Portfolio of **RONAN CHEN**

EXPERIENCE

Product Design Intern / The Washington Post - ArcXP

San Francisco, CA / Jun 2023 - Aug 2023

- Shipped the end-to-end design of entitlement and paywall tool within ArcXP subscription, an **E-commerce SaaS product** designed for paywall deployment and monetization, improving customer's satisfaction by reducing **30%** entitlement deployment time inside paywall.
- Conducted generative **research** to understand various use cases, scoping **business goals**. Documented findings for easy knowledge sharing among cross-functional teams, leading to improved **partnerships** and workflows.
- Enhanced ArcXP Design System through comprehensive icon and component audits across products. Developed "Right to Left" documentation and guidelines, and facilitated cross-team workshops for its implementation, revolutionizing consistency, accessibility, and usability in **ArcXP Design System**.

User Experience Consultant / Aible

San Francisco, CA / Feb 2023 -May 2023

- Planned and conducted interview and **usability tests** with 6 users to explore their **data** interpretation flow in "ChatAible"-a **SaaS generative AI** tool that summarize insights from data- resulting in identifying three main frictions.
- Led the **redesign** process of "ChatAible" onboarding guide and improved the human-AI interactive experience, leading to **high customer satisfaction**.

UX Designer / IWP Capital

Fort Worth, TA / Jun 2022 -Sep 2022

- Managed and maintained all aspects of **onboarding redesign** of a **Fintech** App "Sanctify", including user flow restructuring, wireframe creating, marketing illustration assets and final visual design, resulting in the increase of onboarding success rate by **12%** and shortening the onboarding time by over 1 minute.

UX Designer / Memorial Sloan Kettering Cancer Center

New York City, NY / Apr 2022 -Jul 2022

- Shipped the end-to-end design of **internal** patient insight **dashboard** for doctors, reducing the time of identifying patients' information **from 30min to 3min**.
- Planned and conducted over 3 **user interviews** with over 6 stakeholders resulting in clarifying user journey, pain points and design goals.
- Executed 3 design iterations, collaborating with cross-functional partners across user testing stages, resulting in working high fidelity **prototypes** with the consideration of visual **accessibility**.

Product Design Intern / Bidbus

Irvine, CA / Apr 2021 -Jun 2021

- Delivered the **landing page** redesign of an **E-Commerce** car selling platform based on competitive analysis, stakeholder feedback, and usability study findings, increasing the average view time from 15 to 68 seconds.
- Improved car dealers' bidding experience by creating the dealer's portal and marketplace page, which show the real-time bidding price of the car.

EDUCATION

University of California, Berkeley

Berkeley, CA / expected May 2024

Master of Design, HCI focus

University of Pennsylvania

Philadelphia, PA / Aug 2020 - May 2022

Master of Landscape Architecure

Xi'an University

Xi'an, China / Aug 2014 - Jul 2020

Bachelor of Architecture

SKILLS

Design

Storyboarding / User Journey Map / User Flow / Wire-framing / UI Design / Illustration / Animation / 3D Modeling / Diagramming / Data Visualization

Research

User Interview / Survey / Usability Testing / Data Collection / Affinity Mapping / Competitive Analysis / Heuristic Evaluation

Tools

Figma / Sketch / Adobe XD / Adobe Creative Suite / Principle / ArcGIS Pro / Rhinoceros / Fusion 360 / AutoCAD / Hand Drawing / Procreate / 3D Printing / Laser Cutting / Arduino / **ArcGIS**

Programming

Python / JavaScript / CSS3 / HTML

PUBLICATION / REWARDS

Tang, X., **Chen, N.**, Chang, X., Ni, Y., LC, R., Tong, X. Community-driven Information Accessibility: Online Sign Language Content Creation within d/Deaf Communities. Published on ***CHI 2023***

"Sanctify Fintech Redesign" - Finalist of ***iF DESIGN AWARD 2023***

FACILITATE PLANTS MIGRATION TO ADAPT CLIMATE CHANGE

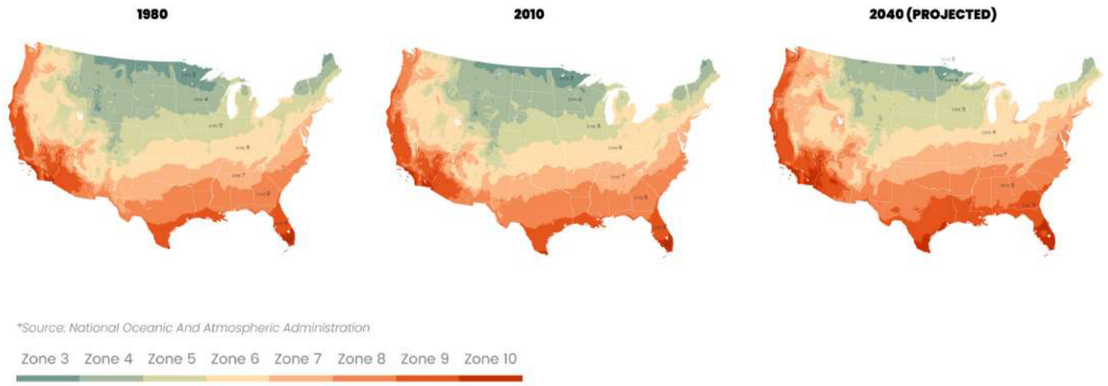
PLANTS AIRLINE

PLANTS MIGRATION

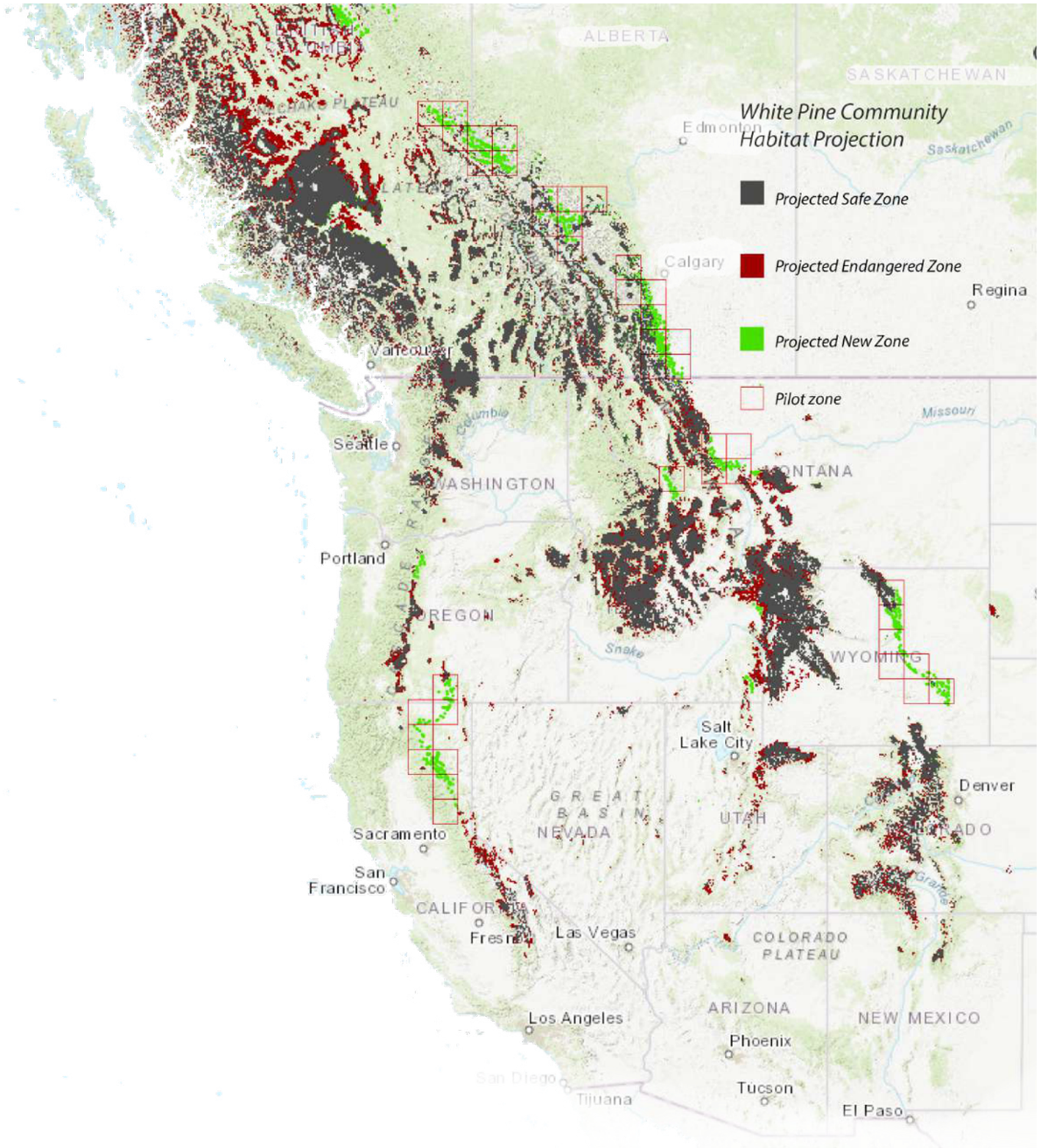
Plants Airline is a plants migration & seeding project that aims to protect biodiversity against the impact of climate change. The hardiness zone is predicted to move north as the temperature increases, leaving an inhabitable condition for local plants with limited mobility. Our seeding capsules designed with soft robotics can be easily carried by drones to target destinations that locate in places that are challenging for humans to reach. To preserve the authenticity of a plant community, different species from one community need to be relocated together to reestablish their habitat. The seeding capsule preserves the seeds inside and help species with different temperature tolerance sprout at their fittest environmental conditions.

