

I certify that the work included in this portfolio is my own original work. Work included which was conducted as part of a team or other group is indicated and attributed as such the other team members are named and a true description of my role in the project is included.

Lei Shi

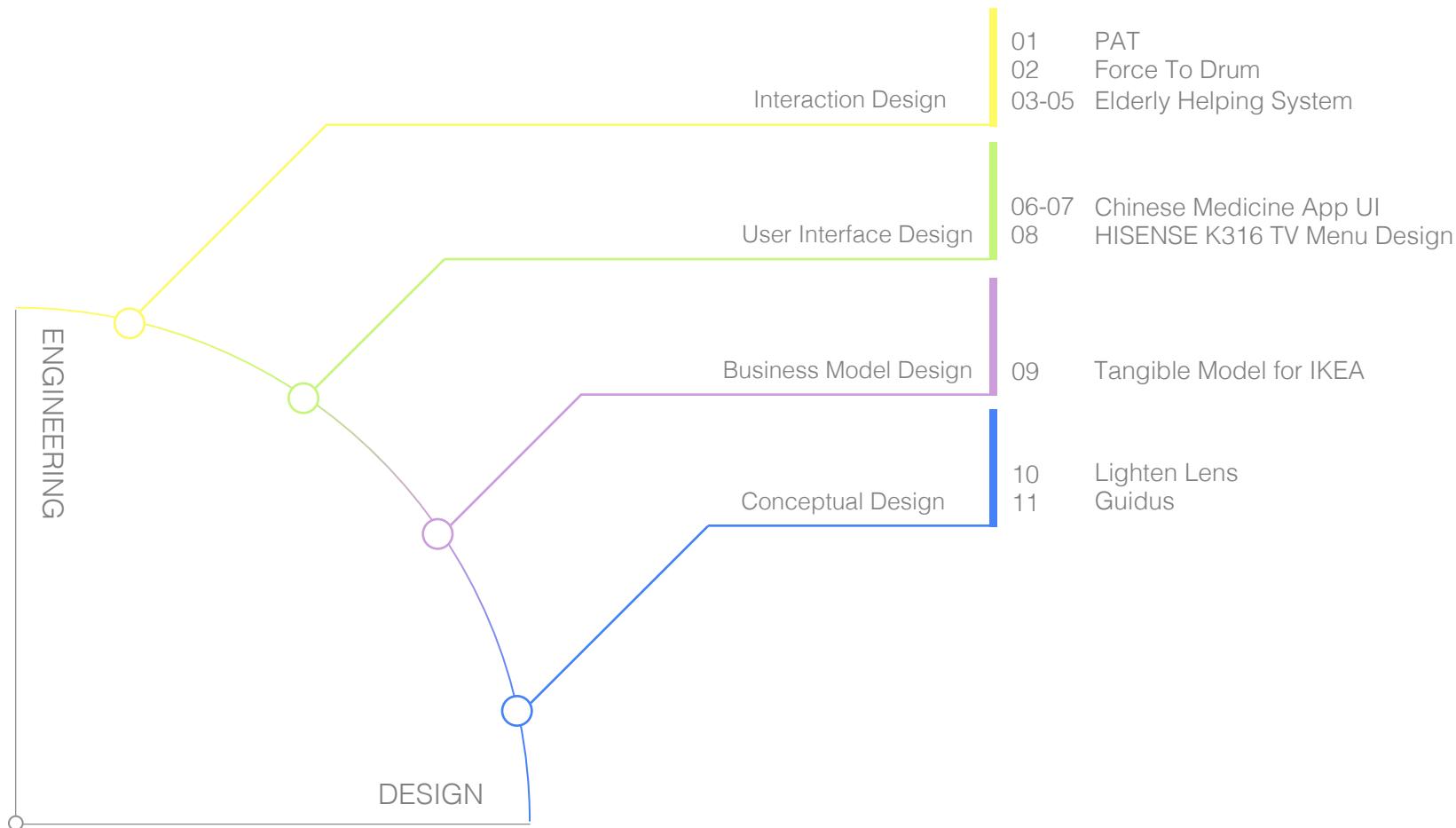
Signature:

A handwritten signature in black ink that appears to read "Lei Shi".



