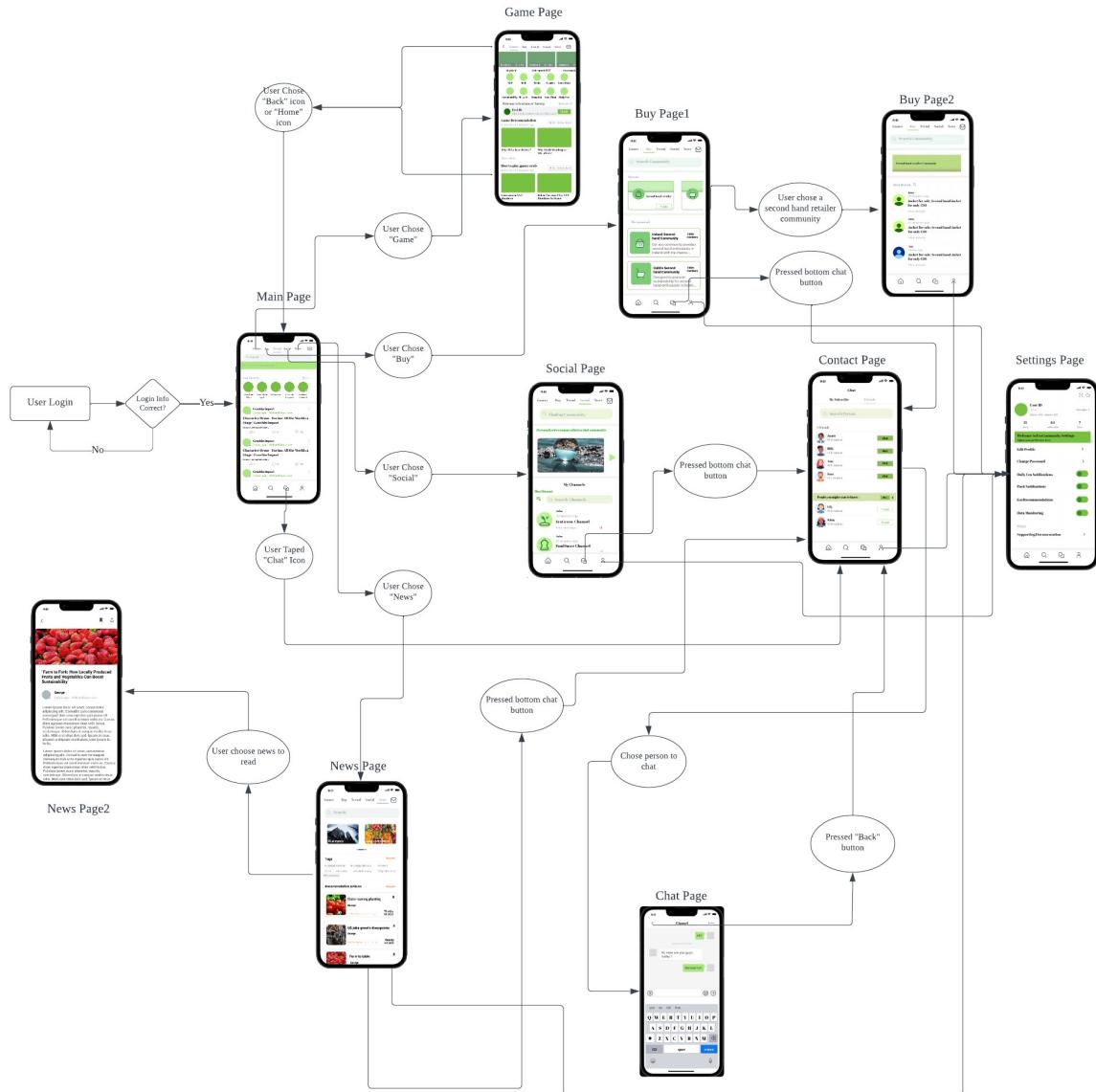
News page1: This page mainly displays news and articles in various professional fields. Personalised content such as a search bar and sections for different fields are presented at the top of the page. Below are pushed articles or news that may be of interest to users.