BACKGROUND

As the impact of the global warming, the plant hardiness zones will shift north over time. As the prediction, to the 2024, the zone 3 will almost move out of the states' boarderline. Warmer weather leaves trees in conditions that don't suit them, making them get replaced by other species, which creates zombie forestes.

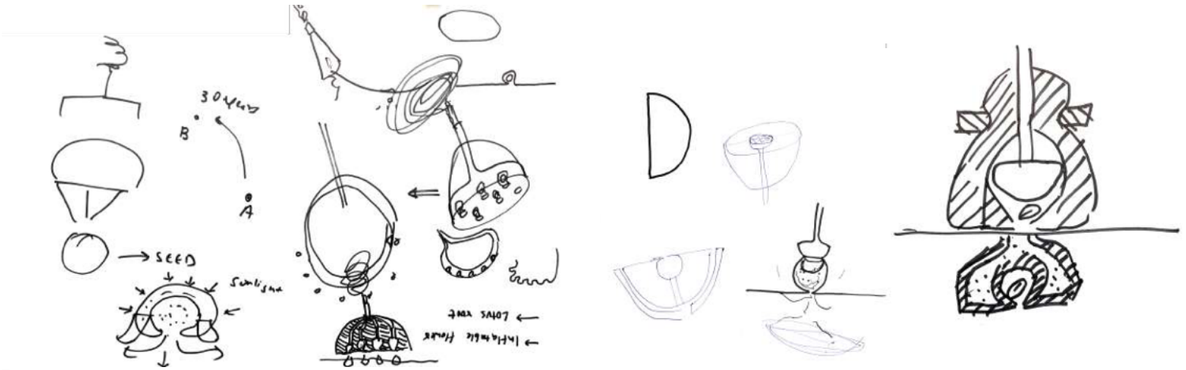


Whitebark pine tree is an endangered tree native to the mountains of the western United States and Canada. Its species community is consisted with different shrubs and grasses. The hardiness tolerance varies among different species in the community.

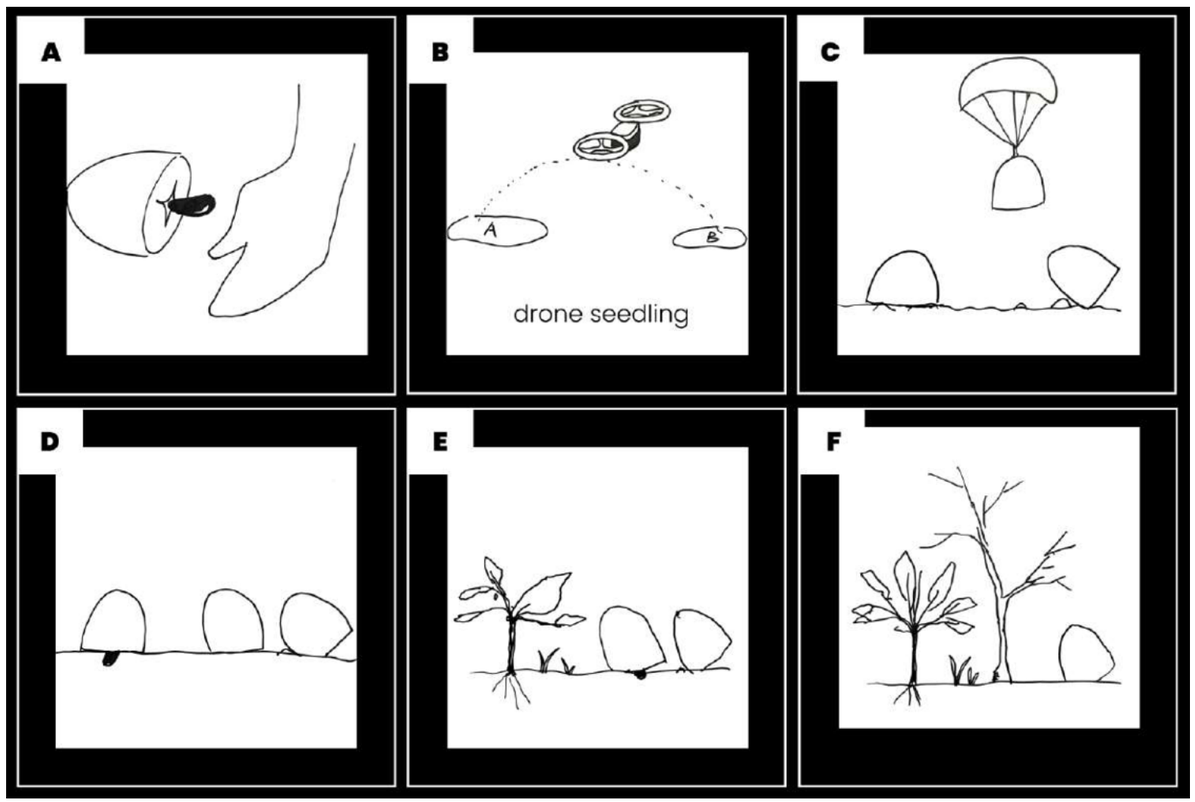


PROCESS

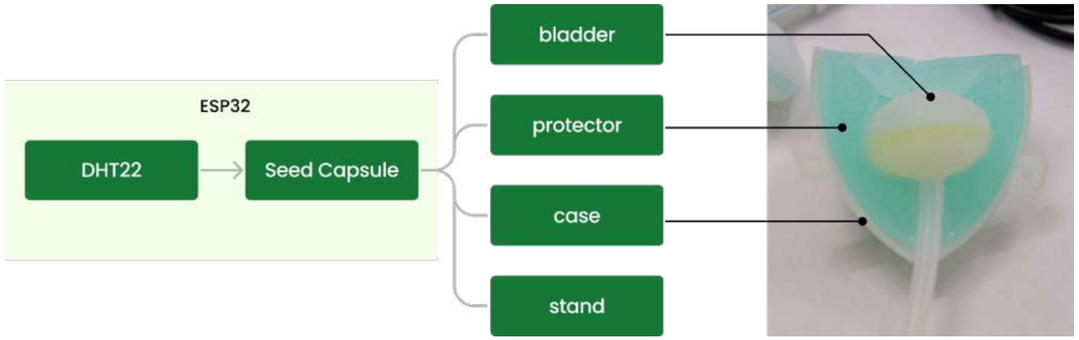
The form factor of our design was inspired from the lotus. Seeds from different species can be securely contained inside a capsule structure when being carried by drones.