Lei Design

I'm a passionate student with cross-disciplinary background in engineering and design. Focusing on how to utilize technology in a humanistic way, my projects are dealing with engineering knowledge while taking human factors into consideration. I hope that you could enjoy this portfolio. You could also find more information in my website: <http://shilei.me>





Games are necessary for senior citizens to kill their monotonous time after retiring. PAT is an interesting machine used for encouraging the senior citizens to play game together. Pat, then drag the PAT Mouse will create nice pictures. Larger size is designed for their decreasing eyesight, which also allows more people to play together. Connected to the net, more dramatic pictures as well as news images can be provided, which offers a brand new approach to make senior citizens informed.



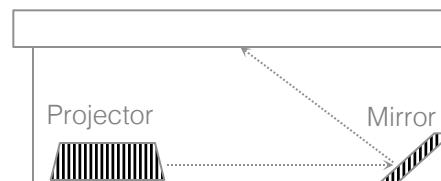
Based on
Processing
Team Work with *Xing LU, Qilun SHENG, Yinan WEI*
Team Leader, Brainstorm, Code entire program



The user interface is very friendly with color-marked warning and music reminder.



A projector and a mirror are applied to make the screen in low cost.



The only controller of this game machine is a one-button PAT Mouse. Users may pat and move the controller to experience the game.



Based on
Arduino

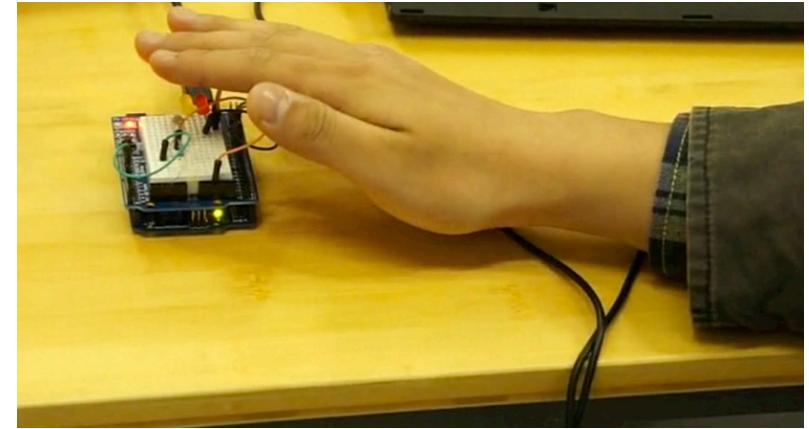


Movie in
Shilei.me

Team Work with *Hanyue HU, Jiahui ZHOU*
Team Leader,
Set up Arduino boards, Code entire program



Have you ever put the tiny pieces of paper on the desk and hit the desk to see the movement of the paper? This work is inspired by this trick and combined with the traditional Chinese art. This work is aimed to imitate the action of hitting the drum, which can be seen through the movement of the leaves on the drum face. The lower you put your hand above the sensor(just like the heavier you hit), the higher the leaves jump. More over, with the classic background music, it conveys a feeling of zen(禅).



Made with two Arduino boards. One is to capture the strength of hitting the drum, the other is to imitate the force of the natural wind;
Two net-connected computers. One serve as the server, the other as the client.

China has already entered into the aging society period. China's aging population and low retirement age lead to large social endowment burden. As Chinese nursing home system is not perfect, many old people still live in the community specialized for old people. Thus, design for aging should be attached more importance as an opportunity to get the elderly accepted and involved in the society again. How to improve the elderly's physical and social mobility is exactly what this project focuses on.



Based on
Arduino



Movie in
Shilei.me



Anna Qian



Basic Info

- 70, Female
- Hangzhou
- Retired
- Live Alone

Hobby

- Watching TV
- Walking
- Reading Newspaper

Lifestyle

Prefer colorful life, but actually, lead a monochrome and simple life

Special Experience

She used to share happiness with former colleague when she retired. However, things changed when she move to the new community.

Character

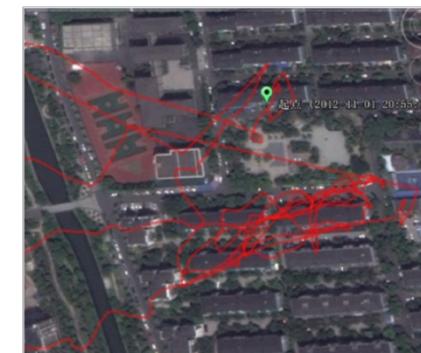
Relatively optimistic in life
Eager for social activity
Always tend to save money

Complaint

Enjoy reading newspaper but have a hyperopia
Always want to be with her children but afraid of disturbing their work
Love to go out but have trouble in movement

A remote monitor combining Arduino and Bluetooth technology is applied to record the daily activities of participants so that I may figure out their potential needs. Analyzing the database record of coordinates from six participants in real-time using methods like persona and empathy map, I discovered that certain retirees were still capable of taking care of themselves.

