

Business
INSPIRING INNOVATION

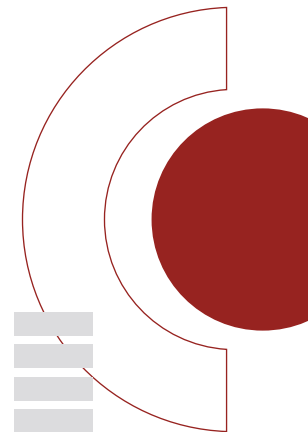


Member of VTC Group
VTC 機構成員

DESIGN THINKING

Business Casebook

2022



Be Brave Be
BOLD



BUSINESS DISCIPLINE

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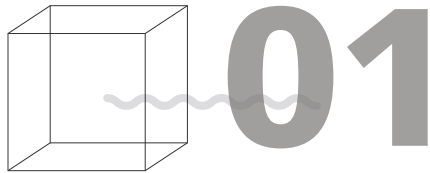
FOREWORD

The global pandemic has accelerated the importance and power of digitalization. To prepare students to thrive in an ever-changing world, Business Discipline continues to nurture skilled talent through the promotion of Design Thinking, Project-based Learning, Workplace Learning and Assessment, and Technology-enhanced Learning.

Embracing digital transformation for business practices, a more human-centered approach has been encouraged to interact and understand the needs of users. To provide hands-on learning opportunities to solve business challenges, the Discipline has deepened the collaboration with partners, such as the Urban Renewal Authority, to integrate learning with real-world experience.

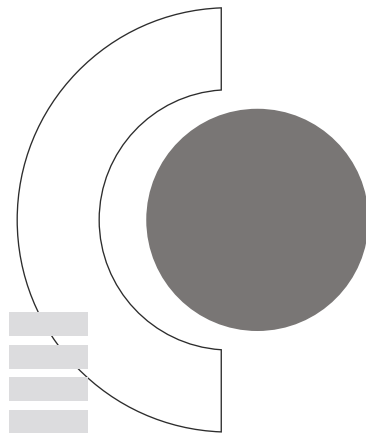
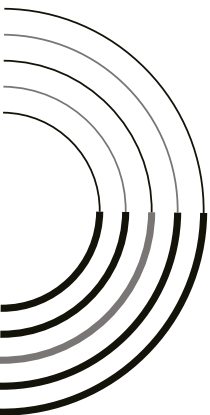
This casebook outlines the concepts and framework of how to apply Design Thinking. It is an inspiring guide to stimulate innovative and practical solutions that will ease business challenges.

Dr Wallace Lam
Academic Director
Business Discipline
Vocational Training Council



DESIGN THINKING METHODOLOGY





WHAT IS DESIGN THINKING?

Design Thinking empowers innovative projects with outcomes of user-centered practicability and sustainability.

Among problem-solving skills initiated by different professions and disciplines, Design Thinking is an approach with the essentials of interdisciplinary and divergent thinking. It is prototype driven to generate workable solutions to real problems.

It engages stakeholders from the beginning to the end of the innovation process, with an emphasis on the Empathize, Define, Ideate, Prototype and Test cycle.

Source: Lam, W., Wong, E., & K. Cheung. (2017). Design Thinking [Teaching and Learning Package]. Retrieved from https://clt.vtc.edu.hk/wp-content/uploads/2017/05/DT_TLP2.0_20170612.pdf

TRADITIONAL THINKING VS DESIGN THINKING

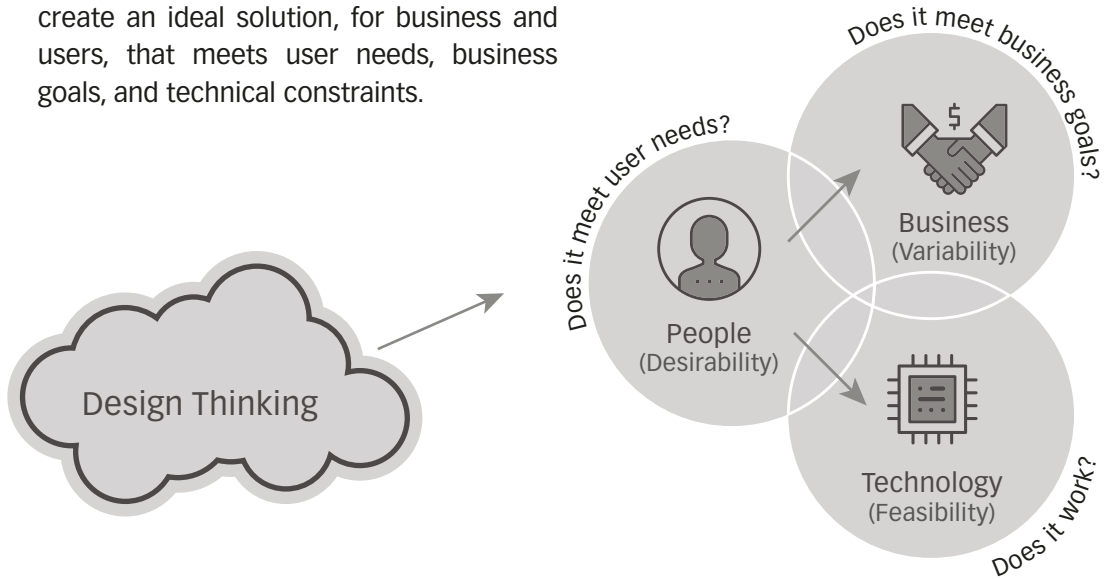


BENEFITS

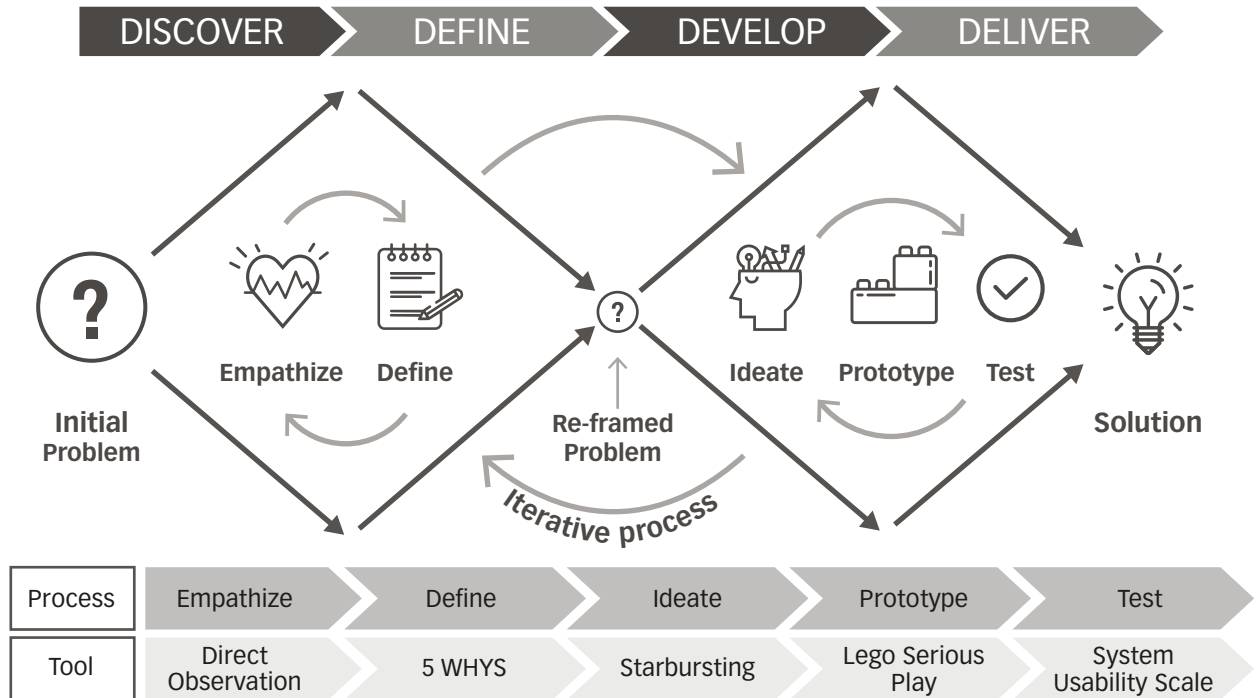


ESSENTIAL ELEMENTS FOR SUCCESS

The ultimate goal of Design Thinking is to create an ideal solution, for business and users, that meets user needs, business goals, and technical constraints.



