SWAP

Exchange for Change

Concept Document x Team 777

Sell   Buy   Dump

What is SWAP

SWAP is a suite of collection point, service, and app that delivers
a systematic and _exchange driven_ recycling concept for flat-sheet materials...

PROBLEM STATEMENT

As art students, we recognize the environmental impact of artistic practice. According to reports from various art schools and institutions in London, as well as data provided by relevant environmental protection organizations, art students in London generate a considerable amount of waste during their learning and creative processes.

This waste mainly includes material residues, waste paper, fabric scraps, plastic waste, and discarded tools and equipment. Since the creation of artwork typically requires a large amount of materials and tools, and many of these materials cannot be fully utilized or recycled, the amount of waste generated is relatively high.

To address this issue, we are considering environmentally friendly recycling methods to minimize waste and reduce resource consumption.

Songzhuoma Gu（AZ）

VISION AND MISSION

Our team's mission statement is to recycle art materials and give a second life cycle by selling to others in need. As art students, we are from different departments, but we share a common ideology that reducing waste is more related to climate-friendly topics. Thus, we have designed our SWAP App associated with vending machines. From the live mapping, users are allowed to trade or sell with their material demands or unwanted.

Albby Zhang

Scan it, SWAP it

By Scanning the offcut materials at the SWAP,
a catalog of exchanging items is recorded and created.

Seamlessly integrates with SWAP app community

Store it, SWAP it, Collect it

With the the 3-color code indicating the steps,
Storing and Collecting have never been so easy before

Kevin Yang, Atharva Shelke

.SW.A.P anyday, anytime

By incorporating P2P exchange, material hotmaps, and community driven platform, we commited our SWAP with accessibility, engagement, and easy transfer.

More than .SWAP

SWAP collection point came with a dumping box
it weights and store materals in any shape of imagination

Kevin Yang, Atharva Shelke

.SWAP with Society

Users earn points through the app for each recycled item,
creating accomplishment and encouraging continued sustainable practices.

Kevin Yang, Atharva Shelke

Interactive Map

- **Project Objective**:
  Create a convenient material recycling and exchange environment for students at the Royal College of Art.

- **Location of Implementation:**
  Three different campuses of Royal College of Art

- **The placement of material vending machines is coordinated with the campus and divided into three zones. Implementation will be carried out in three different stages. It will start with testing in small areas and then gradually expand to cover the entire campus.**

Phase 1：Kensington Campus
- The Kensington Campus is located at the center of the three campuses, making it the most convenient geographical location for students from all campuses to reach. Therefore, we are using Kensington as the core for the first phase of testing.

Phase 2：Battersea Campus
- The Battersea Campus possesses the most comprehensive material workshop facilities and is also a primary area where the school generates material waste. We have designated Battersea's material workshop as the starting point for the second phase, providing Material Vending Machine services for the southern campus.