The persona is shown in the left side.



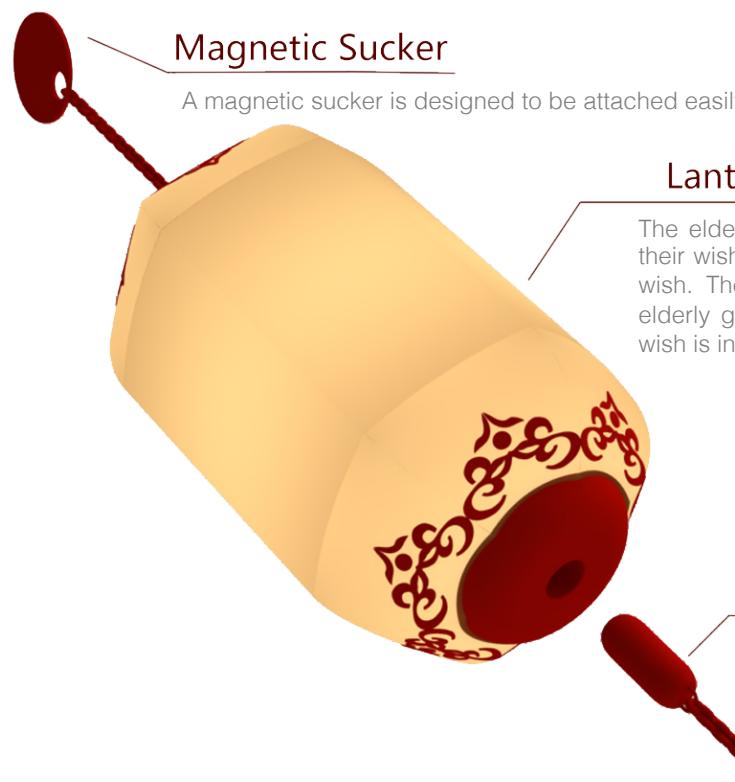
Monitor Data



Group Interview

Team Work with Ke MA, Yedan QIAN, Tian WANG, Jian CHEN
Team Member,
Persona, Interview, Brainstorm, Storytelling

Wish Pass is a helping system in the aging community consisting of Wish Lanterns for the elderly and a Wish Tree in the community center. The elderly can make wish to the lantern and hang it to the tree and let other people to find their wish and help them to realize. In return, those helpers can get the lantern and make a wish by themselves. The helping system was made to encourage the people who have just retired to help the elderly people who are more than 65 years old.



Magnetic Sucker

A magnetic sucker is designed to be attached easily to Wish Tree.

Lantern

The elderly can simply press the lantern to record their wishes or to make a decision to realize others' wish. There will be voice instructions to help the elderly get familiar with this product. Also, when a wish is inside the Wish Lantern, it will shine.

Pendant

The pendant serves as a key to check whether the wish is realized. Inserting the pendant into its corresponding lantern means the end of a wish-realizing process.



A scenario was made for this concept so that I can clarify the usage of the Wish Lantern in the helping system.



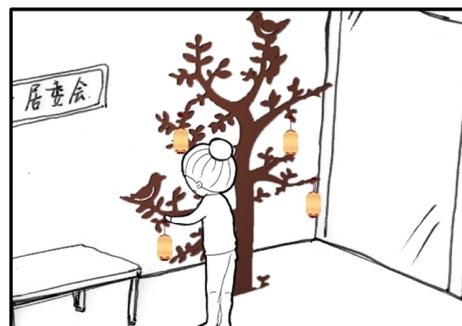
1. Grandma Wang wanted someone to read newspaper for her.