DESIGN THINKING PROCESS



Direct Observation aims to gather data by watching interactions, processes, or behaviors when they take place.

STEPS

1. Determine the focus.
2. Design a system for data collection.
3. Select the site.
4. Conduct the field observation.
5. Complete and analyze the data.

Preparation



Observation
record form



Train
observers



Empathize

Understand the real needs of users.



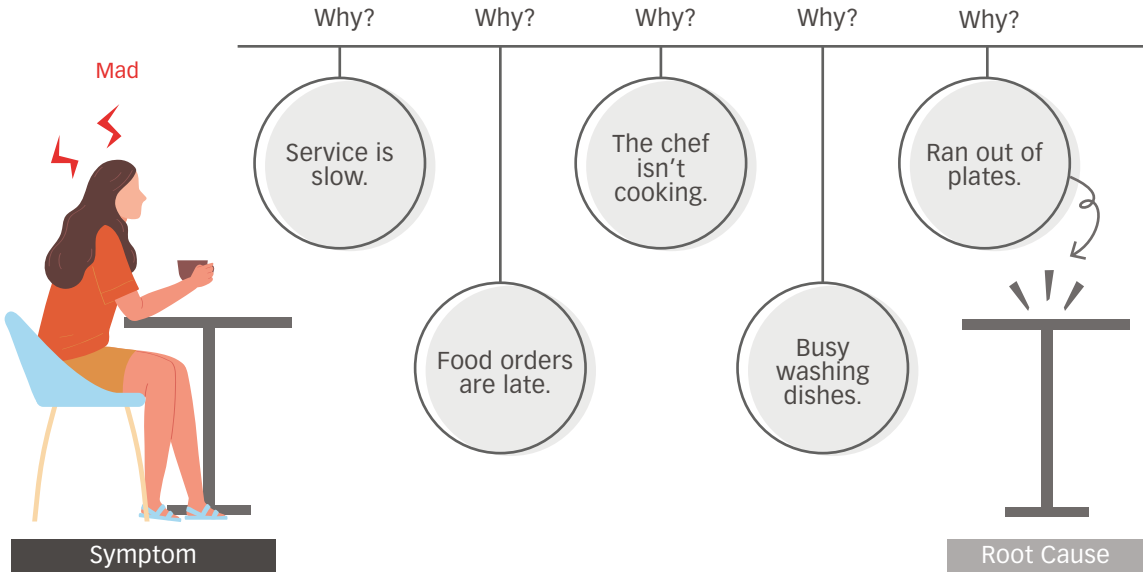
Define

Analyze and synthesize collected data into an actionable problem statement.

5 WHYS help identify root causes of a problem by asking the question “Why?” 5 times.

STEPS

1. Form and brief a team.
2. Define a problem.
3. Ask “Why?” five times.
4. Arrive at a solution and follow-up.



Starbursting is a systematic method that explores various dimensions of new ideas, and their viability, by asking specific questions.

STEPS

1. Draw a six-point star.
2. At each point of the star, write one of the main question groups: Who? What? When? Where? Why? and How?
3. Brainstorm and write down each type of question on the related star point.
4. Discuss the answers to each question.



Ideate

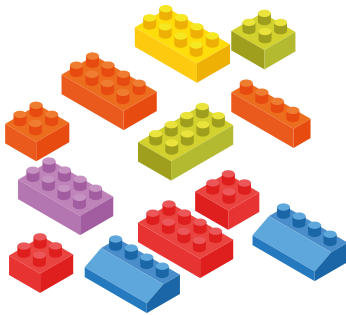
Brainstorm a variety of ideas for generating possible solutions.



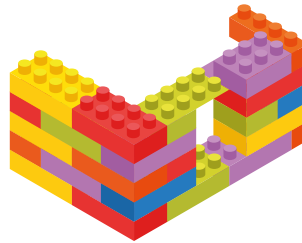
Lego Serious Play drives the team to think in a modular way and to visualize their ideas through metaphoric characters.

STEPS

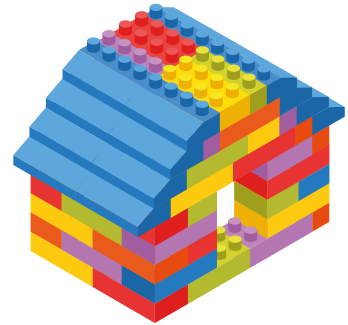
1. Ask a question.
2. Build and give meaning to a Lego model.
3. Tell and share a story about the Lego model.
4. Ask questions and reflect.
5. Extract insights and action points.



1



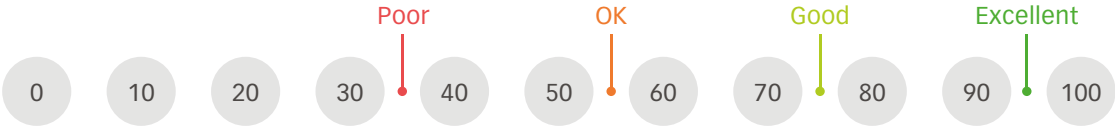
2



3

System Usability Scale comprises a 10-question survey to measure and score the usability of the system in question.

	Strongly Disagree				Strongly Agree
1 I think I would like to use this system frequently.	☐	☐	☐	☐	☐
2 I found the system to be simple.	☐	☐	☐	☐	☐
3 I thought the system was easy to use.	☐	☐	☐	☐	☐
4 I think I could use the system without the support of a technical person.	☐	☐	☐	☐	☐
5 I found the various functions of the system were well integrated.	☐	☐	☐	☐	☐
6 I thought there was a lot of consistency in the system.	☐	☐	☐	☐	☐
7 I would imagine most people would learn to use the system quickly.	☐	☐	☐	☐	☐
8 I found the system very intuitive.	☐	☐	☐	☐	☐
9 I felt confident using the system.	☐	☐	☐	☐	☐
10 I think that I could use the system without the support of a technical person.	☐	☐	☐	☐	☐

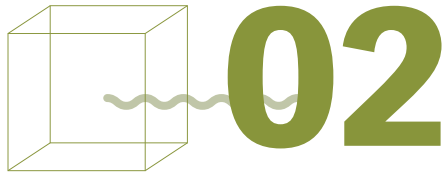


Acceptability Score



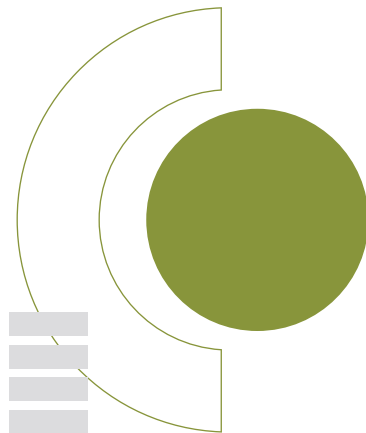
Test

Share the prototyped idea with users for feedback, and redefine solution.



BUSINESS CASES





CREATING A MEMORABLE EXPERIENCE FOR KWUN TONG YUE MAN HAWKER BAZAAR

David Chung | Paul Lee | Simon Lee | Tiffany Liu | Yan Choi

Background

The Urban Renewal Authority (URA) Kwun Tong Town Centre Redevelopment Project saw over a hundred hawkers relocated to Yue Man Hawker Bazaar (YMHB) of Yue Man Square in 2021.

Challenges

The number of shoppers was low, and business dropped dramatically after relocation.

Objectives

URA invited student teams from IVE (Kwun Tong) which were led by consultants to conduct a business transformation project.