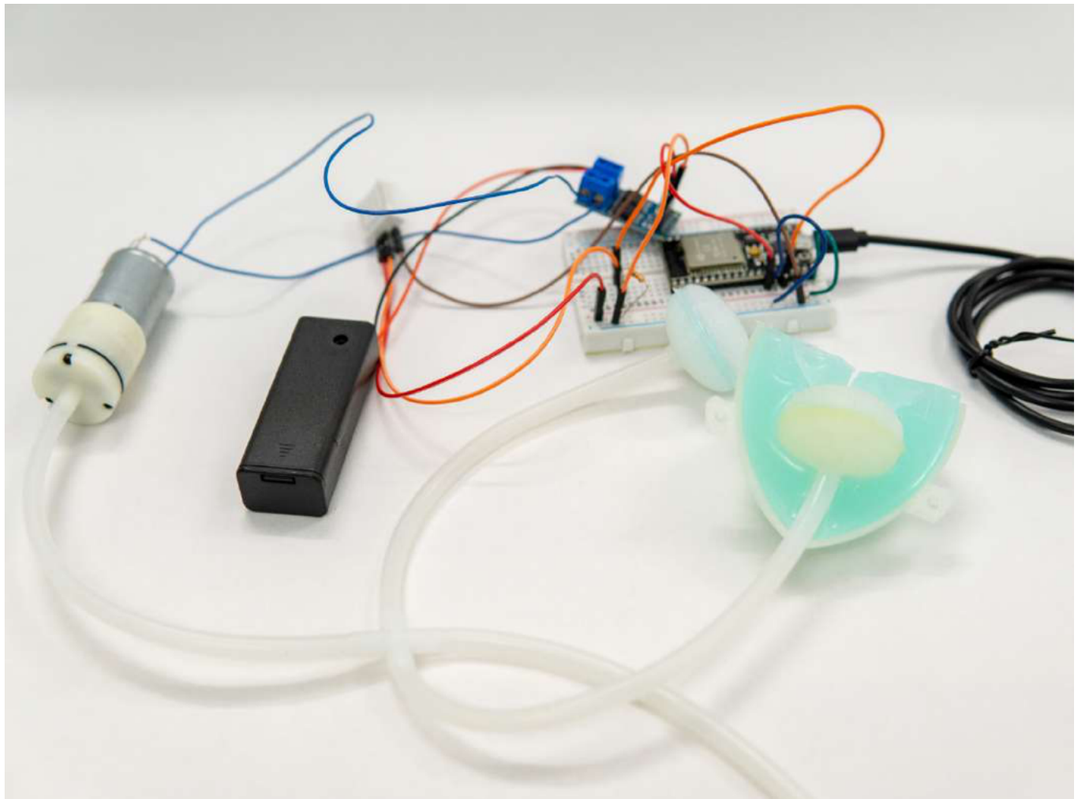


01. Soft robotics as cushion | 02. Lotus shape | 03. Air inflation seedling | 04. Capsule temperature sensing



We use DHT22 to monitor the temperature data of the environment. Seed capsules are triggered when the temperature meets the fittest living condition of different plants. Each seed capsule has a bladder that pushes seeds out, a silicone protector that contains seeds, a case that protects the entire silicone structure, and a stand that helps display in our diorama.

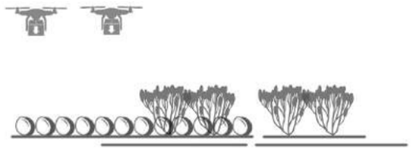




FINAL DESIGN

Phase 01: Pioneer Project

Drones will transport soft robots in seed capsules to explore and monitor potentially suitable habitats. The capsules will release the seeds once optimal temperature and humidity levels are detected and continue to track their growth for future habitat selection.



Phase 02: Massive Migration

After the ideal habitats are determined, we will use bio-degradable materials to seal more seeds and deliver them to the location with drones.

Phase 03: Aforestration

Degraded maerial will serve as the fertilizer to help restablish the white bark pin tree's community.

CULTIVATE KIDS' HEALTHIER EATING BY GAMIFICATION SYSTEM

FOOD MONSTER

CHILDREN'S DIETARY PROBLEM

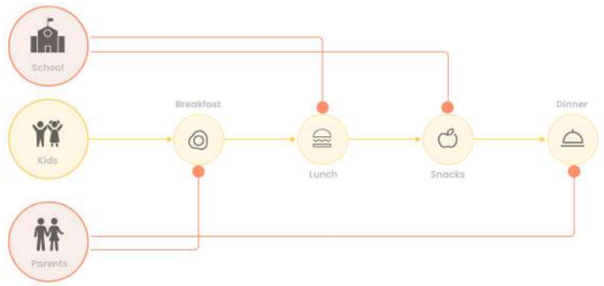
Children's dietary health, in particular childhood **obesity**, is widelyre cognized as one of the most pressing public health problem due to poor adherence to healthy eating habits. Early-stage interventions, therefore, are needed. Parents play an important role in cultivating kids' good behavior, and there are a lot of apps available in the market to monitor food consumption. However, these **traditional methods** to increase fruit and vegetable intake are **less effective** than expected.

Children are passively recorded rather than actively engaging in the behavior change process. So, how to make eating more fun and engaging for kids to cultivate healthier eating habits? Through the literature review, I found gamification as an innovative educational approach to improve kids' catering habits shows extraordinary results. Combined with my babysitting experience, I created a children's dietary recording application with a **gamification system** embedded to drive children's behavior.

RESEARCH

a. Secondary Research

Kid's current catering pattern includes different stakeholders. Elementary school or daycare center provides lunch and snacks for children and parents actively provide breakfast and dinner as their main diet.



In order to find the possible solution and the room for further strategic development, I looked into the current applications that help kids eat healthier.

COMPETITIVE ANALYSIS

Product Name		MyPlateCaloriesCounter	MintHealth	MyNetDiary	MyFitnessPal	YAZIO
Description		A mobile application to help user calculate and record calories in oder to meet the MyPlate eating guidance	A mobile application allows customized calories and nutrition record for weight loss and fitness.	A mobile application estimates the number of calories needed each days, offering diet assistant for weight loss.	A mobile application help track calories, break down ingredients.	A mobile application for healthy eating and weight loss
KEY FEATURE						
Data Collection	Scan Food	✗	✓ (Scan Meal)	✗	✓ (Scan Meal, Scan Barcode)	✗
	External Device	✓ (Google Fit, Website)	✓ (Food Scale)	✓ (Fitbit, Withings)	✗	✗
	Database	✓ (Over 2 million items)	✓ (Over 3 million items)	✓ (Update Everyday)	✓ (Over 2 million items)	✓ (Over 2 million items)
Track Category	Nutrient	✓ (Categoried by USDA)	✓ (Categried by CNS)	✓ (Protein, Fat, Carbs)	✓ (Protein, Fat, Carbs)	✓ (Protein, Fat, Carbs)
	Calorie	✓	✓	✓	✓	✓
	Exercise	✓ (Send Calorie Burned)	✓ (Exercise Calorie Burned)	✓	✓ (Cardio, Strength)	✓
Summary	Calendar	✓ (Daily, weekly, monthly)	✓ (Daily, weekly, monthly)	✓ (Daily, weekly, monthly)	✓ (Progress)	✓ (Daily, weekly, monthly)
	Analysis	✓ (Visualize Goal)	✓ (Visualize Goal, Nutrient)	✓ (Calorie Budget)	✓	✓ (Calorie Budget\ Nutrient)
	Valuable Insight	✗	✓ (Diet Recommendation)	✗	✓ (Diet Recommendation)	✗
Personalization	Customized Diet Record	✗	✓ ("Save as Combo")	✗	✗	✓ ("Custom Entry")
	Allergy	✗	✗	✗	✗	✗
	Others	✓ (Meal time Reminder)	✓ (Record for Families)	✓ (Coach, Personal Advice)	✓ (Set Personalized Goal)	✓ (Receipes)
Rewards System	Community	✓	✗	✓ (Friends, latest Diet News)	✗	✗
	Challenge Activities	✓ (Set Goals, Progress)	✓ (Set Goals, Progress)	✓ (Set Goals, Progress)	✓ (Set Goals, Progress)	✓ (Set Goals, Progress)
	Others	✗	✓ (Daily Check-in Bonus)	✗	✗	✗
OVERVIEW						
Strength — Must-have Features		All competitors offer well-developed functions to data collection and diet recording and then generate summary.				
Weakness — Design Opportunities		**None of them is kids-centered** nutrient tracking product, so it would be more potential for further development in personalization and rewards system **coordinating with children's midset**.				

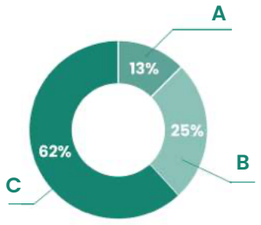
All of the target users of those applications are adults. Although these apps can help to improve children's diet habits, none of them really includes the kids in the service system and give them specific consideration.

Parents can use those tools to track and document the ingredient information of what kids ate, while kids can't actively participate but passively being told what they should eat by their guardians. Children have different behavior patterns and their emotional needs aren't satisfied by current products. Based on this outcome, I assumed:

Children need more specific consideration to get motivated on a healthy diet.

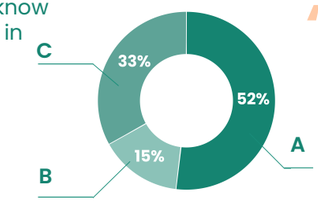
b. Primary Research

To better understand parents' pain points and the reason why kids don't tend to eat healthily, I conducted a survey for parents whose kids are within 5-12years old to gain more insights. 68 surveys are sent and 64 valid questionnaires were collected.