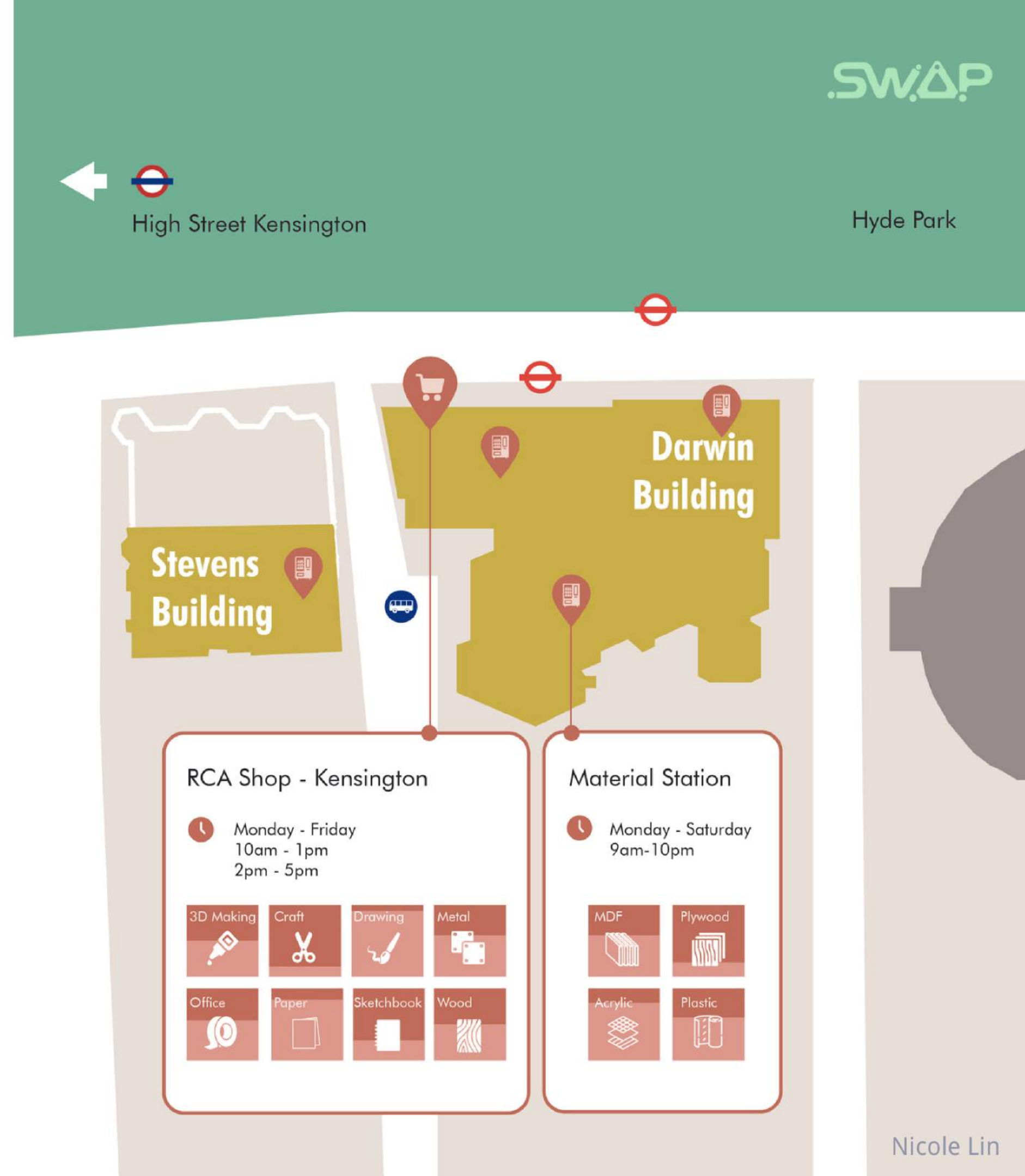### Phase 3: White City Campus
- White City Campus, which is still under development, serves as the final stage for placing Material Vending Machines in the project, enabling