2. She spoke out her wish to the Wish Lantern with voice instruction, and it recorded the wish.



3. The lantern lit up and then Grandma Wang took off the pendant and kept it by herself.



4. She hung the lantern on Wish Tree in the community center.



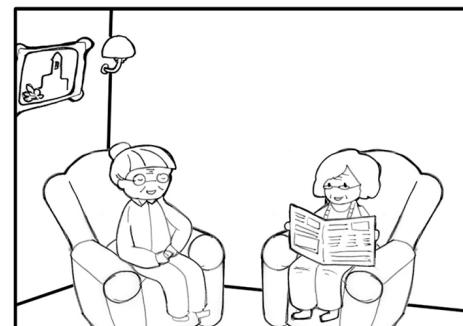
5. Grandma Li took the lantern down and decided to help Wang after listening to her wish.



6. She called Grandma Wang to ask when she should come.



7. Grandma Li visited Grandma Wang in the afternoon.



8. She read newspaper for Grandma Wang, and they spent a wonderful afternoon.



9. Grandma Wang inserted the pendant and gave the lantern to Li, so Li can make a new wish.



iTMC
LOGO

Demo in
Shilei.me



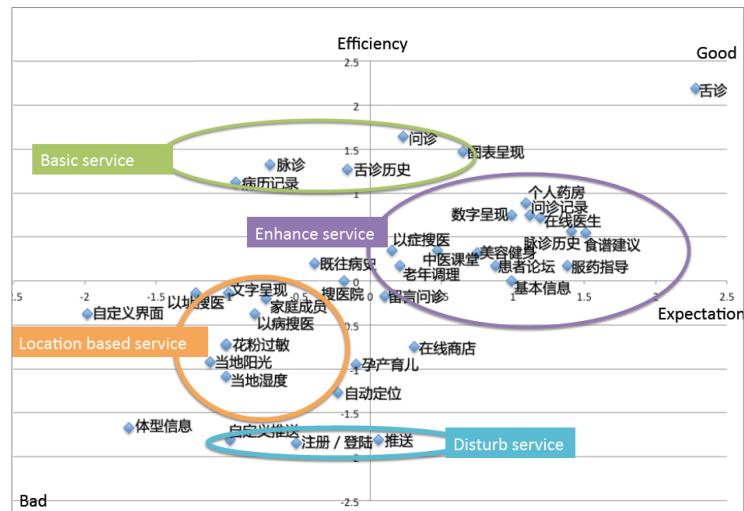
Chinese
Medicine
App UI

iTMC, innovation traditional Chinese medicine, is an App I developed with research team in UC Davis. Users could detect their health conditions by simply scanning their tongue or face. During this project, I redesigned the user interface with iOS7 elements and try to make it more professional and concise.

Team Work with Hanlu HUANG, Guanjie LI, Jinzhen FAN
Advised by Dr. Tingrui PAN, UC Davis
Logo design, UI design, Partly code the animation for App