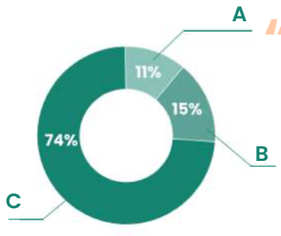
"To what extent do you think you know what your kids have been eating in school?

A. Completely know
B. Probably know
C. Barely know



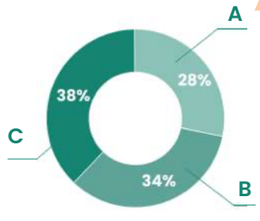
"How did you know your kids' eating habits in school?

A. Directly ask their kids
B. Text or e-mail teacher to know more
C. Check kid's eating records in a shared platform



"To what extent do you think your kids have enough motivation to eat healthier?

A. Fully motivated
B. Have some motivation but still needs supervision
C. Barely have the motivation



"If your kids don't have enough motivation to have a balanced diet, what do you think might be?

A. The rebellious mindset towards parents' demands
B. Eating healthy is not funny
C. Don't get enough reward

SOLUTION

c. Research Conclusion

From the result of the survey, I have two findings:

01 **Parents: Lack of understanding of children's diet at school and needs a more effective information sharing system with the school.**

02 **Kids: Lack of self-motivation and need a more interesting eating experience and gain rewards.**

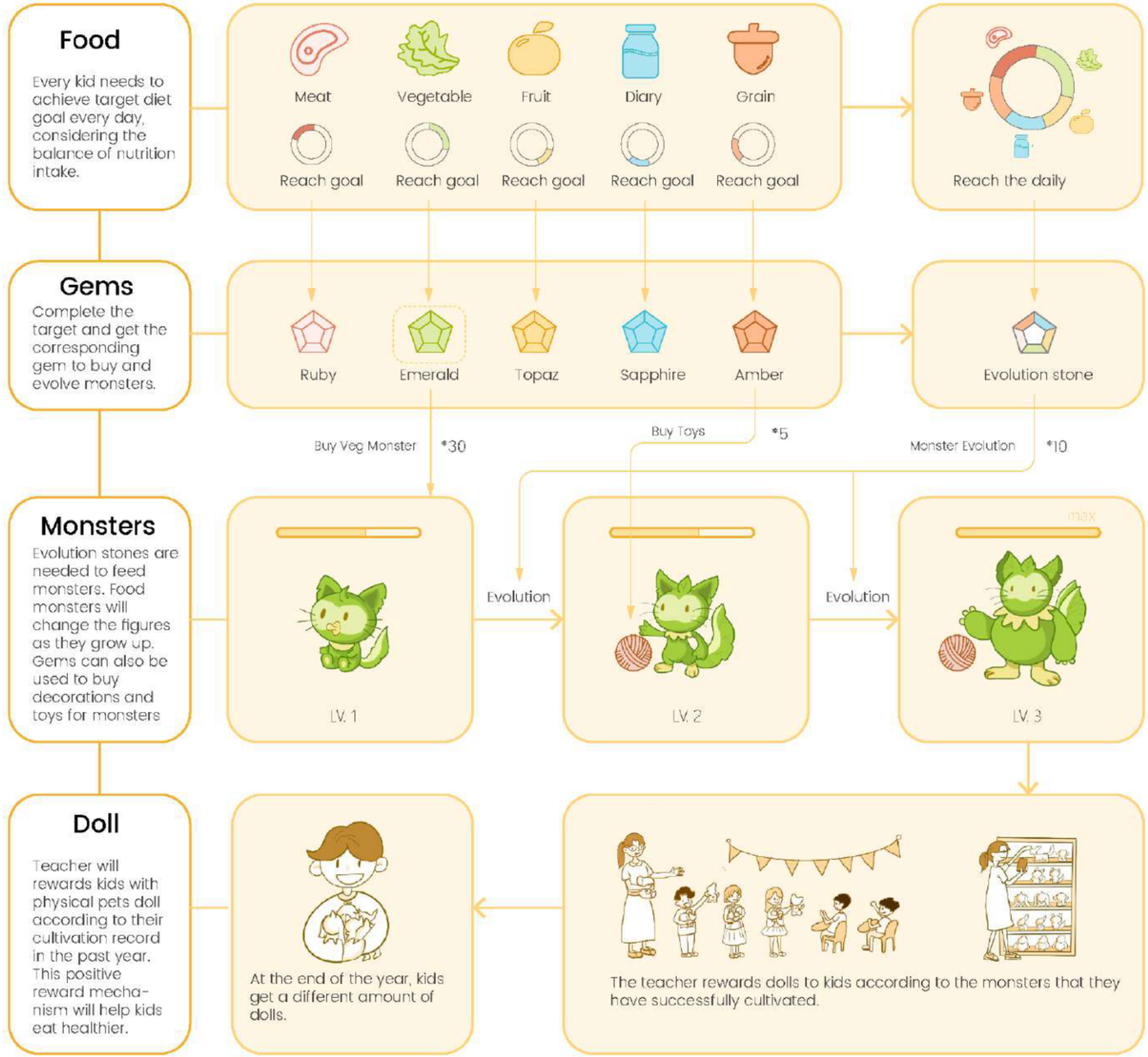
Based on the two findings, I reframed the design challenge as:

How might we design a diet information sharing system between parents and school to help kids eat healthier and at the same time give kids more motivation to stick to good eating habits?

Children's emotional needs were ignored during the good habit cultivation process. A game system will make cultivating healthy eating habits a sociable and playful experience for children. Kids are no longer exclusive of the system but gain more self-motivation to have a balanced diet.

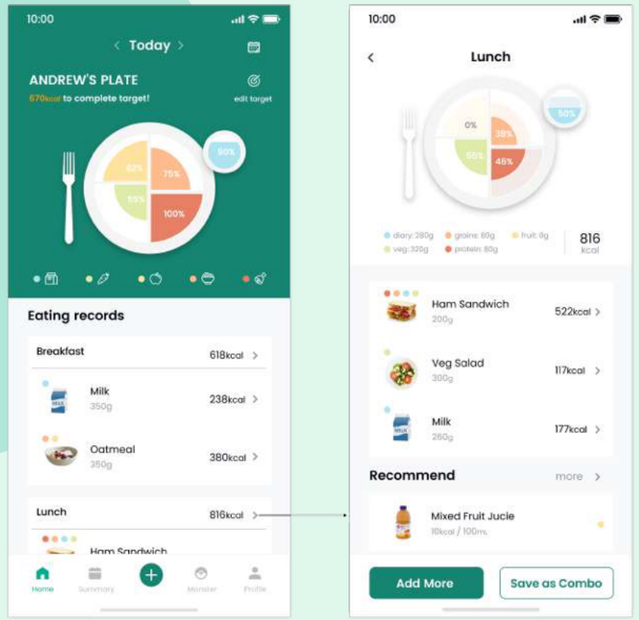
The diet data collected by parents and schools become the nourishment of the little monsters that kids raised and these monster friends will evolve if kids eat healthily and meet the nutrient balance goal. By combining external supervision and internal motivation, kids can grow up with their monster friends more healthily.

Mechanism of the Game System:

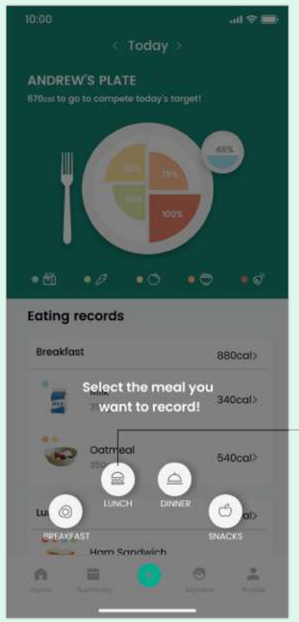


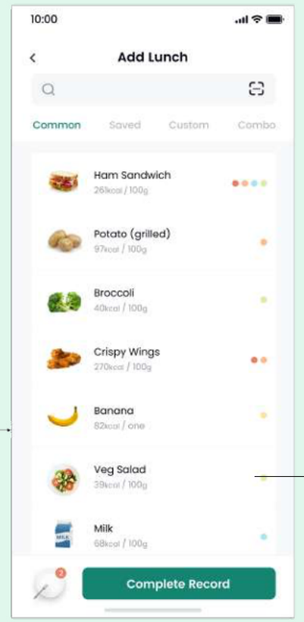
USER FLOW

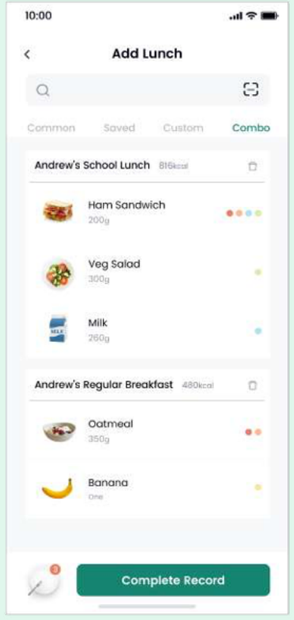
Today's meal record

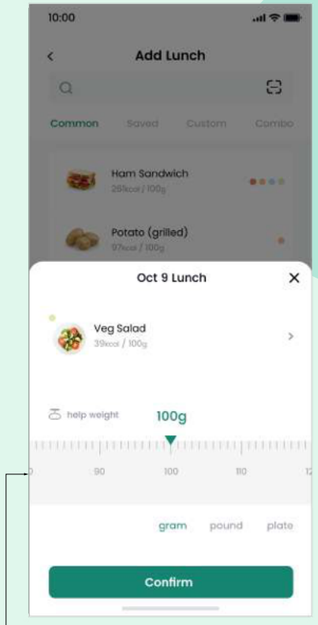


Add eating records



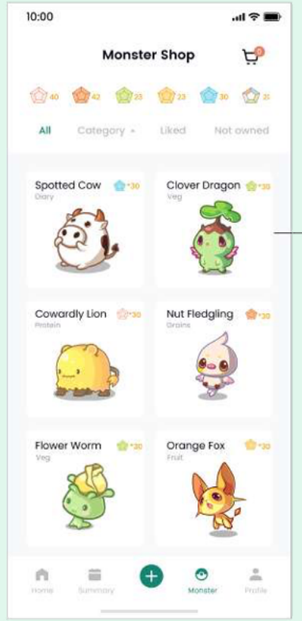


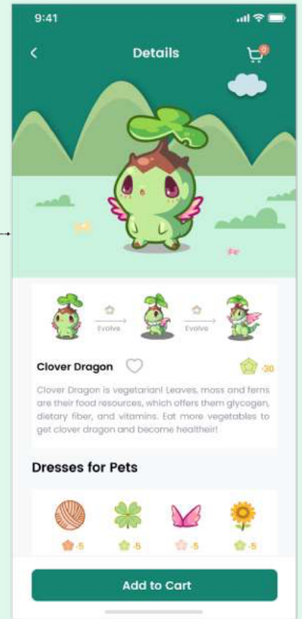


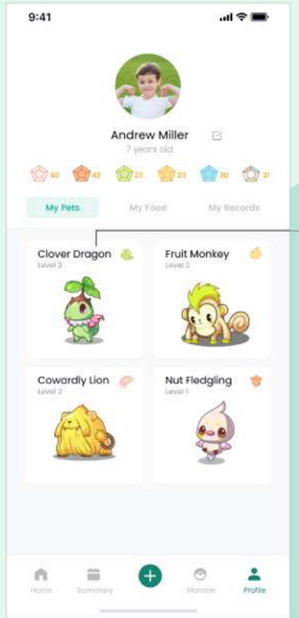


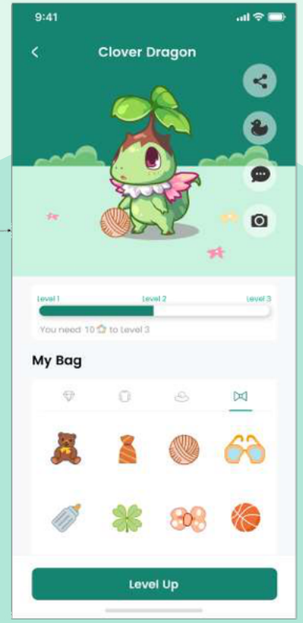
Eating summary & rewards

Grow up with monster friends





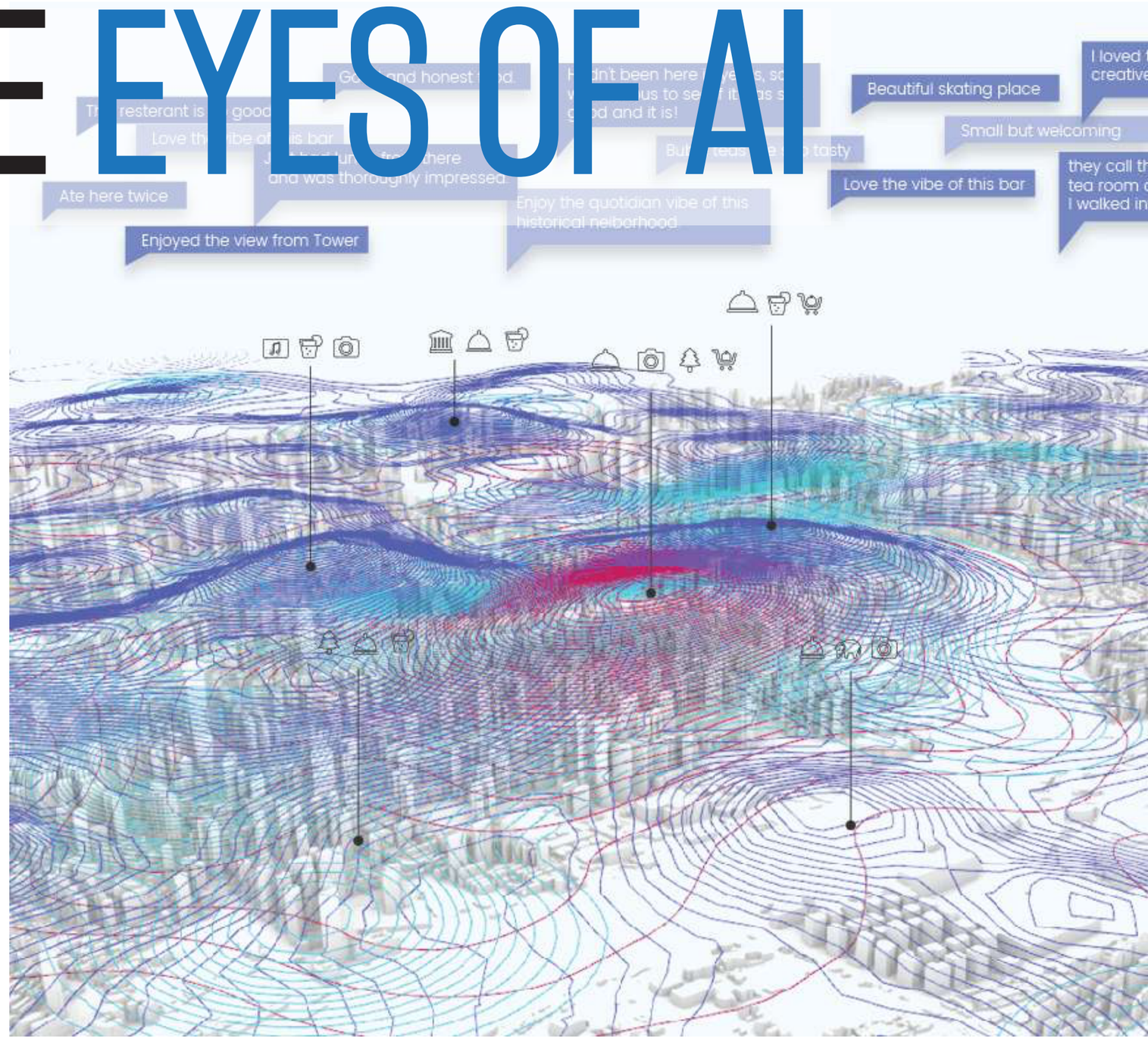




* The food monster characters are all from the web game "Roco Kingdom"