students from the northern area to easily recycle and exchange materials.
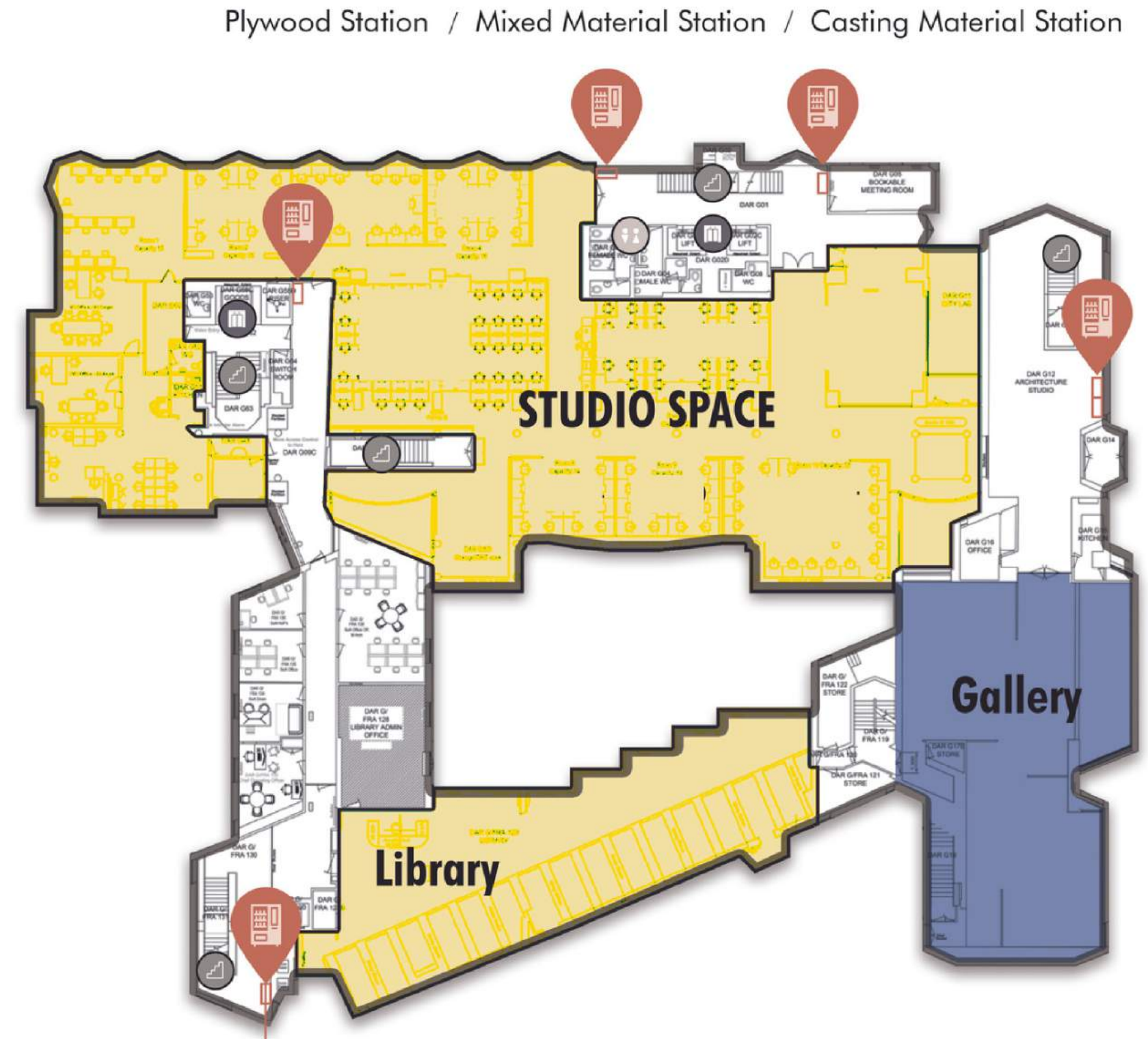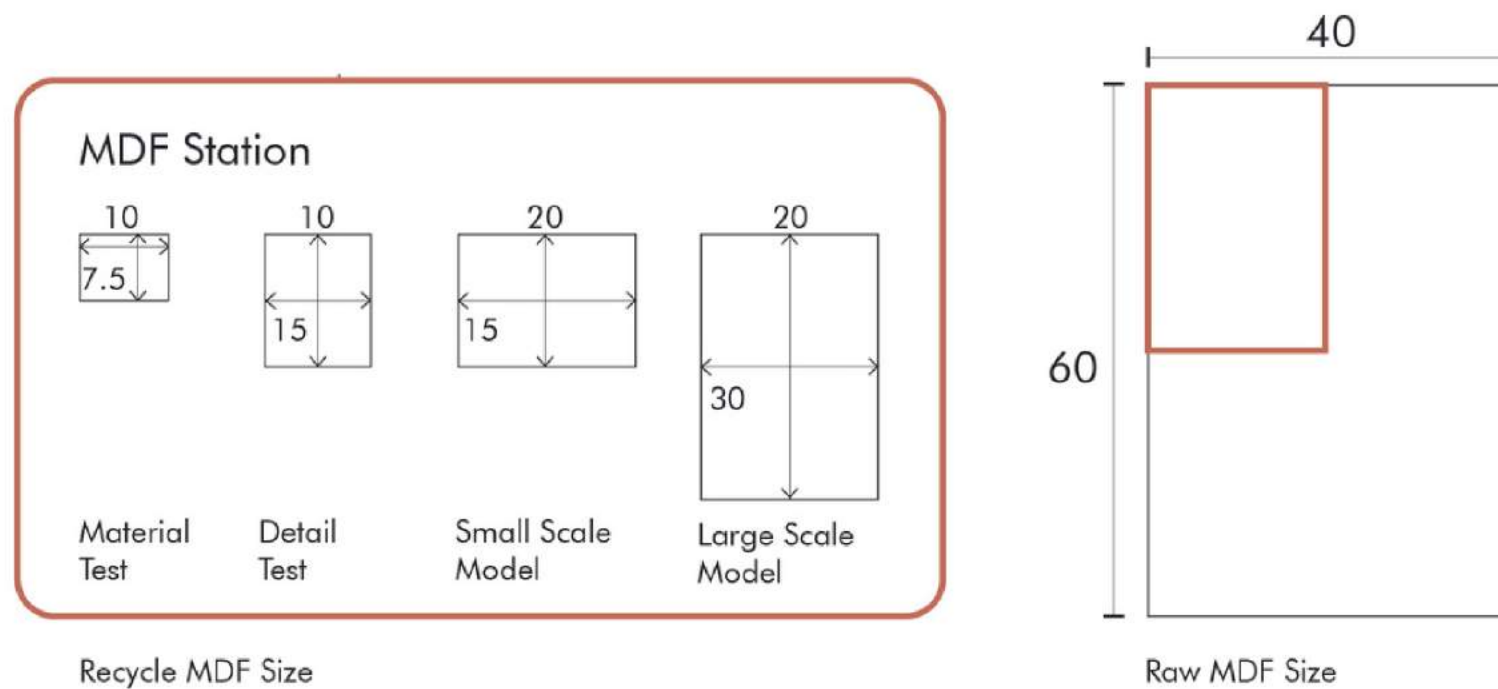
The Relationship between RCA Shop and Material Vending Machine