- Discover critical root causes.
- Define significant pain points and expectations.
- Develop innovative initiatives.
- Deliver an action blue print.



DISCOVER

Through Stakeholder Mapping Techniques, the teams discovered two types of stakeholders - non-user and user. Also, 5 online expert interviews, several times of on-site observations and over 90 on-site empathy interviews were also conducted.

DEFINE

According to non-user-based stakeholders, their perceived root causes were:

- Insufficient promotion
- Lack of trendy product
- Competition from e-commerce
- Inconspicuous signage

The teams, however, identified additional needs of the shoppers through Persona Development Techniques.

Based on the InnoEdge User Emotional Measurement System, the teams found that YMHB shoppers had negative feelings about their experience.

	Persona A (F / 21-40)	Persona B (M / Over 21)	Persona C (F / 41-60)
 Positive	• Delighted: Human, personal touch of stall owners.	• Glad: Clean, air-conditioned shopping environment.	• Surprised: Found many things from their childhood.
 Negative	• Puzzled: Lack of clear signage for the entrances.	• Depressed: Lack of nostalgic environment from previous Kwun Tong's bazaar.	• Disappointed: Business hours of hawkers were inconsistent.

DEVELOP

The teams developed both strategic and execution level of suggestions through several rounds of ideation.

On a strategic level, the business (or operation) model and marketing strategies of YMHB were considered. The teams believed that historical value was an irreplaceable advantage of YMHB. They proposed "Made by Kwun Tong" brand to reframe shopper perceptions from old-school products to classic or nostalgic products. In addition, it would differentiate from similar, lower-priced products found in e-stores.

The teams developed over a hundred innovative initiatives, across every critical touch-point of the shopping journey. From approaching the bazaar to entering the bazaar and shopping journey, approaching specific hawkers, purchasing, payment, exiting stalls and even leaving the bazaar.

At the execution level, the teams undertook Idea Prioritization process to select the most valuable initiatives. Around 30 initiatives were finalized and classified into three categories.

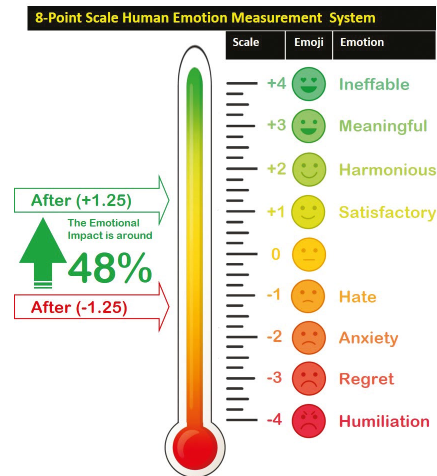
1. Environment
2. Facilities
3. Product Display Arrangements & Selling Process

DELIVERY

The teams conducted a formal presentation to stall owners with 30 suggestions for improvements included in the action blue print. They agreed with the findings from design-research findings and planned to implement our suggestions. In addition, the teams will support them with rapid prototyping, user testing, and solution launching.

Conclusion

Based on the InnoEdge User Emotional Measurement System, the teams believed the shopping experience would be enhanced from negative to positive. In other words, the predicted emotional impact of the YMHB business transformation project is approximately a 48% enhancement of the shopping experience.



We would like to thank Mr David Chung, Mr Paul Lee, Mr Simon Lee, Ms Tiffany Liu, and Ms Yan Choi of InnoEdge Consulting for sharing their expertise and experiences. Their contributions are invaluable and gratefully appreciated.

CREATING A CARING EXPERIENCE FOR PASSENGERS WITH SPECIAL NEEDS IN THE PUBLIC TRANSPORTATION

David Chung

Background

One of the major public transportation companies in the Greater Bay Area of China wants to be recognized as a provider of safe, effective, caring services.

Challenges

Passenger volume has dropped dramatically since the COVID-19 pandemic, with many people having to work from home. To enhance business, the company decided to create a differentiated passenger experience.

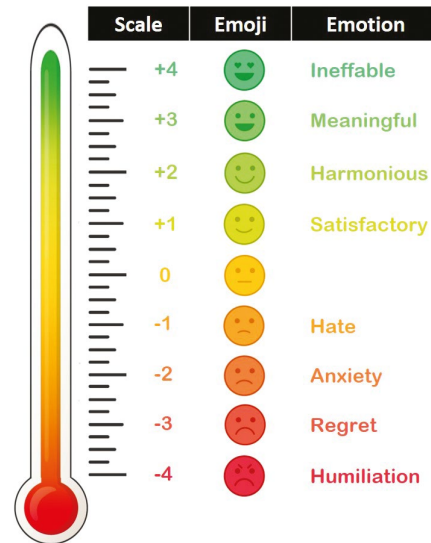
Project Objectives

- Discover unmet, hidden & potential needs.
- Define significant pain points.
- Develop digitalized customer-care services.
- Deliver the execution blueprint with predictable impact.

DISCOVER

After conducting desk research on passengers with special needs, management decided to focus on pregnant women and environmentalists. The team conducted on-site observations and empathy interviews with direct stakeholders such as passengers and indirect stakeholders such as front-line customer service staff and drivers.

The quantitative InnoEdge Human Emotion Measurement System was used to analyze the emotions and feelings behind passenger needs.



InnoEdge Human Emotion Measurement System

DEFINE

Over 100 sets of findings were analyzed. 24 pain points for pregnant passengers, and 15 pain points for environmentalists, were identified across seven customer journey stages: Navigating the Station, Non-paid Area, Ticketing, Paid Area, Waiting for Train, In-train, and Exiting Station. Two Personas were also developed for these segments.

Persona: Pregnant Women

Major Pain Points	Feeling
Some passengers were unaware of their condition and abused them for occupying courtesy seating, and ordering them to leave the seat.	Humiliation
The gates were too narrow and dangerous.	Scared
The design of the customer service center was inconvenient because pregnant bellies hit the counter.	Uncomfortable
Insufficient handrails for support in the train.	Worried

Persona: Environmentalists

Major Pain Points	Feeling
Posters were made of paper.	Hate
Escalators operate during non-peak hours.	Depressed
Paper-based receipt dispensed after ticket add-value services.	Disappointed
Lighting for the station was too strong.	Dislike

DEVELOP

The team invited staff from different departments to conduct brainstorming sessions and develop workable solutions:

Pregnant women

- Wider gates (with notification on the mobile App).
- Accessible toilets.
- Specific train compartments.
- Iconic badge with RFID tab.

Environmentalists

- Use eco-friendly ink and paper for printing.
- Provide information through mobile App or electronic notice board.
- Suspend unnecessary escalators during non-peak hours.
- Operate-on-demand through IoT technologies.

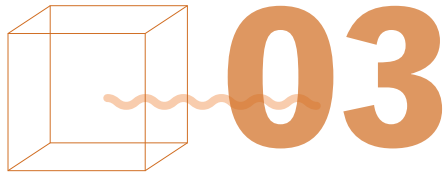
The team then prioritized the ideas into five categories: Emotional Impact, Feasibility, Originality, Cost Effectiveness, Corporate Social Responsibility.

DELIVERY

The project team predicted the emotional impact on the passenger experience after implementation of prioritized ideas.

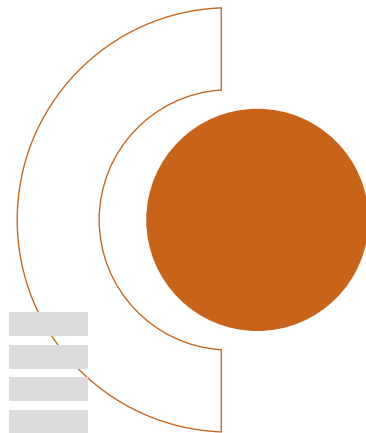
	Pregnant women	Environmentalists
Before	-1.7	-1.4
After	+2.1	+1.2
Increment of passenger experience	64%	52%

We would like to thank Mr David Chung, Founder, InnoEdge Consulting for sharing his expertise and experiences. His contributions are invaluable and gratefully appreciated.



