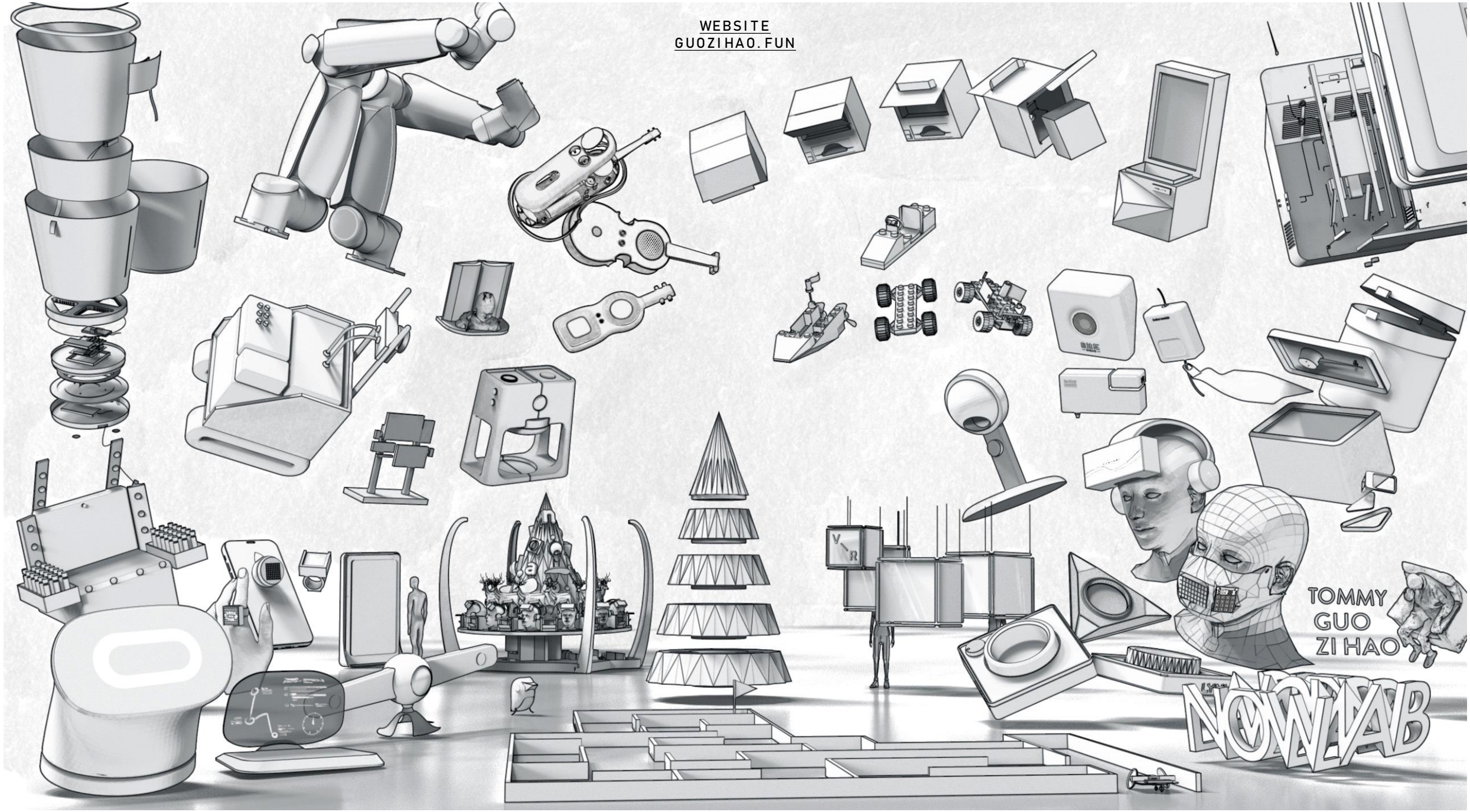
PORTFOLIO

WEB: GUOZIHAO.FUN

2020



PROJECTS I HAVE WORKED ON FROM 2006 TO 2020

Guo Zihao.郭子豪

26 years old

tommy9guo@gmail.com

+86 18616545898

EXPERIENCE

Thank you for coming by. As an interdisciplinary designer I have 3 difference professional backgrounds.
PRODUCT DESIGN / ADVERTISING CREATIVE / ROBOTIC ENGINEER

ROBOT MAKER

Yali Middle School

2004 — 2012

Since ten years old, I am passionate about robotics. Each year I'll join the national or international Innovation competition like RoboCup \ I-SWEEEP \ FLL \ FVC etc.

In 8 years, I achieved eight national competition gold medal, One international gold medal. And a three national silver medals.

MILITARY VEHICLE ENGINEER / INDUSTRIAL DESIGNER

Beijing Institution Of Technology

2012 — 2016

After one year of studying tank engineering, I had accumulated a rigorous engineering foundation, but my future career constraints forced me to consider changing my major.

With seven years of painting and robot technology background, I choose to turn my major into industrial design.

ADVERTISING CREATORS

Dentsu Aegis Network

2016 — 2020

As a management trainee, I started to work in a Dentsu Aegis Network for four years.

Working in innovation technology team call Nowlab for 3.5 years base on Isobar.

6 month CDC (Community Design Center) creative experience base on Beijing Dentsu.

SUMMARY

The Portfolio Shows My Achievements In Different Fields.

Industrial Design (Theremin) , **UX/ Public Welfare/Project Manage** (Where Is The Missing Story Vocabulary?)
Robotics (Highway Traffic Differentiation Information Service Robots) ,
Advertising / Consulting , **Game Develop** , **Interior Design** , Etc.