URBAN FEATURE PREDICTION SYSTEM BASED ON AI AND BIG DATA

CITY IN THE EYES OF AI

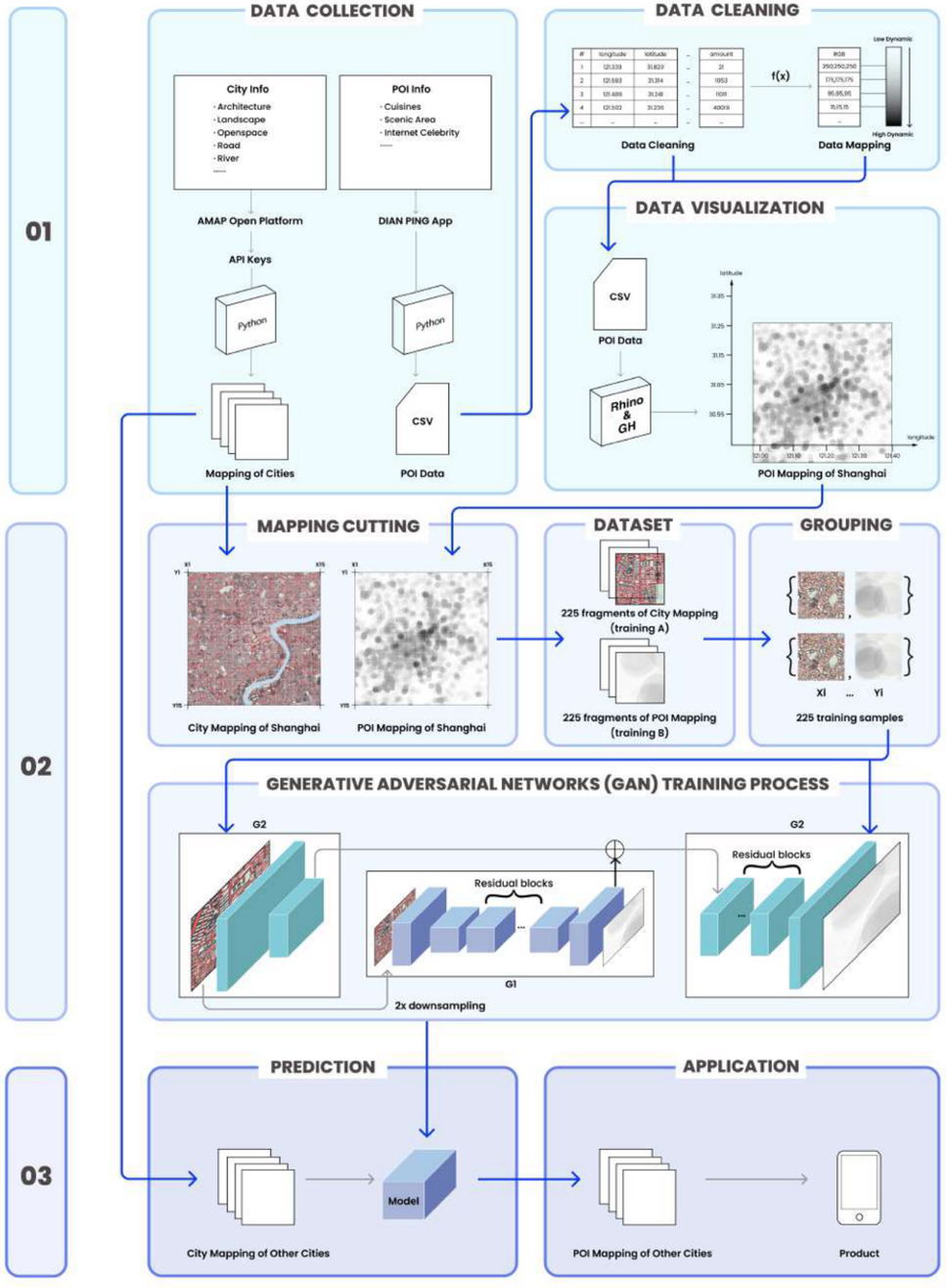


PREDICT THE POTENTIAL HIGH VITALITY-LEVEL URBAN SPACE

The vitality level of urban spaces can be reflected in Urban dweller's activity mappings. The data that generates these mappings usually are generated by data from social media (restaurant reviews, popular places posts, etc.), representing the popularity and commercial potentials in urban areas. Nowadays, the vitality level of urban spaces is not only affected by the physical presence - if it is an open space or near city centers, but is highly shaped by social media data in a bottom-up way.

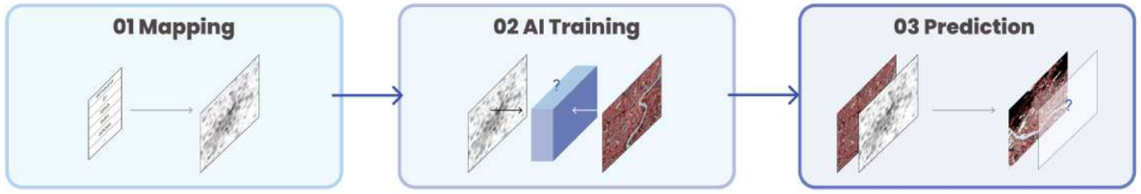
By studying the relationship between the urban fabric and the vitality heatmap of the municipality with comprehensive data, AI can predict the potential vitality of another city that lacks data. This project applied big data and AI into the urban development area, but at the same time, discussed about the algorithm injustice of its impact and possible solutions.

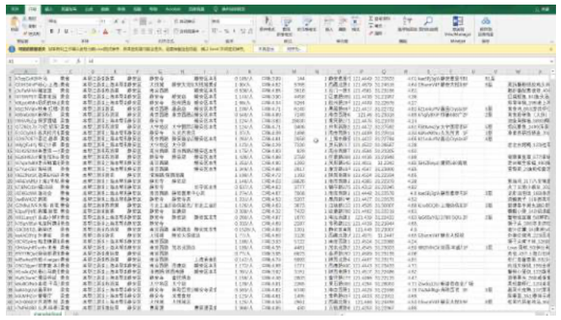
TECHNICAL PATH



PROCESS

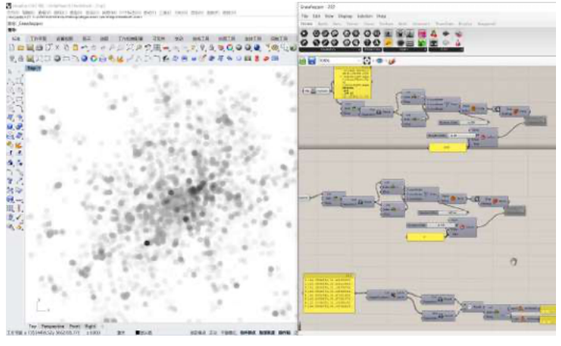
As a decision-making tool, artificial intelligence has been widely used in many fields. The generative adversarial network is a framework model in machine learning, which is specially used to learn and generate image-type data. Based on this characteristic, we first collected data and generated pairs of base images of one city with developed tourism, and then trained AI to predict the corresponding results of another city that lacks data. Finally, we applied this training outcome to a real use environment and designed a product to help predict the vitality of urban space and guide users to better choose potential places.





a. Data Collection & Cleaning

There is no open-source database in China, so to collect the data generated by users, we used a python script to download the comment number from “DianPing”(“Yelp” in China) and also their coordinates of popular places(rated beyond 4 stars, 5 in total) in metropolitan Shanghai. (Tool: python)