STUDENT PROJECTS





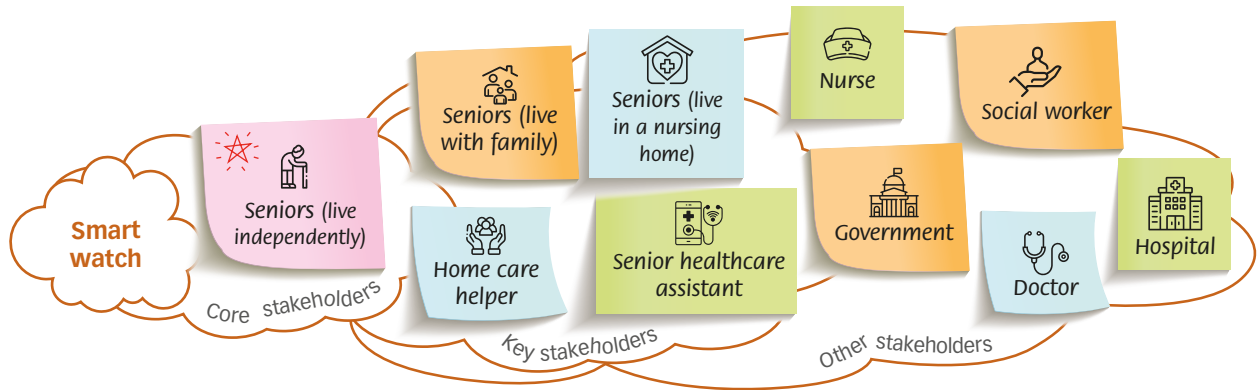
ADDING VALUE TO SMART WATCH FOR SENIORS

BACKGROUND

Seniors are turning to wearable technology to help them live safer and healthier. This project aimed to design a smart device that assisted independent living.

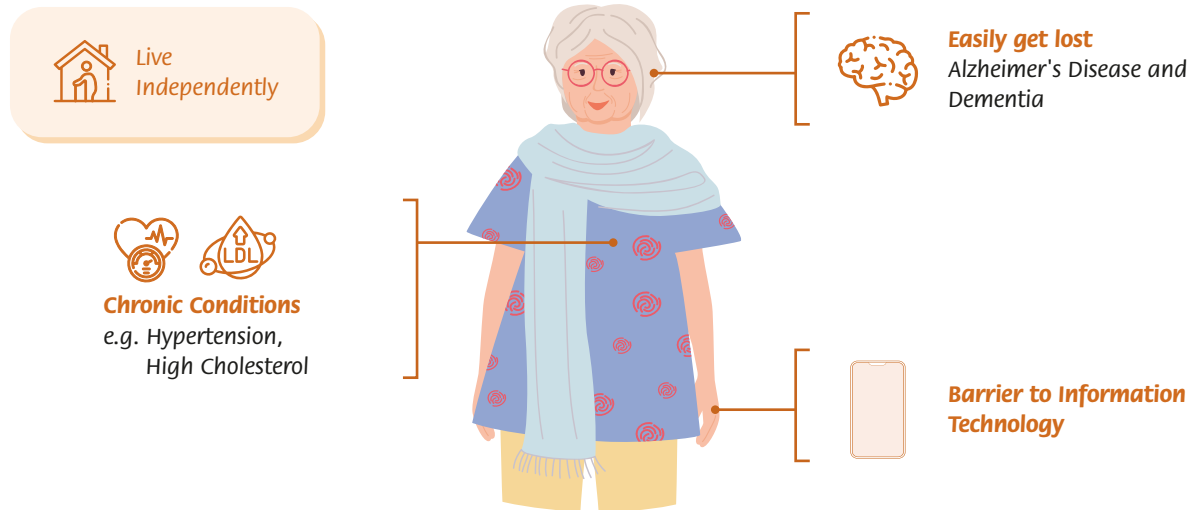
EMPATHIZE

A Stakeholder Map was developed to identify key stakeholders.



EMPATHIZE

The student team conducted research to understand pain points of users.



DEFINE

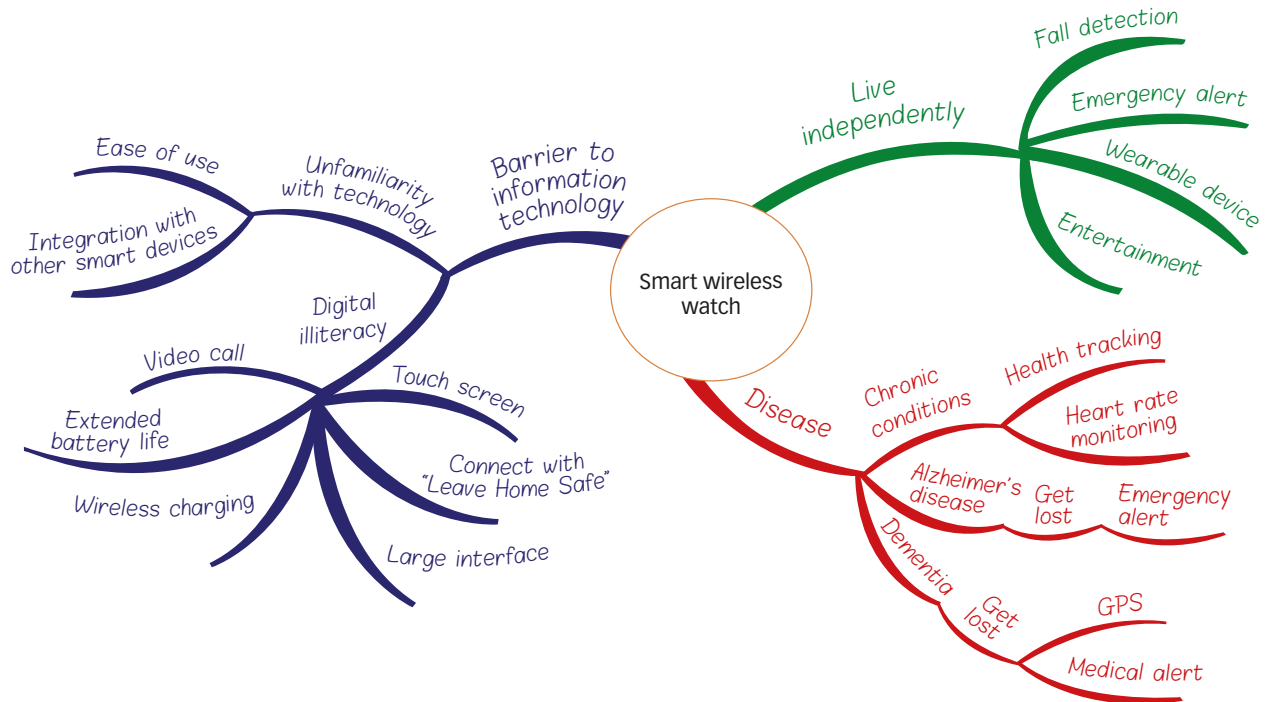
After identifying pain points, the team developed a problem statement.

How might we reinvent a smart wireless watch to help Seniors live independently and safely?