1 **THEREMIN**

2 **WHERE IS THE MISSING STORY VOCABULARY?**

3 **HIGHWAY TRAFFIC DIFFERENTIATION INFORMATION SERVICE ROBOTS**

4 **ADVERTISING / CONSULTING**

5 **VR-LAB**
'VR Nowlab' Unity develop / VR Lab interior design

6 **SHORT BUT IMPORTANT**
Eight Projects , One Project One Page

1

THEREMIN

Hsu Fu Chi 2019 Campaign

SACHIMA AND THEREMIN

2019. 07 - 11

Nestle 'Hsu Fu Chi' is one of China's top confectionery brands; the main product is a cake-based confectionery - Sachima.
July 2019, Hsu Fu Chi wants to create a new online campaign for the 11.11 shopping festival. The target audience focuses on the low tier city,16-25 younger teenagers.

Combining technology with the cello musician Nana Ouyang, the spokesperson for 'Hsu Fu Chi' , we created THEREMIN. This product was not only successfully developed but also garnered 60 million views online. It was a massive success in terms of advertising effectiveness.

CLIENT: Hsu Fu Chi International Limited

AGENCY: Isobar (Shanghai)

TA: low tier city，16-25 teenagers.

MY ROLE: Product Design,, 3d Rendering, Production Management, Video Shooting And Editing.

SET UP

1. Put out the Theremen

2. Place the Sachima on the color sensor

Ⓐ

Egg	Cello
Yam	Flute
Coconut	Marimba
Cranberry	Piano
Plain	Drums

Choose 5 different flavors of “Sachima". Correspond to 5 different Musical Instruments by detecting the color of the outer packaging.
(e.g. cello, flute, marimba, piano, drums)

LET'S PLAY

3. Raise and lower your right hand。
Distance control **pitch level** （Each 2.4cm distance make one pitch change）

4. right hand controls the **volume**.

5. **Play it with two hands like a real Theremin**.

Ultrasonic sensors on the top and side detect hand distance to control volume and pitch.

Click and Play

HOW TO PLAY

You can choose between 5 different instruments by choosing the 5 flavors of Sachima packaging. Ⓐ

By measuring the distance between two hands and the Theremin, The HFC Theremin is a musical instrument that can be played by moving your hands in the air without touching.

PRO

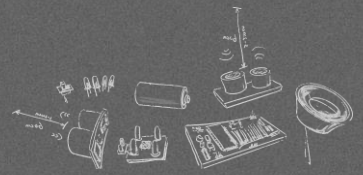
With the AUX output, the different music signals can **output** real-time into professional music hardware.

6. Play like a PRO


Branding Identification
Interactive idea
Material Ref
Sketch
Detail
speaker
speaker cover
gloss cover

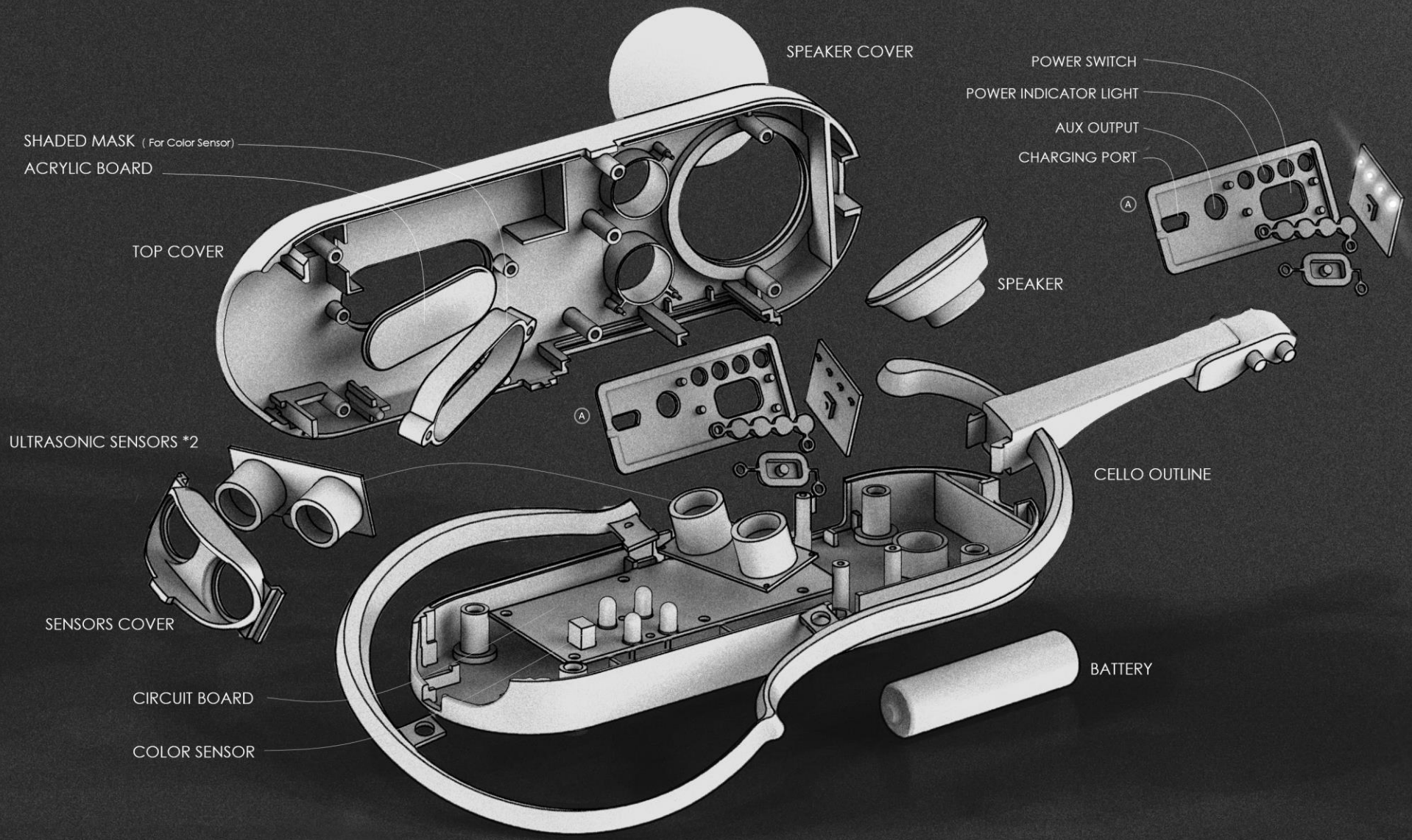
CAD PROCESS

Exploring design directions based on architectures derived from the prototyping process. Contains eight main internal components.