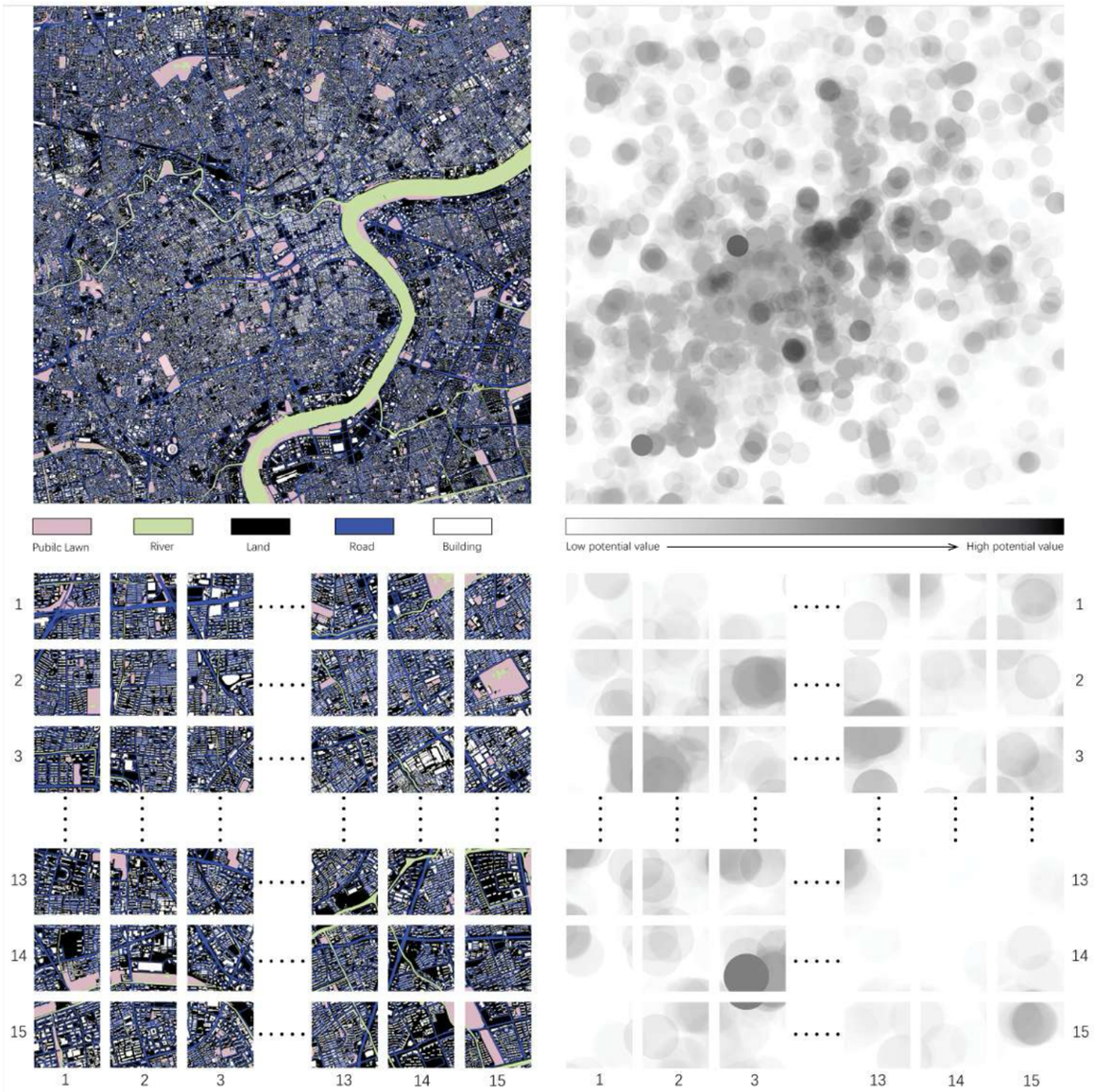


b. Data Visualization

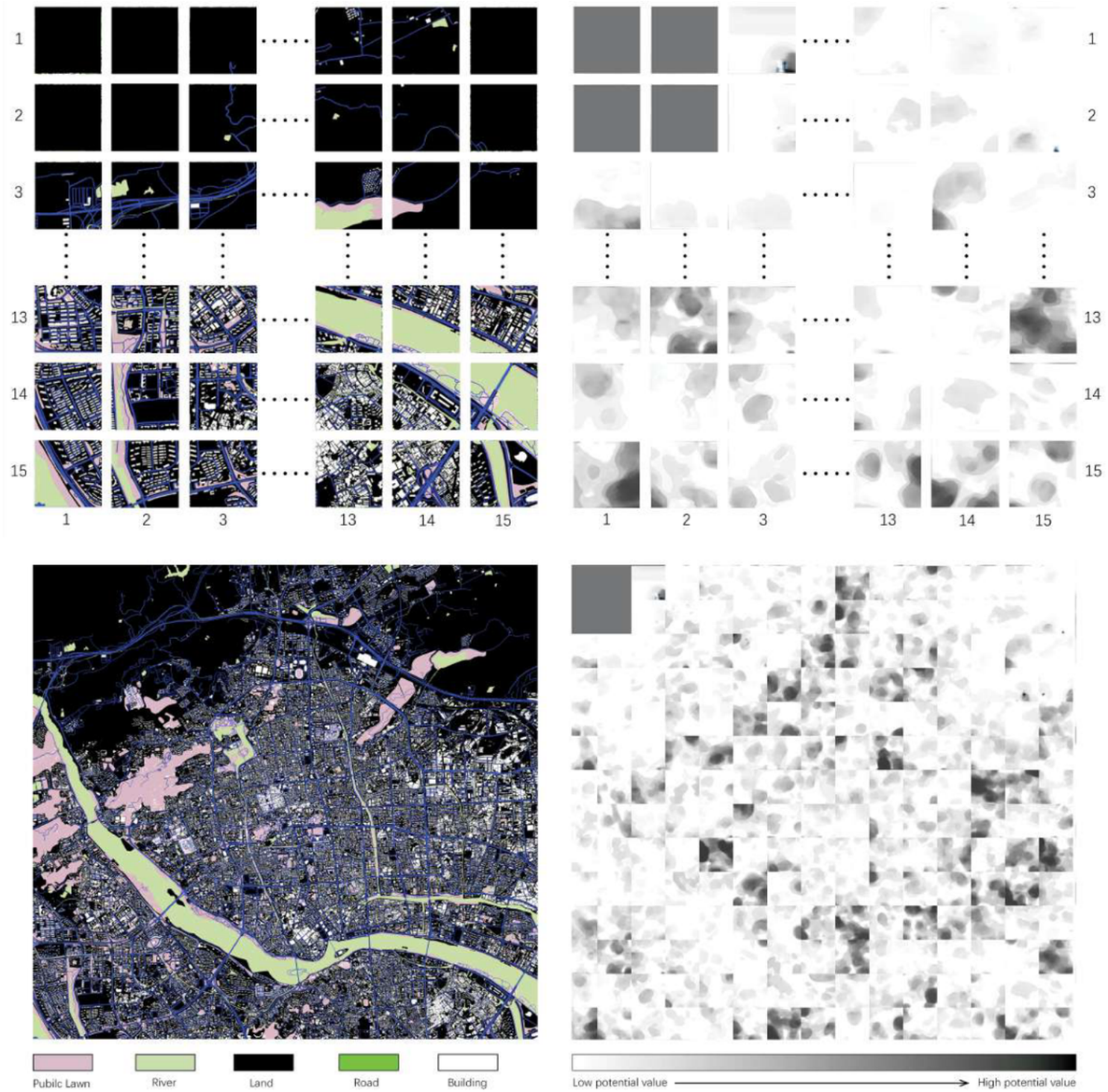
After cleaning and cataloging the data, we visualized each place as a point with a gradient of black, the darker, the more comments happened. Later, all points were layered together to generate a POI hot map. (Tool: Rhino+Grasshopper)

AI MODAL TRAINING

To investigate the correlation between POI hot map and urban spatial structure, we used the Generative Adversarial Network (GAN) neural network model for training. In order to increase the number of training samples to improve the accuracy of the model, we sliced the overall urban spatial structure map of Shanghai and the POI hot map to form 200 sets of one-to-one training samples.