Project 1

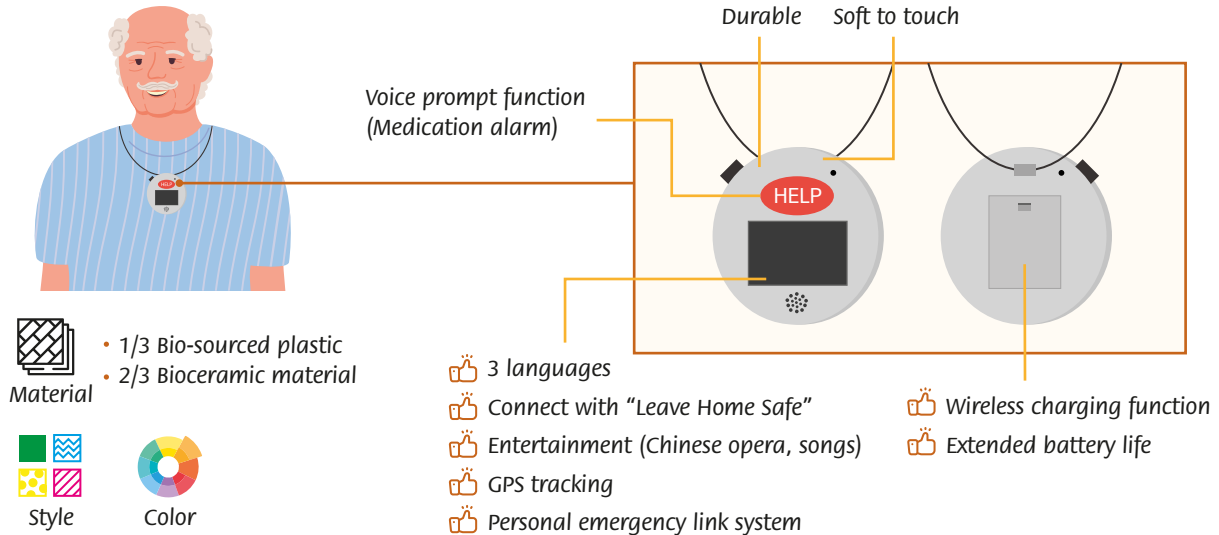
IDEATE

The team used a mind map to illustrate possible solutions.



PROTOTYPE

A hand-sketch prototype was created to show ideas to users.



TEST

Comments were collected from users.



I don't like to hang it on my neck, its uncomfortable.



It is too bulky.

BUILDING MONEY MANAGEMENT CONCEPT FOR CHILDREN

BACKGROUND

Money management is one of the most valuable life skills for children. This project aimed to encourage children to embrace the culture of saving.

EMPATHIZE

The student team created Personas to become familiar with user saving and spending habits.



Cindy
Female
10 years old
Primary 4

“ I want to try different types of desserts and buy a special princess dress. ”

Behavior Eating Shopping Dessert
Hair accessories Clothes

Goal ■ Record all expenses and saving



Ben
Male
11 years old
Primary 5

“ I really want to have my favorite figure. ”

Behavior Playing Guitar Shopping
Captain America

Goal ■ Think before buy



Chloe

Female
11 years old
Primary 6



I want to go shopping
without consideration
of price.



Behavior

Watching

Disney

Animations

Comics

Cartoon

Goal

Price comparison



Sunny

Male
12 years old
Primary 6



I desperately want a
Kamen Rider Belt.



Behavior

Eating

Japan

Figure

Toy

Games

Goal

Identify needs and want

PAIN POINTS



Do not have price
comparison.



Lack of a good spending
and saving habits.



Frequent impulse
purchases.

Project 2

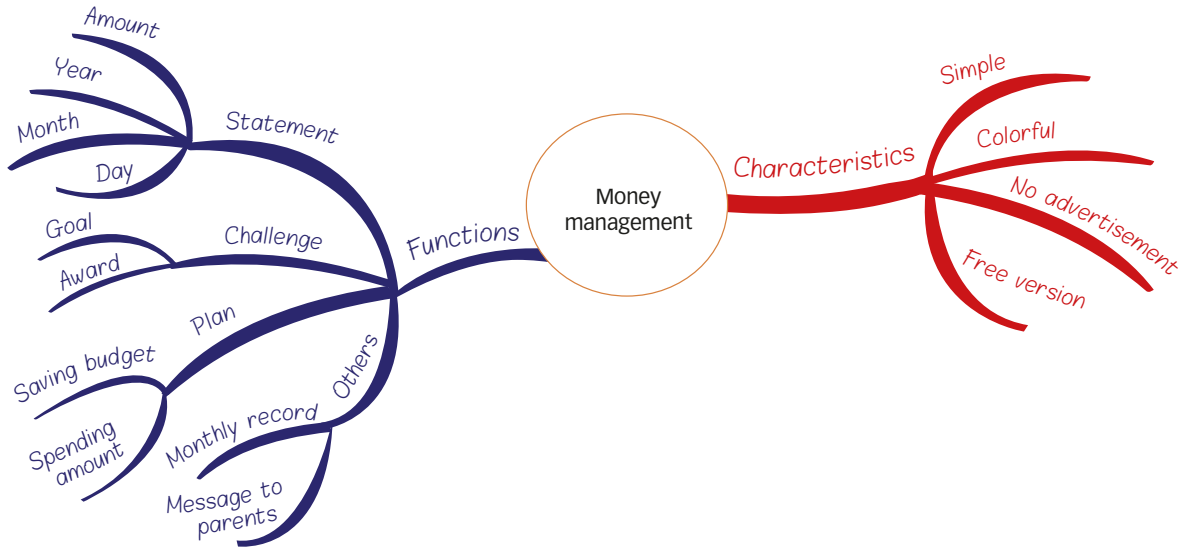
DEFINE

A refined problem statement was developed.

We help primary school students develop money management skills by designing a money-saving Apps.

IDEATE

The team used a mind map to structure possible solutions.



PROTOTYPE

A hand-sketch prototype was created to describe the feature of the Apps.



TEST

Comments were collected from different users.



Positive Feedback

- I like it because it has a simple interface and a pretty easy learning curve.
- The design is cute.



Negative Feedback

- Lack of information guide.
- Is it safe to use?

DESIGNING A BUS APPS FOR ELDERLY COMMUTERS

BACKGROUND

Elderly people in Hong Kong prefer travelling by bus. This project aimed to propose technological solutions that support their independence and quality of life.

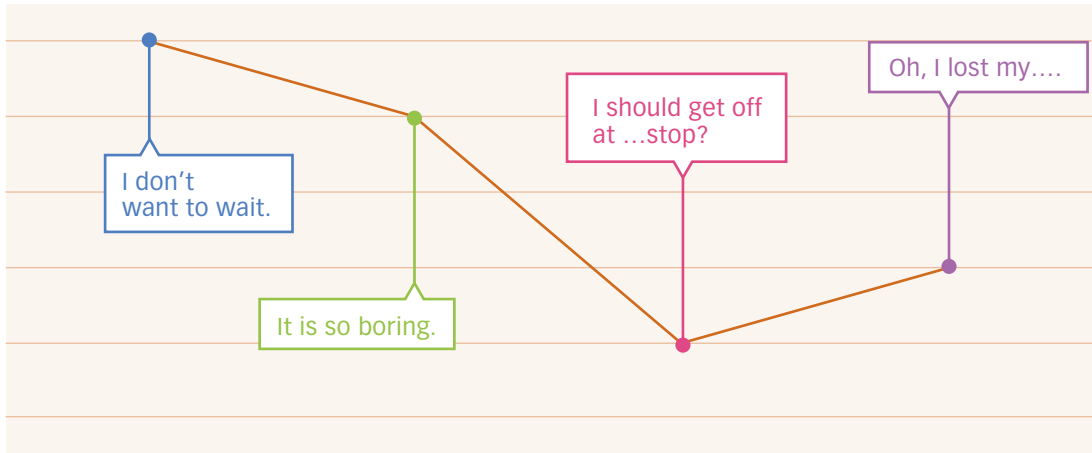
EMPATHIZE

To find users with different needs and expectations, the student team built simple user personas.

	 Mr Lee 	 Ms Tam 	 Mr Ng 
Frequency (per week)	5 times	1 time	3 times
Characteristic	 Love riding  Reading current news	 Poor vision  Forget to get off	 Tech illiterate  Lost property
Goal	A pleasant journey	Apps for visually impaired	Personalized support

EMPATHIZE

A customer journey map was developed to understand user pain points.



Activity

Wait for a bus

Get on the bus

On the bus

Get off the bus

Feeling

🙄 Hope

😐 Boring

😬 Tense

😟 Worried

Thoughts

- "Why has the bus not arrived yet?"
- "What?? After waiting for so long, THE BUS IS FULL! OH MY GOD!"