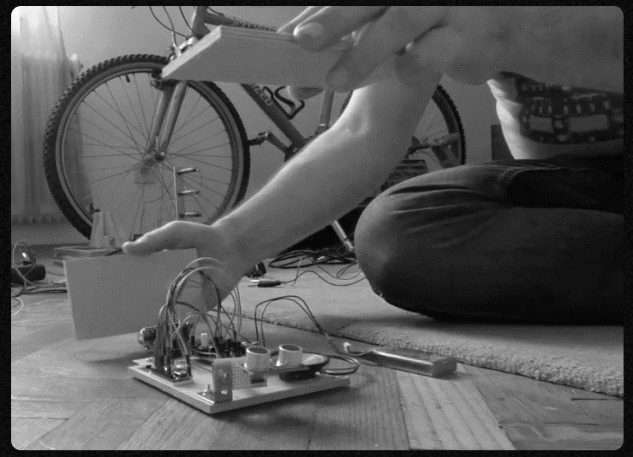
The design needed to balance technology, cello, Sachima, and low-tier city Aesthetic.

Within a week, four complete sets of proposals were reviewed with the client.

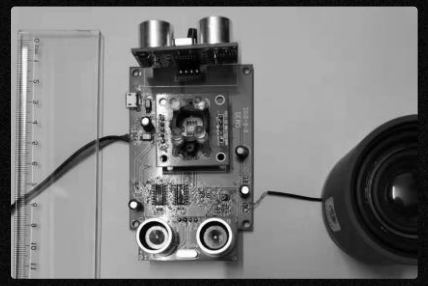

SPEAKER COVER
POWER SWITCH
POWER INDICATOR LIGHT
AUX OUTPUT
CHARGING PORT
SHADED MASK (For Color Sensor)
ACRYLIC BOARD
TOP COVER
SPEAKER
ULTRASONIC SENSORS *2
CELLO OUTLINE
SENSORS COVER
BATTERY
CIRCUIT BOARD
COLOR SENSOR

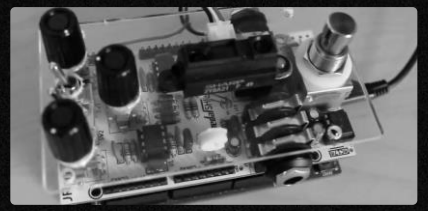
R&D PROCESS

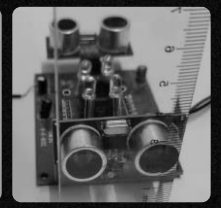
- Ⓐ **Feasibility test**
- Ⓑ **Hardware select / IC design**
- Ⓒ **Material and painting**
- Ⓓ **3DPrint prototype structure test**



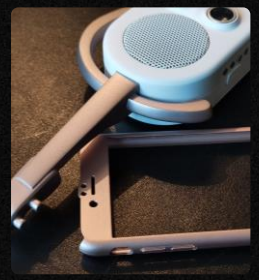
Ⓐ Testing the technical feasibility of ultrasonic sensors

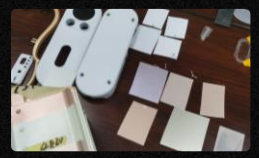




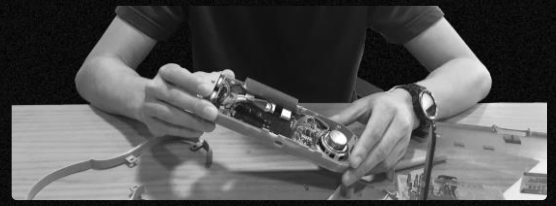


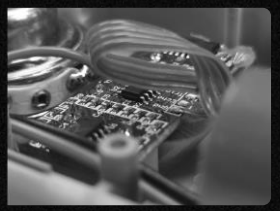
Ⓑ Selection of different sensors and boards in terms of cost and stability





Ⓒ Not only to find the right and elegant colours but also need to ensure that the colours are accurate during the subsequent production process.





Ⓓ Over five iterations update the overall product structure.

As a product designer, both our client and production factory are located in Shenzhen, and I was the only representative of the agency to travel between the company and the manufacturer in five weeks.

PACKAGING DESIGN / PRODUCTION

Package is mainly pink and gold, with a Theremin inserted in the outer packaging and five flavors of Sachima in the bottom.

Users can open the top of the package to see the instructions.

In the packaging factory, I learned about printing and packaging production.