- RCA Shop is a store that offers a variety of art-related supplies and materials, providing students with the means to purchase various tools and resources. Simultaneously, the Material Vending Machine is an automated vending system specifically designed to facilitate convenient material recycling and exchange services.

- **Advantages of Material Vending Machine**
- Unlimited usage time, available whenever the campus is open.
- Minimal need for staff or human supervision.
- Sells smaller volumes of materials.
- Compact vending machine design, requiring minimal campus space.
- Easy mobility of vending machines, making location adjustments convenient.

- **Disadvantages of Material Vending Machine**
- Limited variety of materials for sale.
- There may be variations in the quality of recycled materials.

.SWAP

High Street Kensington

Hyde Park

Stevens Building

Darwin Building

RCA Shop - Kensington

Monday - Friday
10am - 1pm
2pm - 5pm

3D Making | Craft | Drawing | Metal
Office | Paper | Sketchbook | Wood

Material Station

Monday - Saturday
9am-10pm

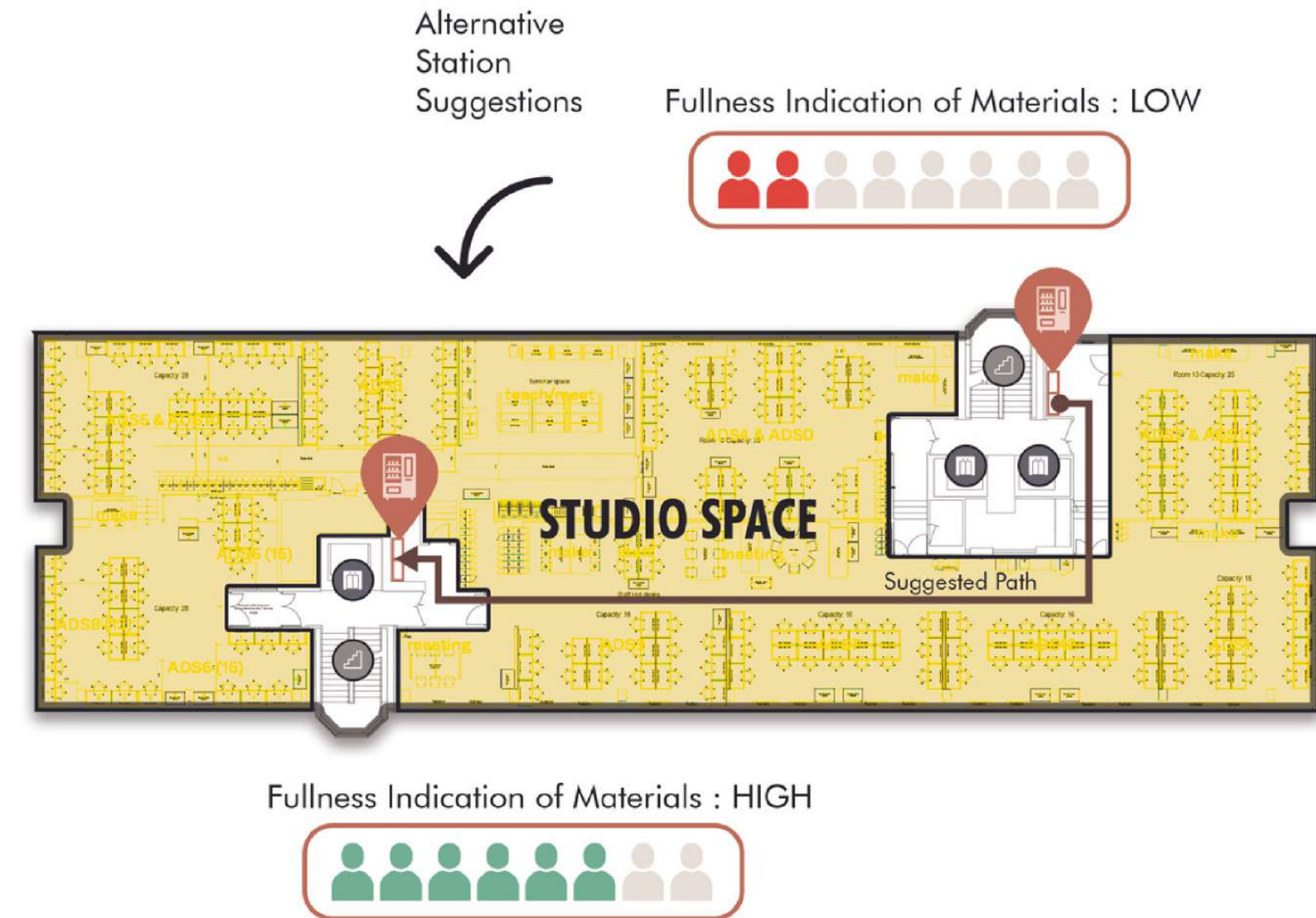MDF | Plywood
Acrylic | Plastic

Nicole Lin

Vending Machines in Darwin Building

- The Darwin Building is primarily composed of three spaces: Studio Space, Library, and Gallery. Connecting these main spaces are service-oriented public areas such as stairs, lifts, and restrooms. To ensure the accessibility of the Vending Machine and facilitate the transportation of materials, the locations of the Material Vending Machines are strategically positioned near vertical circulation lines (including stairs and lifts). This aims to maximize the probability of students utilizing the machines.

- Different areas on the same floor can also be designated with distinct material themes, facilitating material categorization.

Plywood Station / Mixed Material Station / Casting Material Station

STUDIO SPACE

Gallery

Library

MDF Station

| 10 | 10 | 20 | 20 |

7.5

15

15

30

Material Test

Detail Test

Small Scale Model

Large Scale Model

Recycle MDF Size

40

60

Raw MDF Size

Nicole Lin

Alternative Solutions Map

- We plan to install 2 or more Material Vending Machines on a single floor. The mobile app can instantly display the status of material availability in the vending machines and, in cases of material shortages, recommend users to the nearest alternative Material Vending Machine that best meets their material needs.

- All material usage data from Material Vending Machines, including size, popular material types, and usage frequency, will be sent back to the data center as the foundational data for optimization.

Alternative Station Suggestions

Fullness Indication of Materials : LOW

STUDIO SPACE

Suggested Path

Fullness Indication of Materials : HIGH

Nicole Lin

Sell

Place Material in the scanning bed

Scan will be displayed on the screen with details

Place material in indicated slot

Tap phone to collect points

Lets Begin!

Scan for Animation Video

Mobile Application Design: User Interface

The mobile application exists as a **connecting link** between the **users and the collection points.**

The **aim** here is to create a simple, easy to navigate, user-first system that enables users to:
- Access the available materials with ease on a single platform
- Upload materials for sale or place orders
- Locate access points
- Connect their account with the machine upon visit

The **structure** of the application can be understood from the Bottom Navigation Bar that is split into five key sections:
Material page, Interactive Map, Basket, User Account , and Scanner

All pages make use of **simple icons** to perform various functions like navigating between pages through the bottom bar, categorisation of information on material pages, simple buttons for adding items and for guiding through the steps of purchase/sale, and built in forms.

App wireframe design
L-R: Material selection (home), material specific page,
All material browsing page, Interactive map, basket,
User account, Selling upload page, Scanner
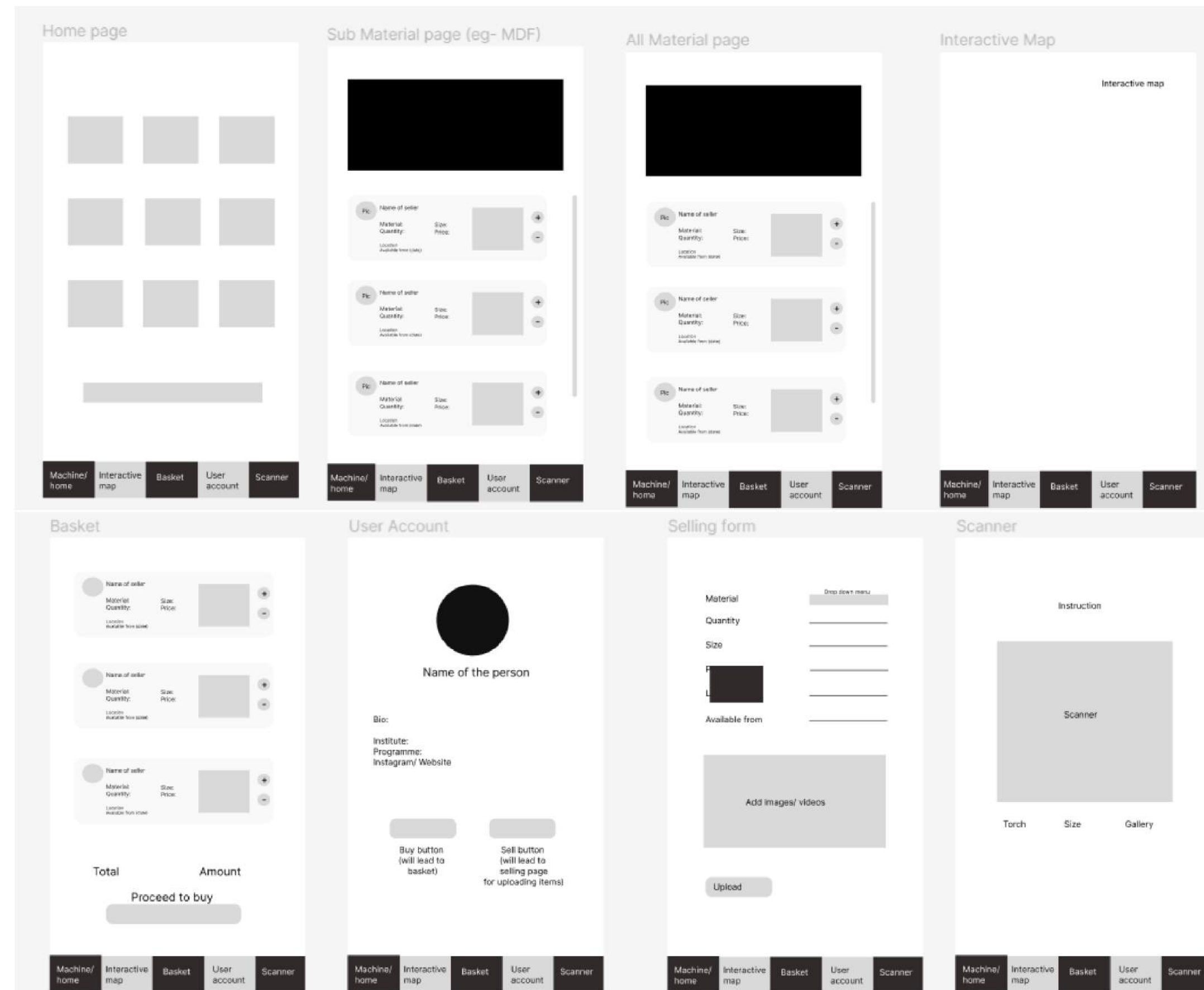
Mobile Application Design: User Experience

SW.A.P

Flow between the pages: All pages are accessible through the bottom navigation bar.