USER INTERFACE DESIGN
Chinese Medicine App UI

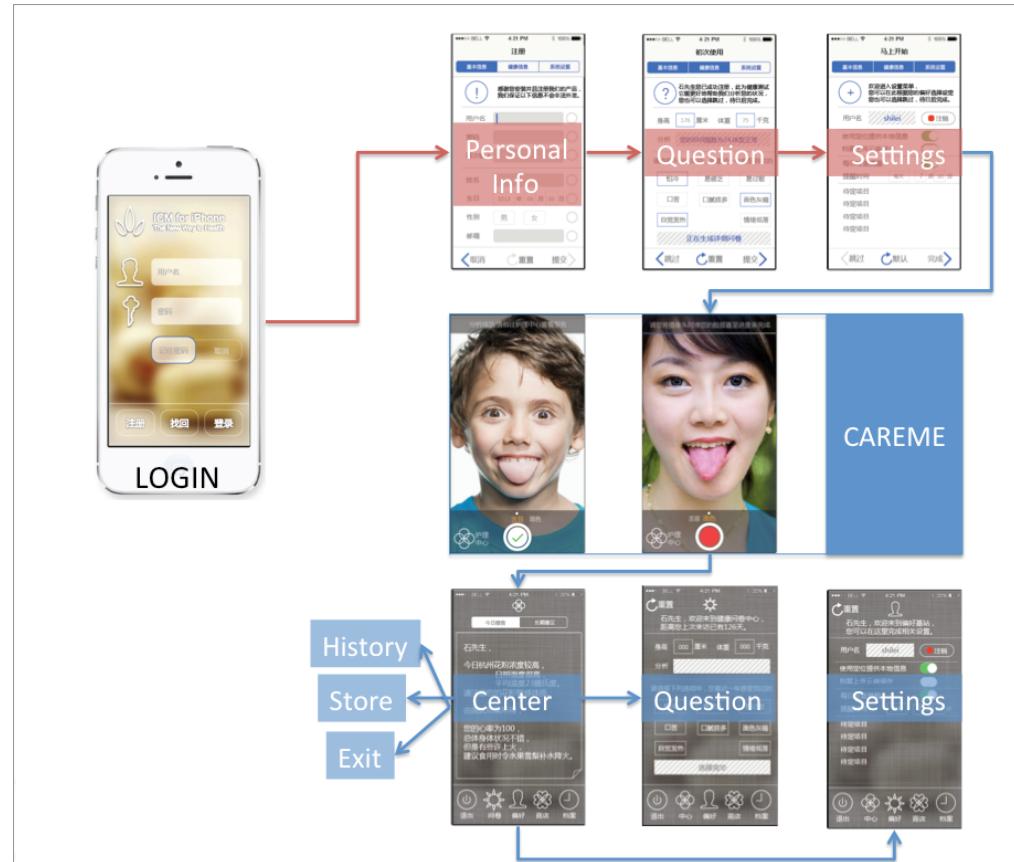
Unrotated Factor Matrix						
Factors	1	2	3	4	5	6
Sorts						
Teamleader	0.71432	0.11841	0.04523	0.68112	-0.01570	-0.09747
Optics Developer	0.77506	-0.13757	-0.48983	-0.04621	-0.20617	0.30949
Psy Developer	0.62218	-0.59110	-0.13729	-0.10804	0.45747	-0.15393
CS Student	0.57848	0.65938	0.19185	-0.13597	0.37153	0.19301
Med Student	0.61805	-0.41665	0.61286	-0.10566	-0.20817	0.11968
UX Designer	0.77795	0.34178	-0.07328	-0.30792	-0.25693	-0.33434
Eigenvalues	2.8199	1.1075	0.6786	0.6022	0.4994	0.2923
Percentages	46.998	18.259	11.310	10.037	8.324	4.872
Cumul. Percent	46.998	65.457	76.767	86.804	95.128	100



HCI-Q Method



With the HCI-Q method defined by scholars from UW, I analyzed the first version of this App in order to improve the user experience of this App and redesigned the logic structure.