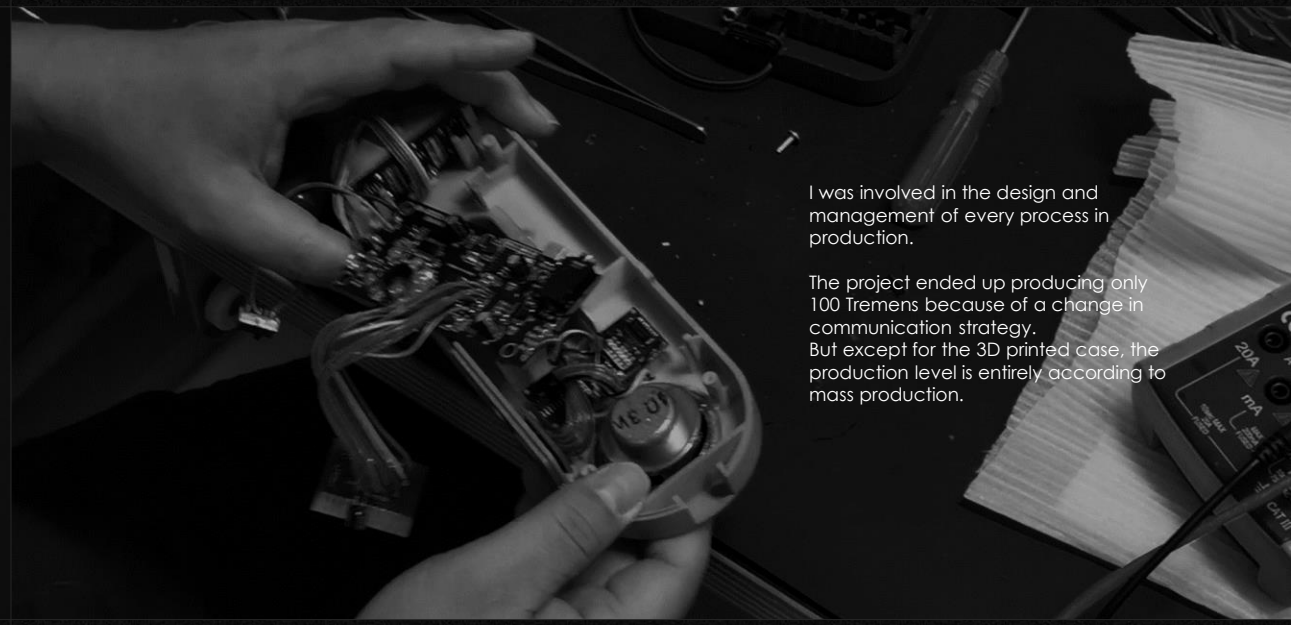








PRODUCTION OF THEREMIN



I was involved in the design and management of every process in production.

The project ended up producing only 100 Tremens because of a change in communication strategy.
But except for the 3D printed case, the production level is entirely according to mass production.








Paint \ shell production line

IC / Mold Factory

Electronic components Stickers

Finished product Me and factory colleagues

60 Million Views

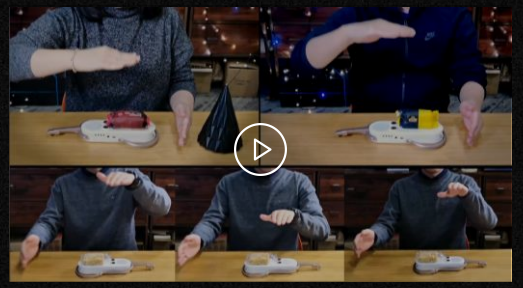
The product has received tremendous social buzz, with over 60 million online views and people trying to get Theremin on social media. More than 25 KOLs (Key Opinion Leader) have posted their experiences with Theremin and used it to create music or creative videos.
Here is a list of 7 representative promotional videos that can be viewed on Youtube by clicking or scanning the QR code.

Click and Play

Merry Christmas

15s

Merry Christmas Wishes from Isobar Nowlab members. a little band, a different instrument from the different flavor.



Click and Play

Nana Ouyang

China's top star, Nana Ouyang, took to her social media to share the experience of using Theremin in her life. The video has received a total of **10 million** streams in China.

Click and Play

You Zong party

Vlogger for Tier 2 and Tier 3 cities, using "Tremens" at a birthday dinner. , this video has over **5 million views!**

Click and Play

Yang JiaCheng

One of the country's top fashion and entertainment stars, this video has over **3 million** views!

Click and Play

Theremin / Guitar

A little Demo. It shows how the Tremens perform with other instruments. I am the guitarist. this video has **300,000 views**

Click and Play

NG's cat

Domestic top-tier product reviews vlogger, this video has over **6 million views!**

Click and Play

“Canon” solo

In the early stages of the campaign, no KOLs had access to our products yet. Xu Fuji used the demo video I shot to spread the word on social media , this video has **1 million views**

2

WHERE IS THE MISSING STORY VOCABULARY ?

A better picture book for young kids in rural areas

PICTURE BOOK FOR RURAL AREAS

2019. 04 - 12

Starting in April 2019, through internal competitions, I got the opportunity to lead Dentsu Aegis's annual social responsibility charity project. Over a six-month period, I led research discussions to select topics and put the project into practice.

The project received a total of RMB 80.000 donation from society, Allowed 1815 eligible rural families to receive schoolbag, including ten picture-books donations. More than 20.000.000 people in urban areas were made aware of the issues and knowledge through H5 and PSAs.
Project make Dentsu Aegis establish an annual long-term cooperative relationship with Tencent Charitable Foundation （one of China's largest charity foundation ）、iRead ShengZheng（ China's most massive picturebook education charity organization ）.

COMPANY:	Dentsu Aegis Network
PARTNER:	Iread Foundation
	Tencent Public Welfare / 99 Giving Day
	Lianquan Shanghai Public Welfare
TA:	0-3 Years Old Rural Area Children
MY ROLE:	Team Leader / Ideation Research /
	Project manage / UX design

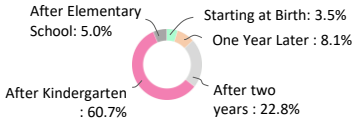

RACI Plan
IDEA 2
Cat 101
遗失的绘本词汇去哪了？
一本更好的乡村儿童绘本
IDEA 1
Timeline
INTRODUCE ON SOCIAL
FURTHER EXPOSURE THROUGH OOH
HOW TO SPREAD THE IDEA

THE PROBLEMS

IN RURAL AREAS, THE INTELLECTUAL DEVELOPMENT OF YOUNG CHILDREN IS AT RISK.

The lag rate of rural infants and toddlers' cognitive and language development is much higher than that of urban children

(from China News Weekly, July 2017: Chinese rural infants and toddlers' abilities have hidden concerns: over 40% of cognitive and language skills lag). In many rural areas of China, the early development of children aged 0-3 years is not valued, and support services are backward.