Order Placement

1. **Material Page** : This is the main landing page of the app where material is listed in two parts: as categories (1a) and an overall bar that contains all material (1b). **1a** takes the user to the specific material page (eg- mdf) whereas **1b** takes the user to the overall page where all the material is listed. On each of these pages, the user shall see details of the product, seller information, and a sub-section of the map locating the material they are viewing and can add these products here through + - icons

2. **Basket**: The products they choose land in the basket where there is a proceed to buy button which takes them to the ban payment interface.

3. **Interactive map:** They can see locate the collection point on the map.

4. **Scanner:** Upon reaching the machine for collection they can scan the QR code to collect their order

Selling:

User Account page:
It contains the details of the user including their bio, institution, website links as well as two buttons- buy and sell

Sell button opens up a form where they can fill in information about the material they wish to sell like quantity, price, size, location, images, and date of availability and can directly upload to the platform from there.

Buy button takes them back to the material page

Order Placement

Selling
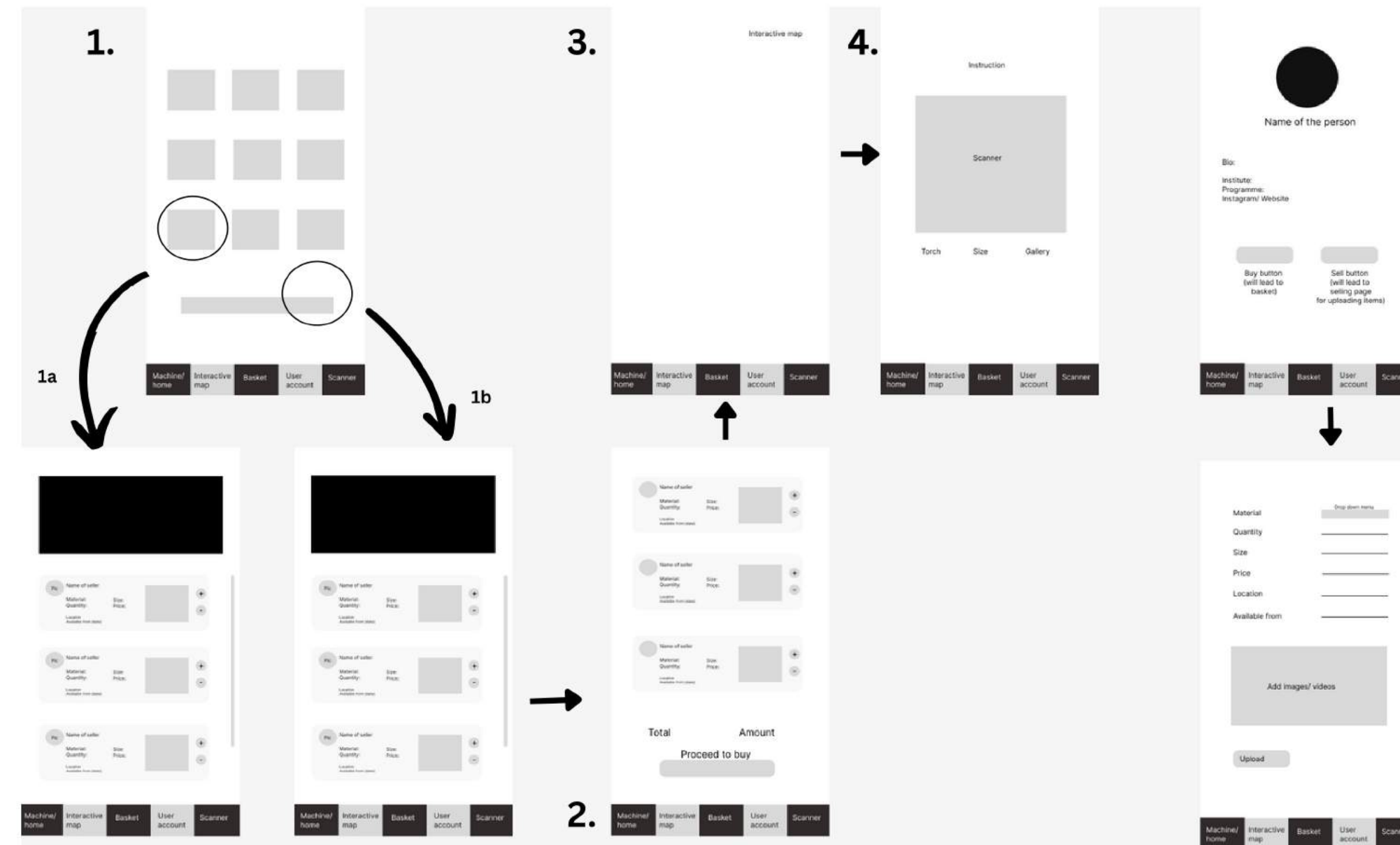
App wireframe design: Flow between the pages

Mobile Application Design: Visual Identity

Albby hanxu Zhang

App Logo

- 'Swap' implies the material exchange that our app facilitates in a straightforward way.

- Icon: The triangular 'A' becomes the core logo icon. The recycling triangular array and the strength of triangles inspired its main composition.

- Icon: The lines connect the two dots, representing materials but also a connection between users.

- Icon: The white hollow dot represents the available space for storage in our collection machines.

- The dot starts from 'S' to 'W' and resonates with the hollow dot in 'A', then finally connects in pivot with 'P'.