- "I want to read some news."

- "Why do I need to ask other passengers every time."

- "Finding lost items is time-wasting."

Project 3

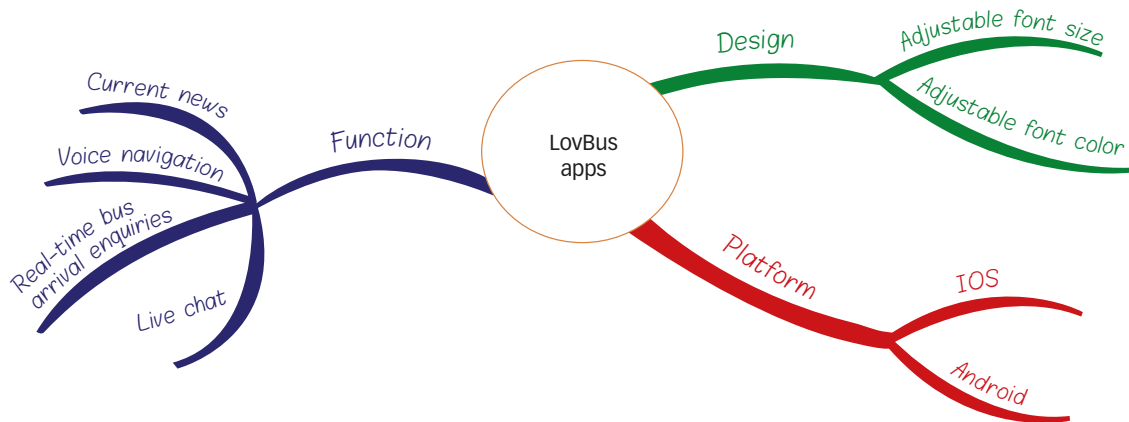
DEFINE

After stepping into the shoes of the users, the student team developed a problem statement.

We help the elderly by developing a personalized bus Apps to improve their transport mobility.

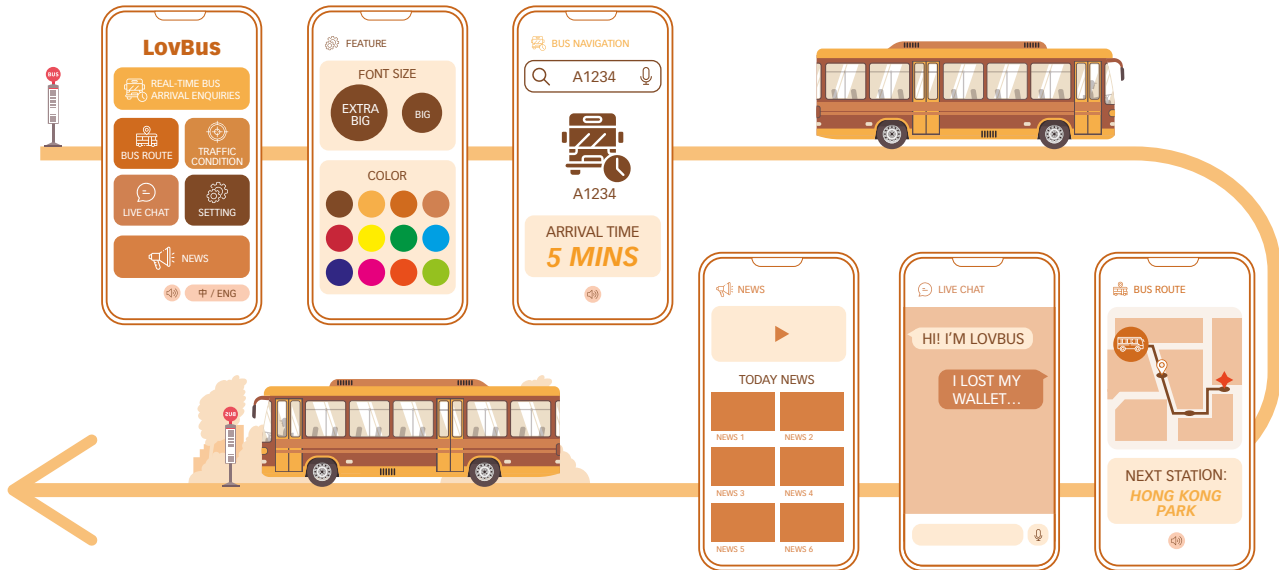
IDEATE

The team made a mind map to illustrate possible solutions.



PROTOTYPE

A storyboard, with simple drawings, illustrated how to use a mobile application to solve the problems.



TEST

Comments were collected from different users.

The buttons on this app are very big,
I can see the words clearly.

This app is very accurate and concise.

ENHANCING CUSTOMER ENGAGEMENT WITH GAMIFICATION IN A FAST FOOD CHAIN

BACKGROUND

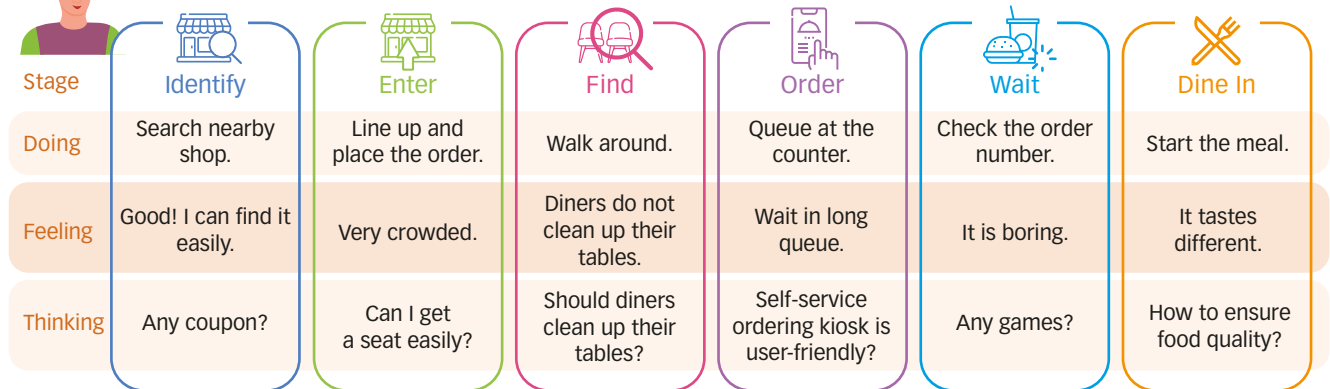
Teenagers in the 21st century love fast food. This project aimed to advance the the App of a fast food chain to enhance customer engagement and retention.

EMPATHIZE

A customer journey map was developed to understand customer pain points.



Tony (20 / Male / Student / Like fast food)



DEFINE

Student team compared the frequency and importance of user experiences to prioritize the pain points.



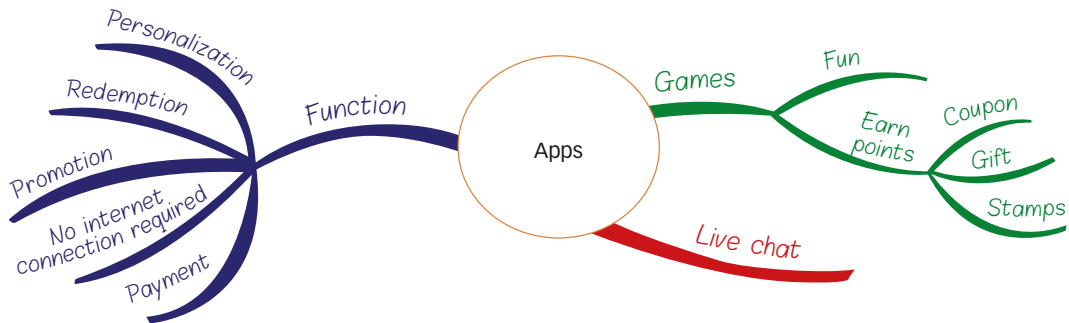
The team drafted an actionable problem statement to define the challenge.