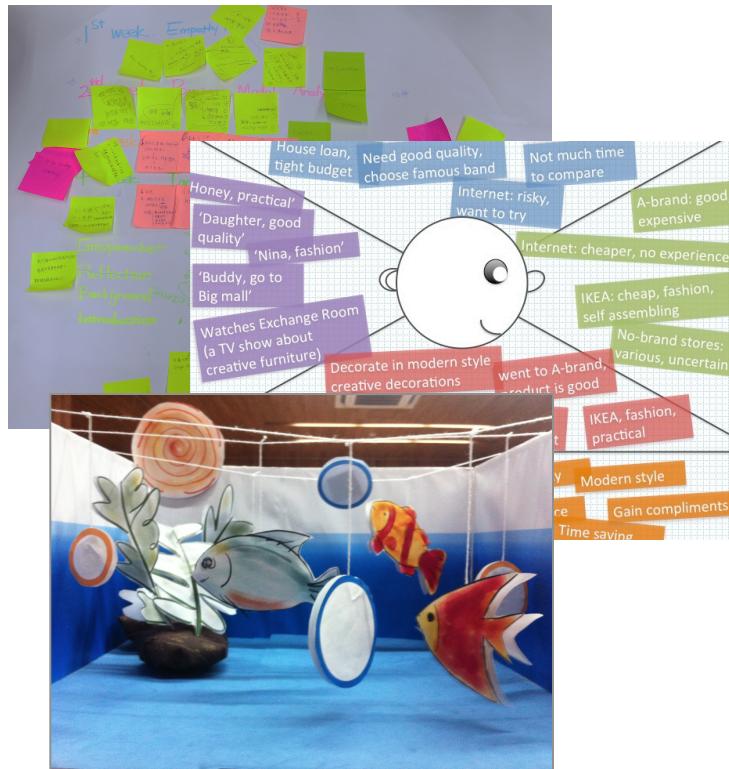
Logic Structure Redesign



TV Menu Design

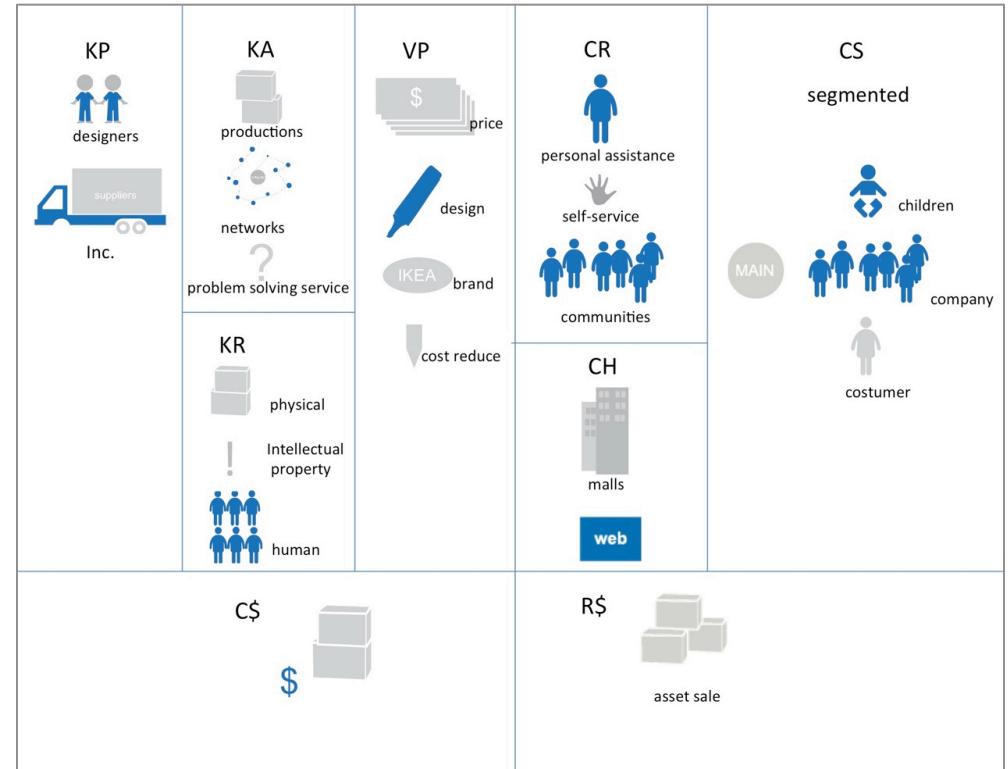
In this project, I improved the UI design of HISENSE K316 Series. Applying the Quantification Theory of Type 3 Method (QT3 Method) to analyze the logic of the TV menu and optimize the TV Menu by ruling out useless options.

Team Work with Jia GUO, Jiahui ZHOU, Jian CHEN
Team Leader, UI design, Analysis of previous version



Tangible Model For IKEA

The first step to a tangible model is a basic business model. With the empathy map and the persona, a business model could be abstracted from the analysis of IKEA. Focusing on the similarities between the business model of IKEA and the ecosystem of a fish tank, I collaborated with my teammates to make a tangible business model.

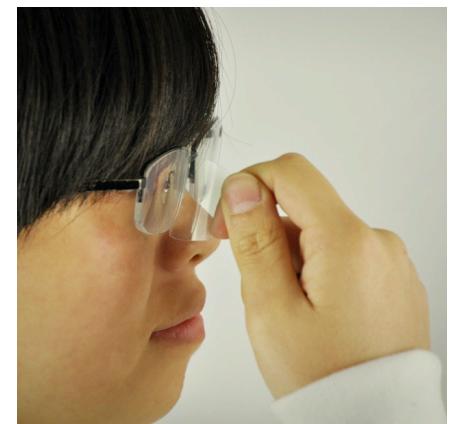


Team Work with Hanyue HU, Xinying LIANG, Yujing LUO
Team Leader, Empathy map, Movie script, Analysis of model...