Tim Huang, Ashima Pargal
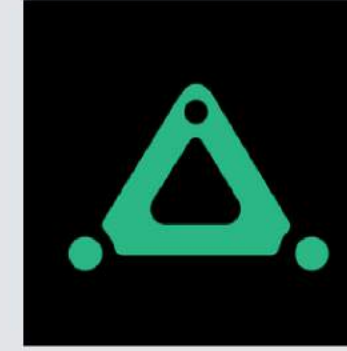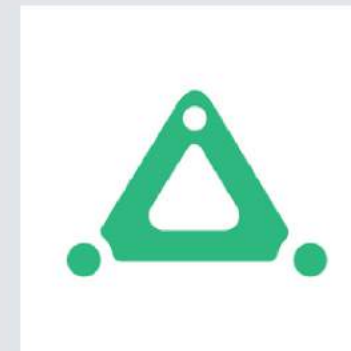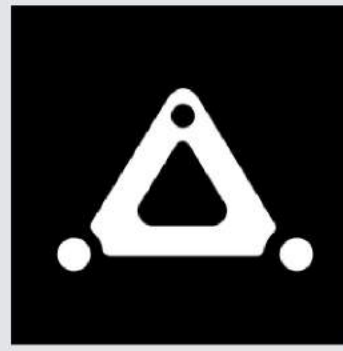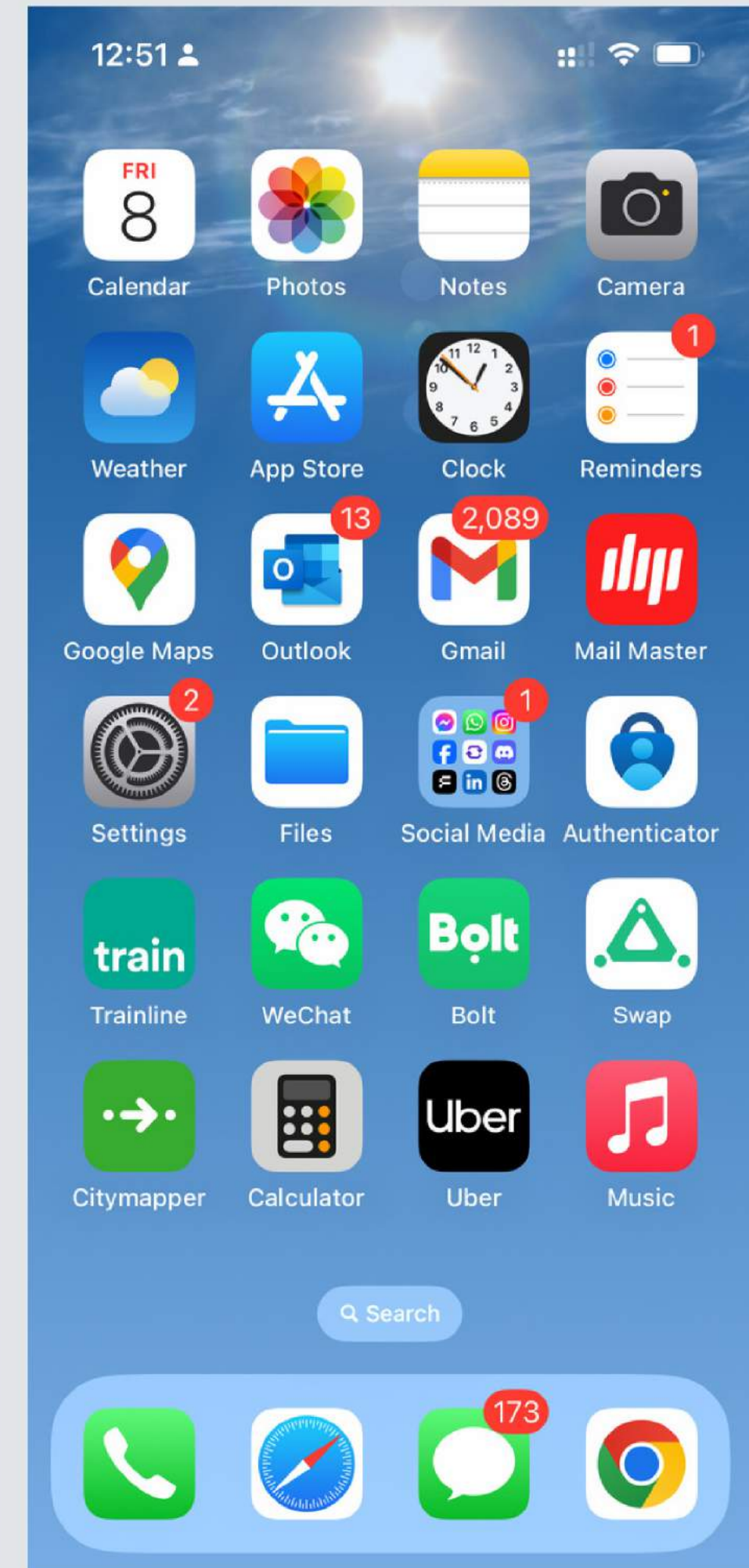
Email Communication

Upon placing their order, the user shall receive an **email with instructions** on how to **collect their material** from **the collection point** that they have chosen.

The email includes the following details:

- Confirmation of the order
- Instructions on how to access the machine
- A map to help them locate the machine within the campus
- Business communication- invitation to search more material on our app, prompt to deposit their own material , and contact details in case they need to reach us
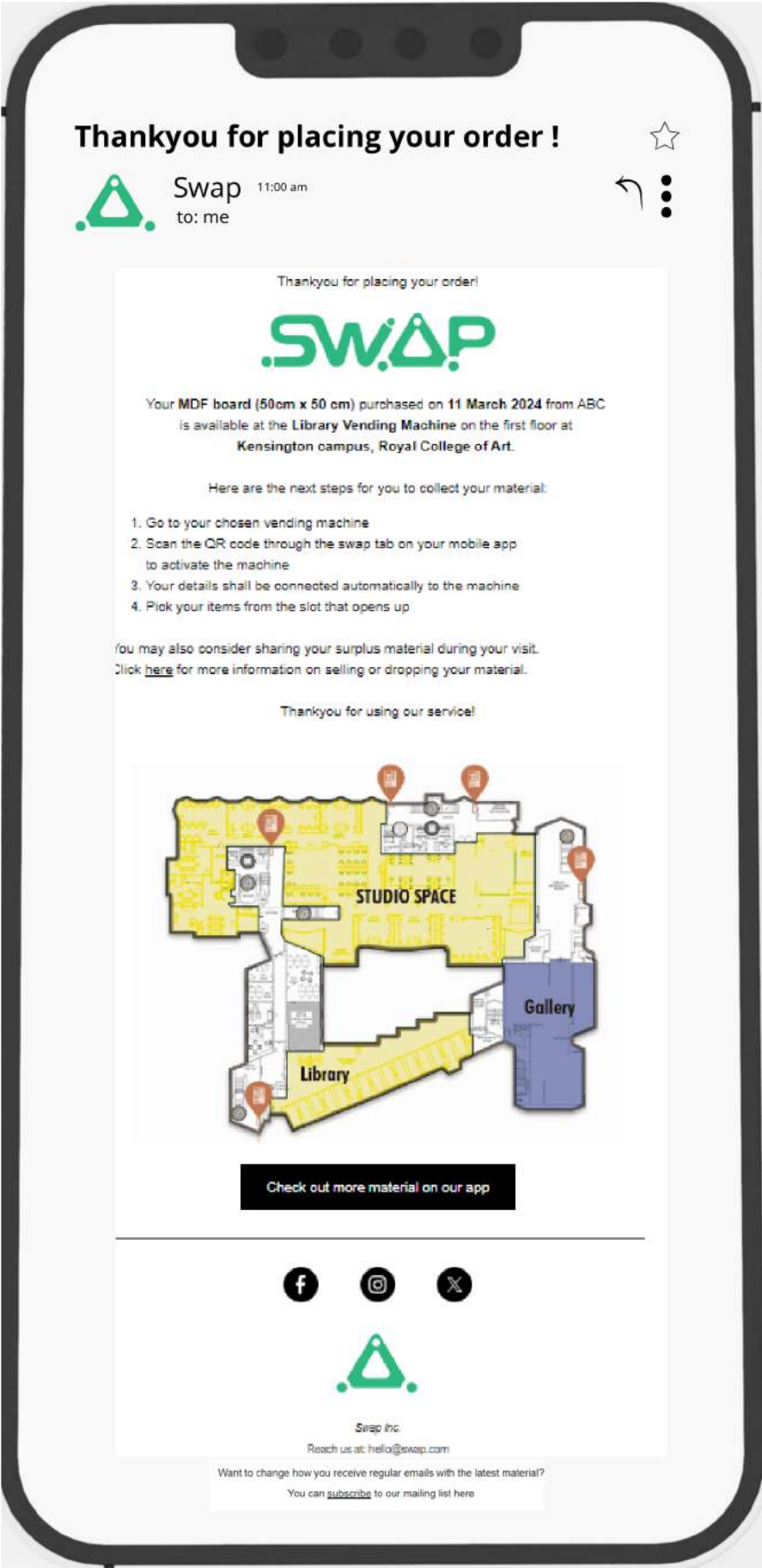
Thankyou for placing your order!

.SWAP

Your **MDF board (50cm x 50 cm)** purchased on **11 March 2024** from ABC is available at the **Library Vending Machine** on the first floor at **Kensington campus, Royal College of Art.**

Here are the next steps for you to collect your material:

1. Go to your chosen vending machine
2. Scan the QR code through the swap tab on your mobile app to activate the machine
3. Your details shall be connected automatically to the machine
4. Pick your items from the slot that opens up

You may also consider sharing your surplus material during your visit. Click here for more information on selling or dropping your material.

Thankyou for using our service!

Figure 1: details on how to collect the material

Swap Inc.
Reach us at: hello@swap.com
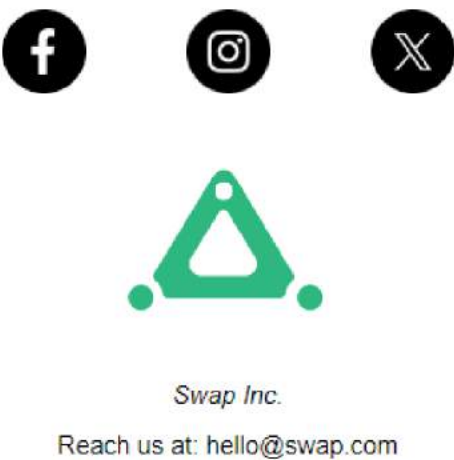
Want to change how you receive regular emails with the latest material? You can subscribe to our mailing list here

Figure 2: Business communication details

System Logic

- The system allows users to input materials and upload corresponding data to our app, 'Swap', for other users to choose from.

- Users needing materials can reserve and collect from the machines linked to our app.

- The whole process is self-explanatory, with intuitive guidance from the QR code on the machines' screens and app instructions.

- The system asks for feedback to help understand difficulties and preferences during app navigation, scanning, input, wayfinding, and collection.

SWAP
Material Re-use Facilitation System
Self Input & Self Collection

1. User: Bring materials
- Carry materials to collection machines
- Choose material type on screen to open specific gates for input

2. User: Sign up/Log in
- Scan QR code on the left in screen to download app
- Or directly download from App Store
- Sign up in app to get a two letter + 5 digit user ID
- Set up four digit password
- Log in with ID and password next time
- Scan the QR code on the right in screen to initiate scan, and auto-link inputted material to the user account

3. Machine: If full
1. Redirect users to other nearby machines to input materials.
2. User put materials into the adjacent temporary storage that opens when the machine is full
   - Staff will fill the machine when it is empty
3. Users can exchange directly to other users