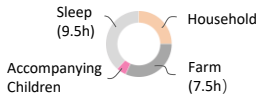


Only 40.8% of parents enjoyed reading with their children,

and 22% even equated reading with literacy as preparation for elementary school. Nearly half of the parents surveyed (42.3%) said that they would ask their children to become literate when reading with them to prepare them for elementary school.

Stay-at-home woman work for nearly 15 hours a day,

Cook, clean, make clothes... ... from 6 a.m. to 9 p.m., from working in the fields to cleaning the house, which takes up almost all of these women's energy and time. Except for rain and holidays, they are either working or on their way to work all year round.



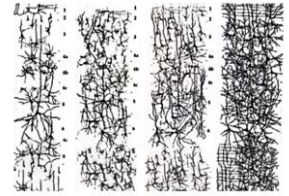
HOW TO SOLVE THIS PROBLEM .

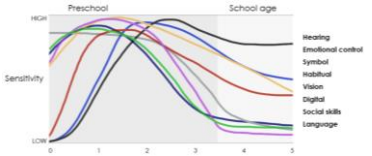
According to a research team, for example, the gap in early reading among children of different economic levels can be as high as a "30-million-word gap".

If they miss the 0-3-year-old window of opportunity without effective intervention in the first 1000 days of life, this cognitive lag can last a lifetime.

Numerous studies on education and child psychology have revealed the positive impact of early reading on children's development, focusing on their language development, social development and cognitive development.
Most parents in the area are less likely to read and rarely take their children to bookstores or libraries, resulting in a lack of a good reading environment for young children. Parents are unclear about the starting age for reading and have little understanding of parent-child reading, and there is an urgent need to spread knowledge about early reading.

Growth Density of Brain Nerves in 6 Months





Reading picture books is the most popular and effective way to educate infants and toddlers through pictures, unique materials that can be touched, and parental interaction in the reading process.

However, the high cost of picture books and parents' uncertainty in reading with their children has led to a lack of early reading companionship for preschoolers in rural areas.

CAMPAIGN IDEA

WHERE IS THE MISSING STORY VOCABULARY ?

A better picture book for young kids in rural areas

IDEATION

We discussed over 40 different directions in 3 months. Several different solutions have been Serious proposed, such as Tinder - "One Teaching Wish," rural broadsheets, early childhood education coloring calendars, early childhood education materials for rural area radio stations, etc.

A "better rural children's picture book" containing mother's parenting education and children's learning stories will be produced. Participants used the interactive vocabulary to display the blank vocabulary in the H5 picture book, supplemented it into a complete picture book that can be used for early childhood education, and awaken the society to pay attention to the backwardness of the language expression ability of rural children aged 0-3. The proceeds will be used for universal access and the production of rural children's picture books.

The offline activity is combined with the recording of the model audio that can be used for rural mother education, so that the mother can learn the knowledge of early childhood education and use the higher quality of the picture book to interact with the children, and contribute to the rural early childhood education in China.

Online

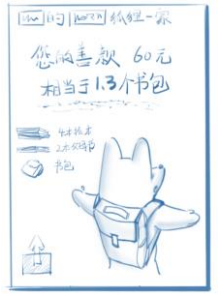
H5 Picture Book《Find the missing vocabulary》

-Blank vocabulary is filled by donation

Donate home page, suggest to click on the blank to donate

More text and screen content appear because of donations

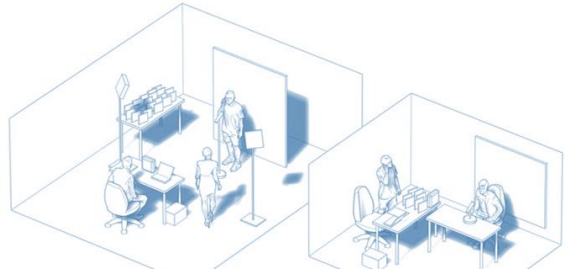
Share page



Picture book donations page

Offline

Immersive public service offline campaign.



Recording Studio

Staff recordings will be used to teach rural children about reading picture books through h5.