How might we engage customers with gamification Apps to enhance dining experience in a fast food chain.

Project 4

IDEATE

The team made a mind map to illustrate possible solutions.



PROTOTYPE

A hand-sketch prototype was created to describe the Apps.



TEST

Comments were collected from different users.

The Apps can retain users by offering rewards.



The game encourages user engagement.



REINVENTING SPORTS MASK FOR TERTIARY STUDENTS

BACKGROUND

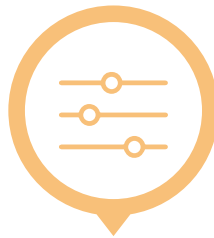
Wearing a mask is one of the measures to prevent respiratory diseases, however, it may negatively affect exercise. This project aimed to design a sports mask for working out comfortably.

EMPATHIZE

The student team conducted research to understand user needs and wants.



Breathable



Adjustable



Low-priced

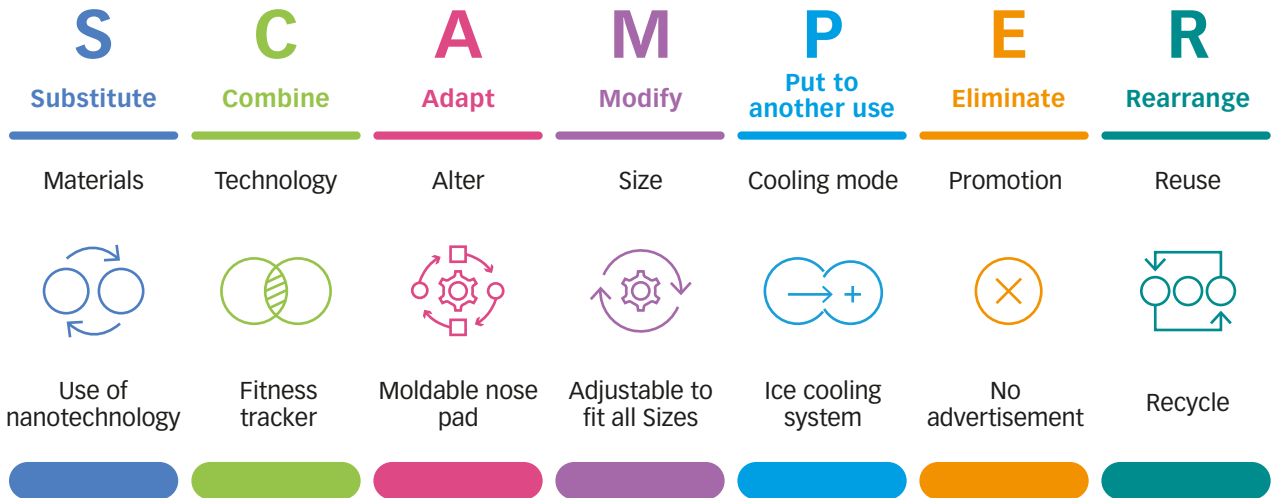
DEFINE

A refined problem statement was developed.

To design a sports mask for tertiary students for working out.

IDEATE

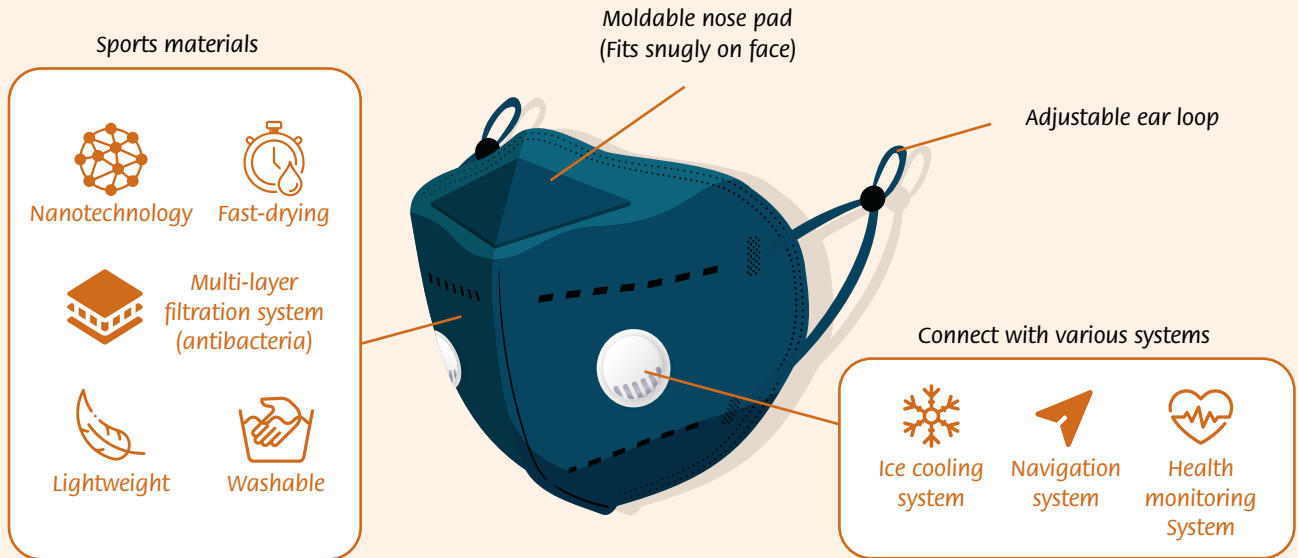
The team used the SCAMPER creativity technique to develop ideas to improve existing problems.



Project 5

PROTOTYPE

A simple drawing was used to show ideas to users.



TEST

Comments were collected from users.



The battery capacity is rather low and it's too heavy.



Light function should be included.

PROTOTYPE (AFTER TEST)



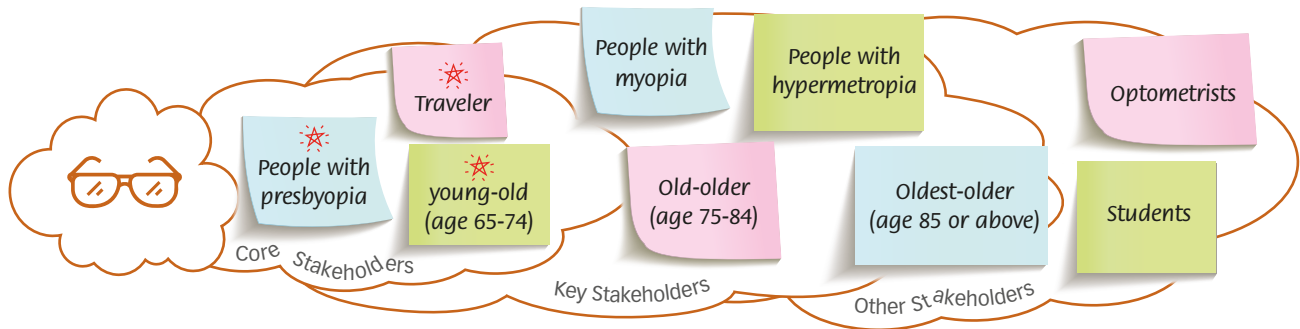
ADDRESSING THE TRAVEL NEED OF YOUNG-OLD

BACKGROUND

Many young-old like travelling after retirement, however, vision challenges and language barriers may have a negative impact on them. This project aimed to design a smart glasses to create a stress-free experience to young-old travelers.

EMPATHIZE

A Stakeholder Map was developed to identify, prioritize, and understand key users.



DEFINE

The team used the SCAMPER technique to generate ideas for improvement.