User to User Direct Exchange

7. Item available for collection
- The system collaborate with stores
- Allow users to spend points for discount

6. Machine: Calculate & Upload
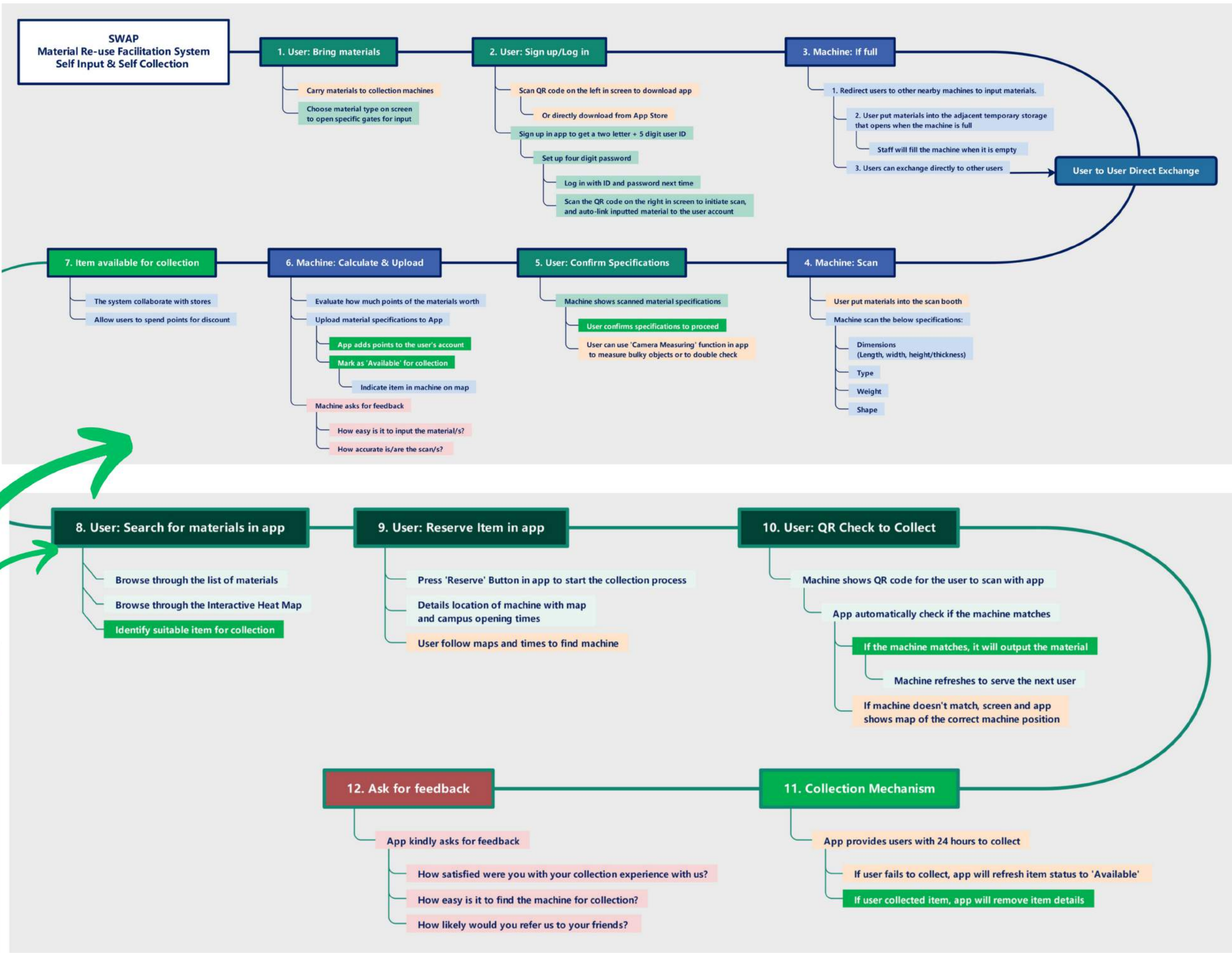- Evaluate how much points of the materials worth
- Upload material specifications to App
  - App adds points to the user's account
  - Mark as 'Available' for collection
  - Indicate item in machine on map
- Machine asks for feedback
  - How easy is it to input the material/s?
  - How accurate is/are the scan/s?

5. User: Confirm Specifications
- Machine shows scanned material specifications
  - User confirms specifications to proceed
  - User can use 'Camera Measuring' function in app to measure bulky objects or to double check

4. Machine: Scan
- User put materials into the scan booth
- Machine scan the below specifications:
  - Dimensions (Length, width, height/thickness)
  - Type
  - Weight
  - Shape

8. User: Search for materials in app
- Browse through the list of materials
- Browse through the Interactive Heat Map
- Identify suitable item for collection

9. User: Reserve Item in app
- Press 'Reserve' Button in app to start the collection process
- Details location of machine with map and campus opening times
- User follow maps and times to find machine

10. User: QR Check to Collect
- Machine shows QR code for the user to scan with app
- App automatically check if the machine matches
  - If the machine matches, it will output the material
    - Machine refreshes to serve the next user
  - If machine doesn't match, screen and app shows map of the correct machine position

12. Ask for feedback
- App kindly asks for feedback
  - How satisfied were you with your collection experience with us?
  - How easy is it to find the machine for collection?
  - How likely would you refer us to your friends?

11. Collection Mechanism
- App provides users with 24 hours to collect
  - If user fails to collect, app will refresh item status to 'Available'
  - If user collected item, app will remove item details

Future Potentials

SWAP

Environmental Impact: By recycling art materials and giving them a second life cycle, our project directly addresses environmental concerns related to waste generation and resource consumption in the art industry. This aligns well with the growing global focus on sustainability and climate-friendly practices.

Community Engagement: The SWAP App and vending machine concept provide an innovative platform for art students and creators to connect, exchange materials, and support each other's needs. This fosters a sense of community and collaboration within the art community, which can lead to further growth and development of the platform.

Scalability: As the platform gains traction and popularity among art students and creators, there is potential for scalability to reach a broader audience beyond the initial target demographic. This could include artists, hobbyists, educators, and even businesses interested in sustainable art practices.

Economic Opportunities: By facilitating the exchange and sale of art materials, our project creates economic opportunities for users to acquire materials at lower costs or generate income by selling excess materials. This can contribute to a more accessible and financially sustainable art ecosystem.

Technological Integration: The use of technology, such as the SWAP App and live mapping features, enhances user experience and accessibility. Continued innovation and refinement of these technological aspects can further enhance the platform's functionality and user engagement over time.

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