News page2 (Zehao Yu)



News page 2: This page mainly displays the news or articles opened by the user. There is a return icon at the top of the article to return to the previous level. Users can scroll up and down the page to browse articles.

5.2 Interaction flow diagram (2 pages)



5.3 Design explanation - Liwen Liu

Our app is a digital social platform designed to encourage and facilitate sustainability among users. It is designed to integrate eco-friendly habits into users' daily lives and among local communities.

The game feature is designed to allow game lovers to find like minded eco gamers and provide users with sustainability featured games which improves users' knowledge about sustainability. Users can access the game feature by selecting the game tab in the top bar. Users can easily find eco gamers societies from the game page and find different sections such as recycling and saving the planet on the

highlight of the app. The gamification feature of the app includes challenges and competitions, which fosters users' sense of accomplishment in local communities and about spreading the consciousness of sustainability.

The second hand retailer feature of the app is designed to provide users to access different local second hand communities to reuse second hand stuff. Users can search second hand communities under the buy tab. The app will display users' previously viewed contents and provide personalised recommendations on different communities. Users can click in the community to view posts and interact with other users. This feature promotes recycling and reselling among local communities which makes people's lifestyles more sustainable.

The app has a social tab which is designed for users to connect with other users among different interests and topics, and to discuss and share the concept of sustainability and environmental protection. The app displays a list of channels that the user joined and also provides users with personalised recommendations of communities.

The news page is designed to provide users with the latest articles and news in a sustainable perspective of view in professional fields. The app will display content in different sections and push personalised news and articles.

The app encourages interaction among users. On the bottom bar, users can select the chat section to chat with other users and the app will also recommend suggested contacts. Users can send private messages to other users through the chat page.

The app is based on user-centred design principles. It provides users with personalised content to improve user experience and maximise users' chance in seeing content they are interested in. In the main screen there is a section where users can easily navigate to their favourite content which can be games, news, posts or communities. Users are able to favourite or star content, like or comment on other people's posts or views.

The app offers a high degree of personalisation. Users can use different functionalities of the app by selecting different content from the top bar. For each feature, our app generates personalised recommendations based on users' view history or users' location. There is a search bar at the top of each screen of different features, allowing users to search information about specific content under any specific tab.

The design of the app considers accessibility and inclusivity, ensuring that different user groups of different interests and backgrounds can participate in the sustainable living experience. The top bar on the app displays different features of the app for simple navigation of different features.

6. Reflection on the design (2 pages)

6.1 Strengths and weakness of the proposed design - Minjuan Luo

Strengths:

1. Aesthetic Appeal: The high-fidelity designs are visually appealing with a modern, clean aesthetic that is likely to be attractive to users.
2. Clarity and Readability: The use of contrast and spacing makes text and icons clear and easy to read.

3. Consistency: The design maintains consistency across different pages, using a similar colour scheme and layout structure, which helps in creating a unified user experience.
4. User Engagement: The design incorporates interactive elements like engagement counters and subscribe buttons, which can encourage user participation.
5. Intuitive Navigation: The bottom navigation bar and clearly labelled tabs at the top make it easy for users to navigate the app.
6. Personalised Content: The inclusion of a personalised recommendation section can enhance user engagement by suggesting relevant communities
7. Engagement Indicators: Showing the number of views on articles provides social proof, potentially increasing their attractiveness
8. Notification Indicators: Notification badges for new messages can keep users informed and prompt them to engage

Weaknesses:

1. Information Density: Some screens may present too much information at once, which could potentially overwhelm the user.
2. Discoverability of Features: It may not be immediately apparent how to access certain features or sections, such as the "EcoGamers' Society" or sustainability tips.
3. Feedback for Interaction: The designs do not clearly indicate what kind of immediate feedback users receive after interacting with certain elements, like tapping a 'subscribe' button.
4. Error Messaging: There is no visible system for error messaging or helping users recover from mistakes, which is crucial for a good user experience.
5. Lack of Visual Hierarchy: All elements have similar visual weight, which can make it difficult to distinguish between sections
6. Engagement Depth: Listings are quite simple and might not engage users who are looking for more detailed information before joining a community
7. If not managed well, the amount of text and image content in News page could become overwhelming on a single page
8. Space Utilisation: There appears to be a lot of unused space that could be better utilised to provide more functionality

6.2 Societal Implication for the proposed design

1. Promoting Environmental Awareness:

By incorporating sustainability themes into the gaming experience, the app could raise awareness about environmental issues. This can educate players on ecological impacts and encourage them to take action in their daily lives.

The app also promotes users' environmental awareness by introducing second hand communities aiming to recycle and reuse second hand products to save the environment, encourage users to join environmental social channels, and raise users' awareness of environmental protection through professional articles and news.

2. Fostering Community Engagement:

The app's community features can bring together like-minded individuals who are passionate about gaming and sustainability. This can lead to the formation of a supportive network that collaborates on environmental initiatives, both virtual and real-world.

The app's buying communities foster connections within these second-hand retail circles, integrating a dedicated space for second-hand enthusiast users to share their experiences, tips, and discoveries related to sustainable living within the local community.

The socialism section of the app can facilitate the formation of communities focused on sustainability. This can lead to increased collaboration, shared knowledge, and collective efforts toward addressing environmental challenges at both local and global levels. The socialism section can empower users to become advocates for sustainability by providing them with a platform to share ideas, engage in discussions, and initiate positive change in their communities. This can create a ripple effect, inspiring others to join the movement.

3. Encouraging Positive Behavior Change: By rewarding users for eco-friendly behaviours, the app could incentivize positive changes in user behaviour that extend beyond gaming, such as reducing energy consumption or participating in recycling programs.

4. Educational Opportunities: The app could serve as a platform for environmental education, offering tips, articles, and videos on sustainability. This can help users understand the broader impact of their actions and the importance of conservation efforts.

5. Data Collection for Good: If the app collects data on user behaviour, it could provide valuable insights into how gaming can intersect with environmental habits. This data could be used to further research and improve sustainability measures within the tech industry.

6. Encourage sustainable behaviour: The app encourages people to adopt more behaviours and lifestyles that promote sustainable development. Through various second hand communities, users can easily find second hand retailers in their local communities to purchase or resale second hand products. Users can participate in environmentally friendly activities by taking part in second-hand commerce.

7. Encourage Socialism Inclusivity and Diversity: The recommendation algorithms for socialism chat communities can foster inclusivity and diversity within the sustainability movement. Users with different backgrounds, experiences, and perspectives can come together, leading to a more holistic approach to addressing environmental issues. Engaging in community discussions and taking positive actions for the environment can contribute to a sense of purpose and well-being. The app's design can promote not only environmental sustainability but also mental health by fostering a sense of chat community and shared purpose.

7. Conclusion - Zehao Yu

Overall, this social media app successfully combines user-friendly design, social interconnection, and environmental awareness. This report demonstrates the application's architectural and design decisions by building a low-fidelity model and a high-fidelity model of this social media application. The importance of intuitively clear design and engaging content is illustrated in the analysis of the model. Two interactive flowcharts in this report detail how each task obtains information from previous tasks. In addition, the social impact section of the app in this report demonstrates its huge potential in promoting community engagement, raising awareness of environmental protection and encouraging sustainable lifestyles. At every stage of the project, from the initial low-fidelity sketch model to the final high-fidelity mock-up version of the finished product, we demonstrate a deep understanding of user needs and sustainability goals. Through the integration of games, second-hand transactions, social networking and news, the platform provides users with a convenient and practical environment for education and inspiration. In addition, we also improve our design by reflecting on the problems found in the design to improve the functionality of the product.