S	Substitute	Made of titanium	
C	Combine	Progressive lenses and live-translation glasses	
A	Adapt	Project on lens	
M	Modify	Larger frames	
P	Put to other use	Camera	
E	Eliminate	Screws	
R	Re-arrange	Solar energy	

Project 6

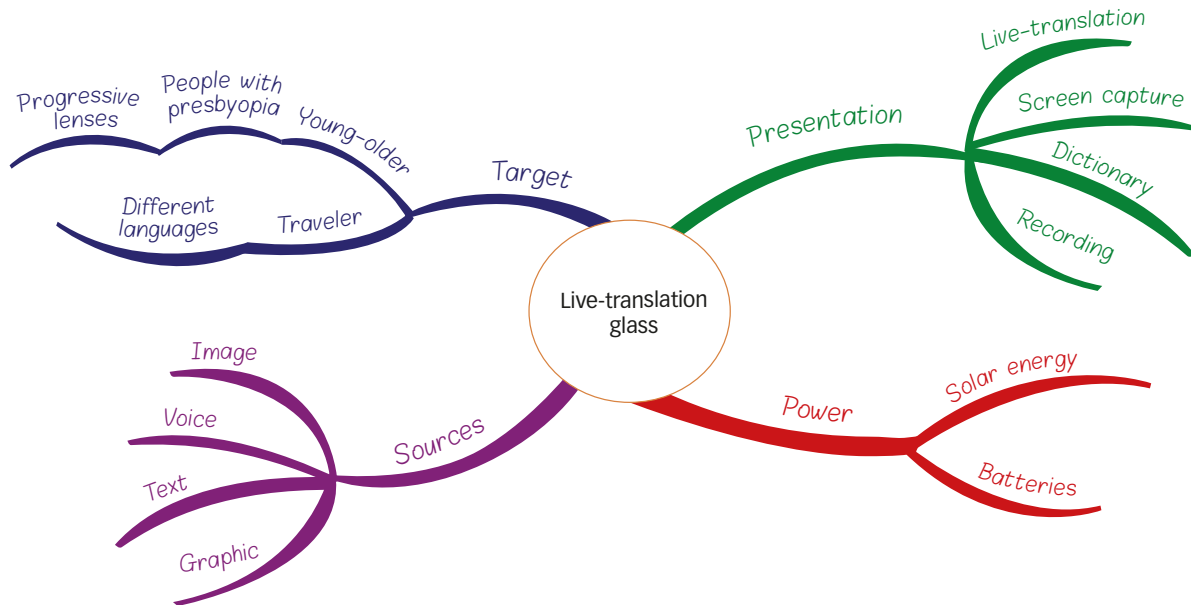
DEFINE

A refined, user-centered problem statement, was developed.

Create an enjoyable travel experience by designing live-translation glasses with progressive lenses for young-old with presbyopia.

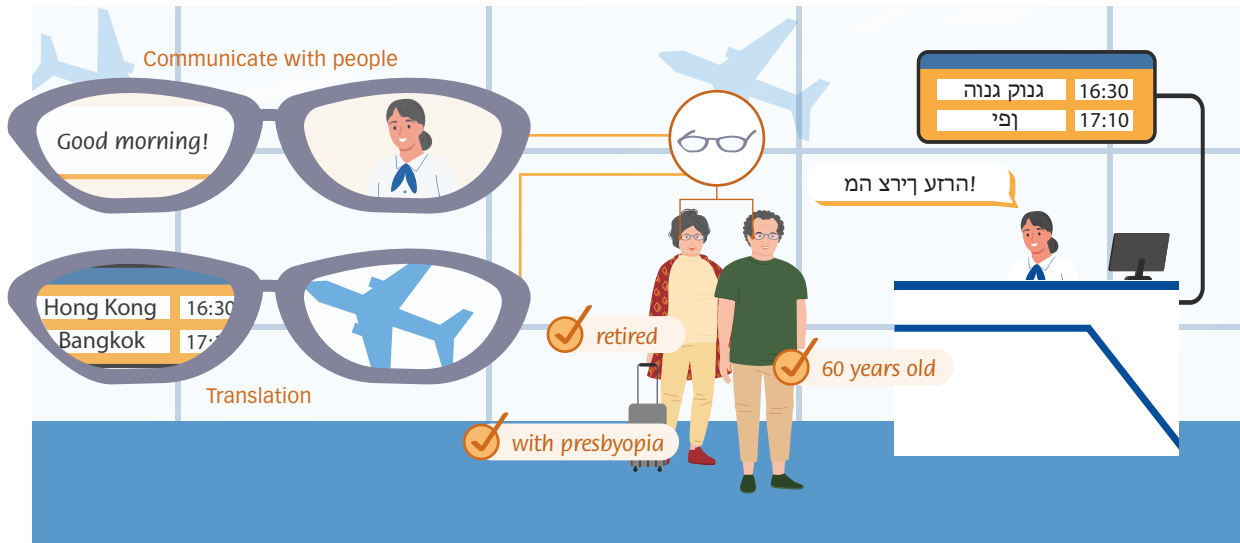
IDEATE

The team used a mind map to illustrate possible solutions.



PROTOTYPE

A storyboard, with simple drawings, illustrated how to implement solutions.



TEST



The glasses are large and heavy.



I like it. All-in-one glasses solve my language barrier and Presbyopia.

ACKNOWLEDGEMENTS

The Business Discipline would like to express our sincere gratitude to the following people for their contributions.

- Mr David Chung, Mr Paul Lee, Mr Simon Lee, Ms Tiffany Liu and Ms Yan Choi, InnoEdge Consulting for sharing a business case: Creating a memorable experience for Kwun Tong Yue Man Hawker Bazaar.
- Mr David Chung, Founder, InnoEdge Consulting for sharing a business case: Creating a caring experience for passengers with special needs in the public transportation.
- Staff of Business Discipline for their generous support.
- All of the students who have contributed their work herein, from HD in Accountancy with Business Analytics; HD in Advertising and Media Communications; HD in Aviation and e-Logistics; HD in Banking and Financial Analysis; HD in Event Marketing and Digital Promotion and HD in Social Media and Digital Marketing. Names are listed in alphabetical order for each project:



Adding Value to Smart Watch for Seniors

Lai Kui Chi
Lo Tsz Yeung
Ng Ho Ming

Tang Yuen Sum
Wong Shu Wong

Enhancing Customer Engagement with Gamification in a Fast Food Chain

Chan Ka Fu
Huang Jia Cheng
Lam Oi Hon

Ma Xing Fa
Ng Sau Kwan
Wong Siu Lung

Building Money Management Concept for Children

Chiu Sin Ying
Ho Man Chung

Lai Hiu Wah
Law Ming Chung

Reinventing Sports Mask for Tertiary Students

Chow Yin Tung
Chung Ka Yan

Ho Cheuk Ying

Designing a Bus Apps for Elderly Commuters

Fan Kwok Mau
Ng Kwan Ming

Ng Wing Sang
Tam Wing Kwan

Addressing the Travel Need of Young-old

Au Sze Kiu
Chen Chun Lin
Cheong Chun Yung
Kwok Ho Yin
Lai Hong Ching

Lam Ka Yam
Lam Kin Lok
So Yim Lam
Wong Pui Sze

Reference

Lam, W., Wong, E., & K. Cheung. (2017). Design thinking [Teaching and Learning Package]. Retrieved from https://clt.vtc.edu.hk/wp-content/uploads/2017/05/DT_TLP2.0_20170612.pdf

Measuring and Interpreting System Usability Scale (2022). Retrieved from <https://uiuxtrend.com/measuring-system-usability-scale-sus/>

Introduction to Design Thinking using Lego Serious Play. (2021) Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/risk/deloitte-cn-ra-garage-lego-serious-play-en-210115.pdf>

Dr Rafiq Elmansy. (2021) Starbursting Technique: Evaluating New Ideas
<https://www.designorate.com/starbursting-method/>

MasterClass. (2021). How to Use the 5 Whys Technique for a Root Cause Analysis
<https://www.masterclass.com/articles/how-to-use-the-5-whys-technique-for-a-root-cause-analysis#2SCqmWP9Us2c9277uy0Ri>

Data Collection Methods for Program Evaluation: Observation (2018). Retrieved from <https://www.cdc.gov/healthyyouth/evaluation/pdf/brief16.pdf>

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