Picture book exhibition

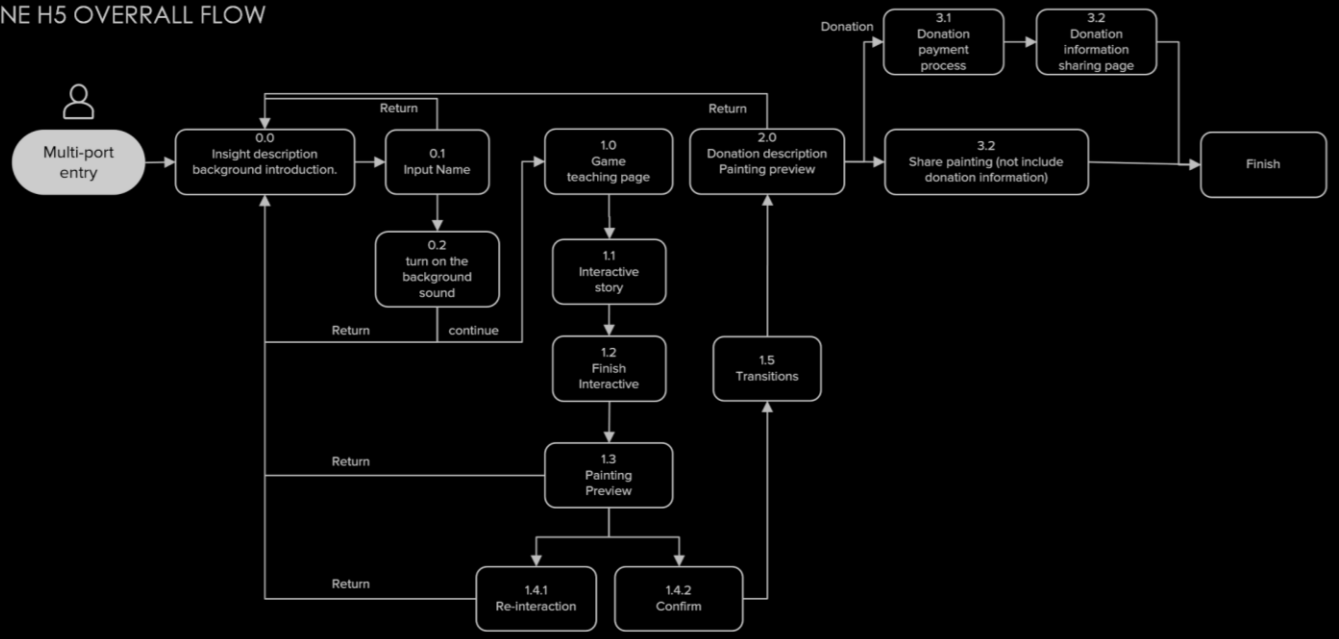
Donation

Office decoration

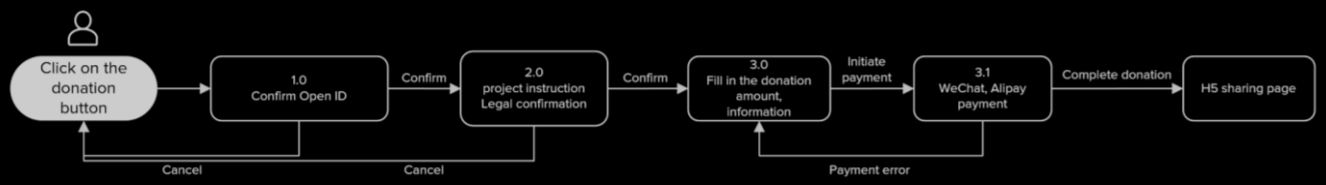
Mascot Doll Suit

H5 UX / UI EXPLORE

ONLINE H5 OVERRALL FLOW



DONATION PROCESS USER FLOW



1.1 Interactive Story

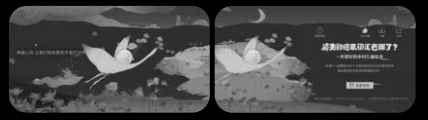
Blank vocabulary is filled by donation

"DAN" started his adventure from a blank

Select vocabulary words to complete the picture book.

Facing Different Difficulties

"DAN" started his adventure from a blank



CLICK AND PLAY SCREENSHOT VIDEO

3.1 Donation Page

more share, more donate.

In 99 giving day, Tencent offer a structure help us manage the process. Donation page shows project background，Current Amount，etc.

A long-form H5 depicts the growth of "DAN" in five scenes on the same page.

“ DAN'S ADVENTURE ”

Create an illustrated story about “DAN” that starts with a blank sheet of paper that represents the birth of a baby. Through five different scenes, "DAN" fills in what is missing from the picture and ultimately grows.

One page One single scroll. When the page comes to an end, users can donate, or learn more about the project background.

More than 5000 people experience and donation with “DAN’S ADVENTURE”.

CLICK AND PLAY
SCREENSHOT VIDEO

OFFLINE EVENT

In Dentsu office environment, from 9F-22F over one hundred decorative materials were printed and installed throughout the company.

1Week Recording Studio, Staff voice recordings will be used to teach rural children about reading picture books through h5.

As a team leader, I was Participate every process in design , production and management.

ENVIRONMENT DECORATION

Giant star dolls, pillows, candy, staircase posters, 3 picture book libraries with 100 books./ ALL TEAM MEMBERS

RECORDING STUDIO

10 employees, one week, over 200 people in Beijing, Shanghai and Guangzhou participated in the recording of the picture book.

CLICK AND PLAY
Recording Reference

SOCIAL IMPACT

Make Dentsu Aegis establish an annual long-term cooperative relationship with Tencent Charitable Foundation （one of China's largest charity foundation ）、iRead ShengZheng（ China biggest picture book education charity organization ）.

On September 9（**99 Giving Day**), we had countless people using our H5 through the WeChat Memory (social media), and because of this friend-to-friend communication, we were also able to receive a certain percentage of additional donations from Tencent through friend referrals（11031 RMB ） Total donations reached 88,800 RMB.

Online Material that is easy to share on social media platforms

Outdoor Image taken from downtown Shanghai People's Square

20.000.000
people are aware

In urban area, The outdoor public service announcements reached **20.000.000** people in Beijing, Shanghai, Guangzhou and other areas with educational knowledge. They used H5 to learn and donate money.

Children Reading After Receiving A Picture Book

1815 Families
88,800 RMB

In January 2020, 1,815 coloring book bags, purchased with an 88,800 RMB donation, were given to 1815 families in rural areas (**Yongzhou Hunan China**). The contents of the bags will be adjusted for different family situations.

Distribution Of Picture Books In Rural Areas

Watch children in rural areas use those picture books

3

Highway traffic differentiation information service robots

SAME PUBLIC TRAFFIC SIGNS, DIFFERENT DRIVING CONDITIONS.

The highway is an important economic artery for modern highway transportation, and its safety is the lifeblood of the highway. Maintaining the safe operation of highways and providing perfect highway driving information services for drivers are important functions of highway management and the subject of constant technological innovation.

Back in 2009, Although the highway has been set on a variety of traffic signs, the car can also be installed GPS navigation device, but due to this kind of traffic information service exists in the homogenization and static and other functional defects, still can not meet the highway "high-risk vehicles" (large trucks and buses) on the safety information service needs.

This photo was taken at the 2012 I-SWEEEP competition in Houston.

A large truck was involved in an accident with a small car while below the speed limit.

From 2009 to 2015, I led two other students to research and design an automated and intelligent information service device based on the concept of differential information service, which is conducive to improving the safe driving probability of "high-risk vehicles" and perfecting the highway safety information service system, from the desire to focus on the safety of "high-risk vehicles" on the highway.