Storytelling movie is made to illustrate the tangible model.
Movie in Shilei.me



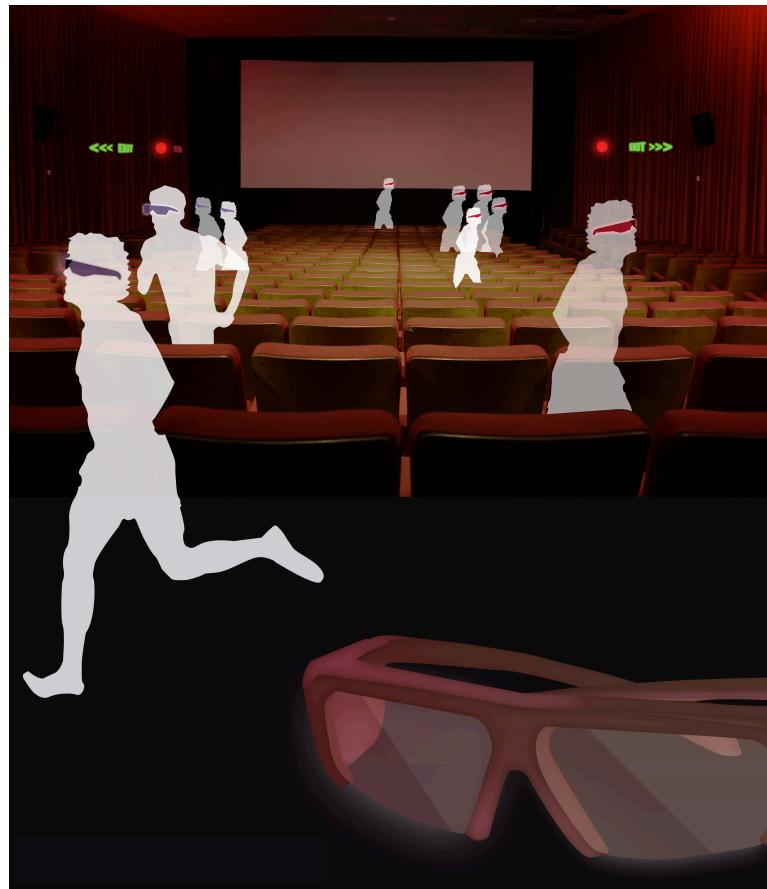


Lighten Lens

Team Work with *Jiahui ZHOU, Shalin LUO*
Team Leader, Brainstorm, Prototype, Illustration

Lighten Lens is a special lamina-like lens. As the lenses are peeled slice by slice, children's eyesight problem will be cured in a promising and efficient way.

It is possible to cure the eyesight problem in the very beginning by gradually reducing the degree of the glasses, according to the optometrist. In this way, people need to change their glasses frequently, which is very expensive. That's why we need a more convenient and efficient way. Lighten Lenses are made of slices of laminas, which can be easily picked off. When the slices of laminas are gradually declined according to doctor's instructions, the degree of the glasses is lowered.



Team Work with Jiahui ZHOU, Ruolan XIA, Fanding WEI
Team Leader, Brainstorm, Prototype, Illustration



Guidus are 3D glasses with ability of guiding audience to escape by different routes in emergency.



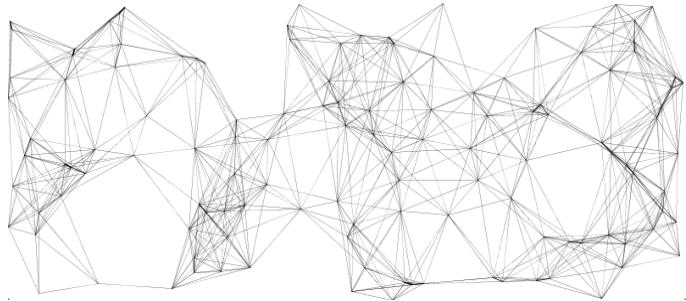
PROBLEM

Emergency tends to make people panic. In chaos, people are extremely easy to get out of order, which will make it even harder to escape from catastrophes. Although there are many exits available in the theater, crowding will reduce the efficiency of rescue work.

SOLUTION

By adding a special membrane to the ordinary 3D glasses, we will get two types of 3D glasses, one of which can be used for detecting the ultraviolet light and the other for the infrared light.

These two types of glasses will be given to different audience, according to their seats. The glasses will guide people to follow two different, pre-determined escaping routes in emergency.



During my experience of the double degree design program,
most of my classmates chose design as their hobbies at last.
I can't help questioning:
How can one give up the beautiful dream of being a designer?
How can one give up the cool style of engineering?
That's why I want to work in the interdisciplinary area of design and engineering.
I played with digital art, interactive games and innovative electronics.
I worked on how to utilize technology in educational and societal aspects.
I'm on the way to find a balance between engineering and design.