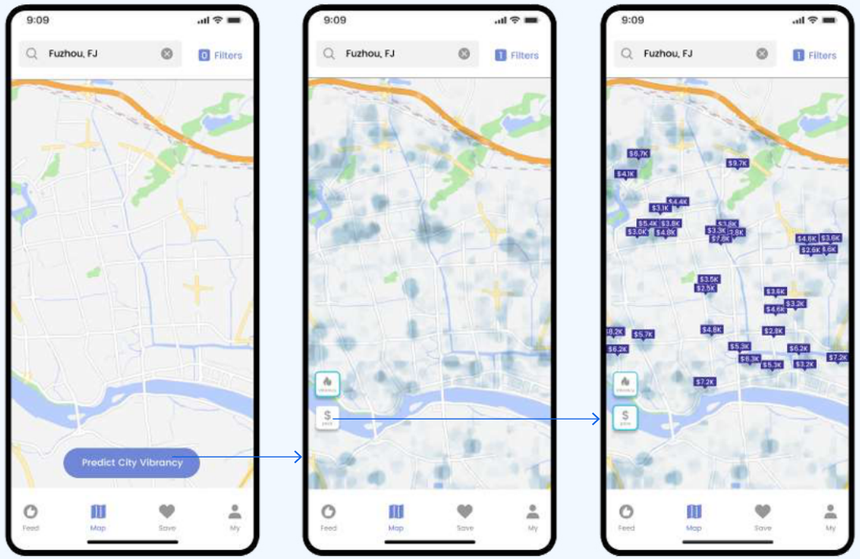


Training Input



Predicted Output

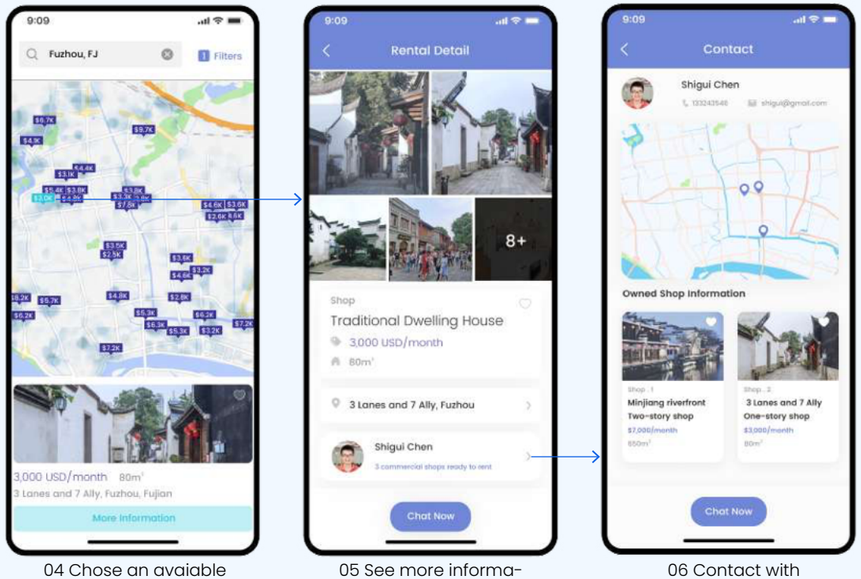
APPLICATION



01 Chose city

02 AI predicts the city vibrancy

03 AI predicts the city vibrancy



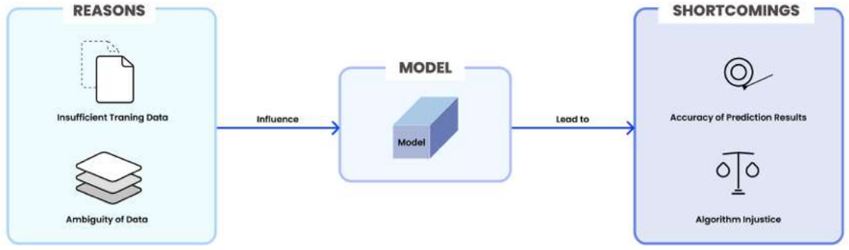
04 Chose an avaiable shop

05 See more information

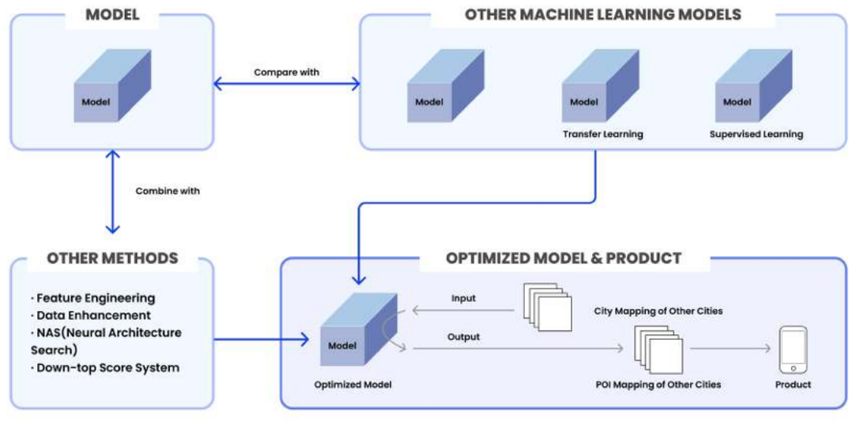
06 Contact with landlord

REFLECTION

The trained neural network model's prediction results for other cities' POI maps are flawed for two reasons. On one hand, it is due to insufficient training data input; on the other hand, the POI data used as training contains two different aspects. The vitality points generated from the bottom-up activities represent residents' quotidian activities should be screened out and analyzed from the points generated due to the high quality of the urban space itself. This flaw in AI algorithm and data mapping will inevitably lead to the unequal development of cities. Resources will further accumulate in areas with high spatial quality while decreasing in undeveloped areas with a high density of daily activities. The algorithm injustice reflected in this outcome will wipe out everydayness in the city.



In this regard, we plan to train the same data with three new machine learning models: small sample learning, migration learning, and expert learning. To better optimize this product, we can respectively train these three models, comparing the prediction accuracy of the three with the original one. At the same time, a corrective coordination mechanism based on prediction results and a bottom-up human feedback mechanism is crucial to avoid algorithm injustice. Setting up a scoring system and an incentive mechanism to invite bottom-up feedback from businesses already settled in a specific urban space will decrease the potential urban space bias.me will wipe out everydayness in the city.



ACCESSIBILE DESIGN FOR TACTILE GRAPHIC LEARNING CLASS

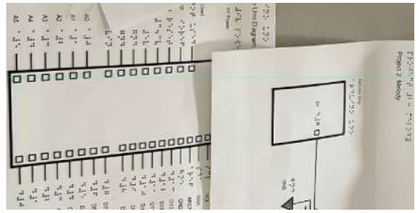
TACTILE LINK

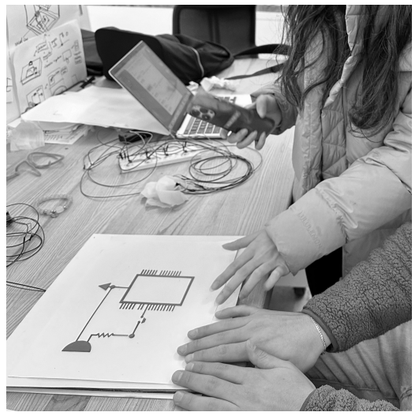
THE CHALLENGE OF TEACHING VI STUDENTS THROUGH TACTILE GRAPHICS

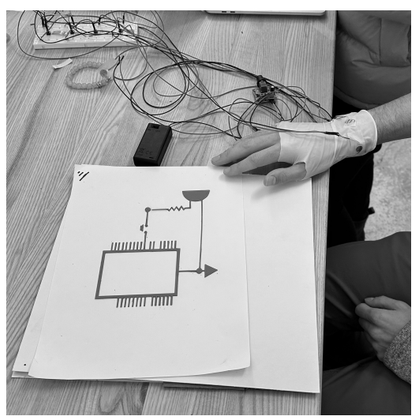
Vision accounts for 70-80% of our sensory input, which presents significant educational challenges for students with visual impairments (VI), especially in today's academic landscape. As learning materials increasingly incorporate visual content, there is a pressing need for alternative methods to foster inclusivity. These VI students frequently face obstacles in navigating such content, hindered by inefficient guidance and the added complexities of switching contexts in multi-student environments. Our project addresses these challenges through a comprehensive multi-stage approach. This includes conducting literature reviews, developing prototypes, and performing usability testing with both blindfolded individuals and those with visual impairments. The outcome is a wearable vibrotactile bracelet equipped with an integrated camera, designed to aid VI students.

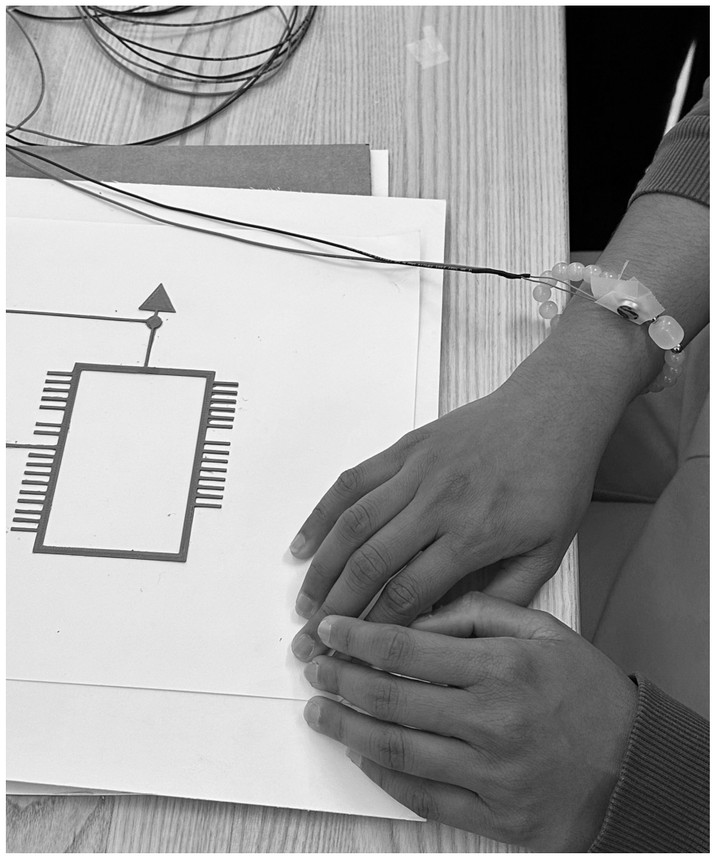
PROTOTYPE TESTING

Usability tests involving six blindfolded participants and one VI participant revealed the bracelet's superiority in task performance. The bracelet employs a vibration motor to direct users towards targets on raised-line graphics, adjusting intensity as per proximity. It incorporates a camera, mounted above the graphics, that works in tandem with a Raspberry Pi. This setup processes finger positions using OpenCV, ensuring alignment between physical and digital graphics through orientational lines.









FINAL DESIGN