My Role:

Team Leader

Design Research

Ideation

Prototyping

Product / UI / UX Design

Awards:

Gold:

International sustainable development projects Olympiad （I-SWEEEP）

Twenty-sixth national youth science innovation competition

Session of the eleventh national youth robotics competition

Others:

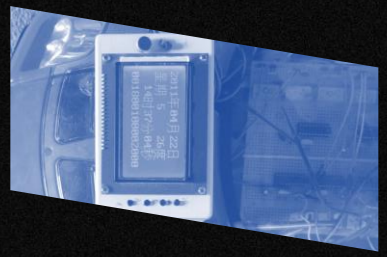
Audi innovation lab national top 30

Mao yisheng science and technology award (Chinese architect)

Hunan provincial science and technology innovation competition

Twelfth century cup in beijing institute of technology

2009-2010



1 Automotive Invisible Assist Safety Shield

2010.3-2010.5

2 Intelligent Robots for Safe Driving and Early Warning of "Three Conditions" in Automobiles

2010.5-2011

3 Differentiated Information Service Robot for Safe Driving of Disaster Relief Vehicles

2011-2011.5

4 Vehicle Information Service System Distributed Information Collector

2011.6-2012.6

5 Highway traffic differentiation information service robots 1.0

2014-2015

6 Highway traffic differentiation information service robots 2.0

Over six years, the project has been reworked and upgraded six times. The solution to the homogenization problem of public road traffic information services has been reversed several times during the development process.

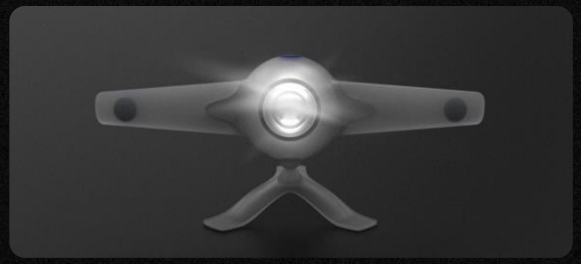
"Highway traffic differentiation information service robots" are similar to automated driverless technology's early solutions. If we rethink it ten years from now, there will be intelligence and more efficient solutions.

FINAL VERSION

HIGHWAY TRAFFIC DIFFERENTIATION INFORMATION SERVICE ROBOTS

Mainly focus on large trucks and buses and other "high-risk vehicles" highway safety driving mainly. Trucks have an enormous responsibility、The center of gravity is very high from the ground、prone to rollover、low safety and technical security、 driver fatigue, etc.; large buses have many people on board, easy fatigue from the long-distance operation, etc. They need safety information services more than ordinary cars. They are more than the average car needs safety information services.

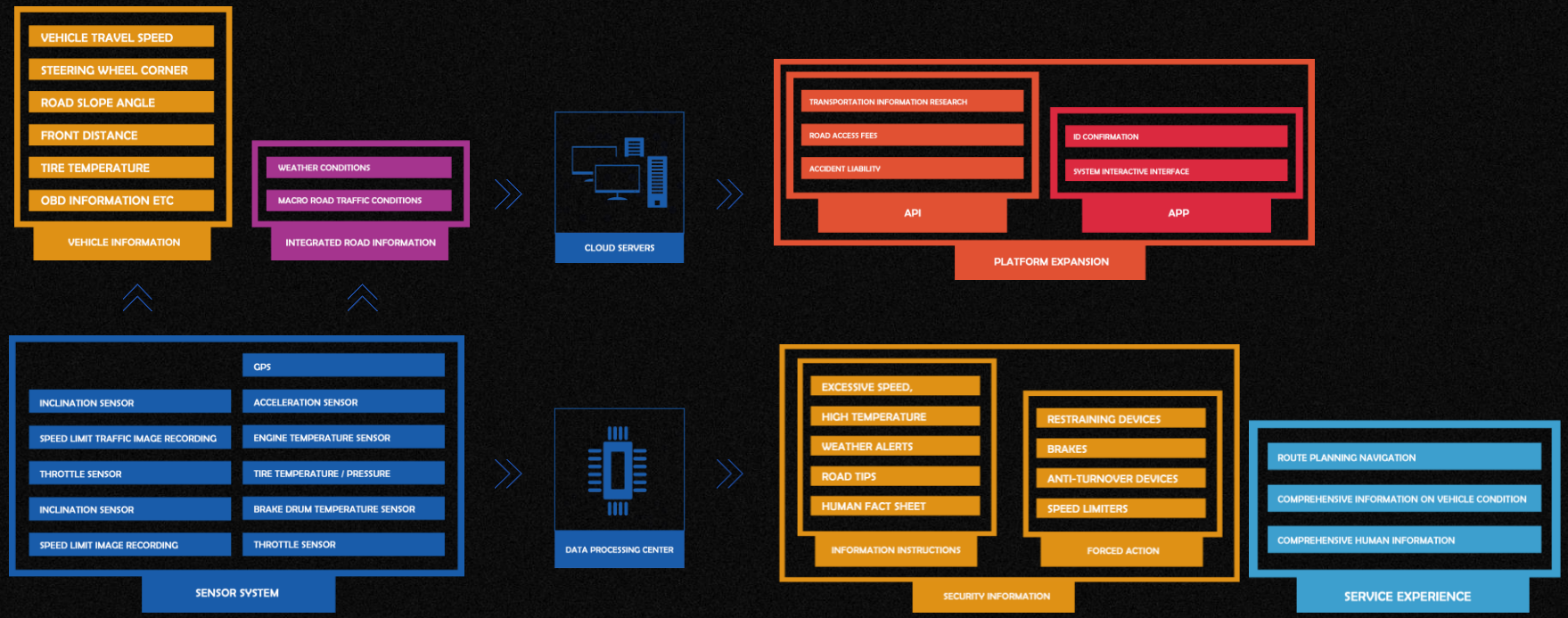
In 2009, there were 238,351 road accidents nationwide, resulting in 67,759 deaths and 275,125 injuries. About 60% of these accidents occurred on highways.



In 2016, as an industrial designer, I redesigned the robot structure and appearance.

PURPOSE: Through real-time monitoring of the car's driving conditions, road conditions, weather conditions, driving behavior and other information, relying on voice recognition and other human-computer interaction technology, the driver's safe driving initiative to prompt or early warning, so that the driver is aware of driving safety hazards in advance to better prevent traffic accidents.

STRATEGY: Using inertial navigation unit to measure the acceleration, turning angle speed, driving direction, driving speed and other operational parameters of the vehicle movement, through investigation, consultation, calculation and model experiments, design the mathematical model of each sensor information fusion, relying on the artificial intelligence voice dialogue function, voice prompts to the driver, to achieve the purpose of preventing safety accidents.



Project researches and designs a safety monitoring robot for high-risk transport vehicles.
The system mainly consists of a sensing part, a processing unit and an actuator.

During the vehicle operation, the robot collects the "three conditions" (road condition, time condition and vehicle condition) information related to the safe operation of the vehicle through the sensor technology; the master-slave microcontroller analyzes the information and obtains the serviceable safety information, which is stored in the vehicle OBD system; the actuator provides timely information to the driver through voice and graphical interface. Car safety warnings are provided, and accident prevention services can also be enforced by mechanical movement.

SYSTEM STRUCTURE

GPS Positioning Module
Infrared Thermometers
Photosensitive Sensors
Humidity Sensors
Acceleration Sensor
Inclination Sensor

CPU1
Sensor Signal Acquisition Microcontroller

Wireless Communication Modules

CPU1
Integrated Information Processing Microcontroller

LED Display
GSM Communication Module
Memory Card Read and Write
Memory Cards

Acceleration Sensor

In order to capture the bumps in the road, it is necessary to measure the vibration of the vehicle body. Traditional vibration measurement methods include measuring the amplitude, vibration velocity, and vibration acceleration. Since the robot in this project is placed on the dashboard inside the vehicle, it vibrates along with the vehicle body. The amplitude and velocity measurement methods were not well suited for this application, so the acceleration measurement principle was used.

SCA60C

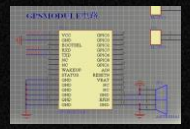
Inclination Sensor

It is necessary to measure the angle of inclination of the vehicle as it travels uphill, downhill, and sideways. Commonly used angle measurement methods include acceleration-deviation of gravity, gyroscopic angular velocity integration, and tilt sensor. The gravitational acceleration declination method is used to detect the angle of a stationary object, but there is a large error in the gravity measurement due to the vibration, acceleration and other factors. In order to perceive the road surface on both uphill and downhill slopes, a highly stable SCA60C inclination sensor is used in the project.

Performance Parameters.
(1) Measurement range 1g (±90 degrees).
(2) Single-pole 5V power supply, proportional voltage output.
(3) Analog 0.5-4.5V output,.
(4) Operating temperature range: 0-125 degrees.
(5) The arrow on the measurement direction reference device points.

Infrared Temperature Sensors

The temperature of the tires, brake pads, engine, and other components is very critical in the inspection of the vehicle's condition. When the temperature of these components is too high, it can lead to dangerous accidents such as brake failure, tire blowout, and spontaneous combustion. In this project, a non-contact temperature measurement method, infrared thermometer, is used. Everything above absolute zero is constantly emitting infrared energy into the surrounding space.



Modularization GPS

The robot uses GPS to achieve real-time global positioning. The GPS receiver receives accurate nanosecond time information for timing; it is used to receive the coordinates (longitude and latitude) of the robot's current position with an accuracy of a few meters to tens of meters (varies from satellite to satellite); the GPS receiver is connected to the microcontroller through a serial port and transmits real-time data to get the parameters we want (such as position coordinates, speed and direction of movement, etc.).

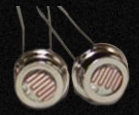
GPS Data Format

There are many GPS communication protocols, including the NMEA (National Marine Electronics Association) 0183 protocol for GPS receivers and other marine electronics navigation data output format, is currently in common use and is one of the protocols followed by most manufacturers, a brief description of the protocol is as follows.

```
GPRMC,hhmmss.ss,A/V,ddmm.mmmm,N/S,ddmm.mmmm,E/W,ssss.ss,hhh.hh,ddmmyy,ddd.d,E/W,A/N*CRC<CR><LF>
 (1) (2)  (3)      (4)  (5) (6)     (7)  (8)  (9)  (10)       (11)       (12)       (13)
```

Angular velocity sensors

In vehicle condition testing, in order to detect trends such as vehicle overturning due to sideways deflection and to provide early warning to avoid vehicle rollover accidents, it is necessary to obtain the vehicle attitude. Therefore, the angular velocity sensor is used to measure the rotational velocity of the carrier ω. The EWTS62 angular velocity sensor is used for device selection. This sensor is mainly used for direction detection in automotive navigation, motion control of various industrial equipment, and combined navigation system applications.



Photosensitive Sensors

In order to detect light from the outside environment, a photoresistor is chosen as the detection element. A photoresistor is a resistor made by the photoelectric effect of a semiconductor whose resistance changes with the intensity of the incident light; strong incident light decreases resistance; weak incident light increases resistance.

EXPERIMENTAL (examples)

The following experiments or trials were conducted during the design and fabrication of the robot.

[Experiment 1]
Experimental Date: April 25, 2011
Experimental Location: Yali Middle School, Changsha, Hunan Province
Experimental Objectives:
(1) To understand the principles of analog-to-digital converters
(2) Mastering the calibration of sensors

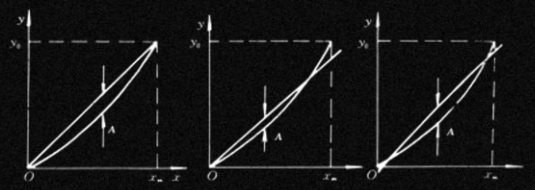
This project involves a variety of sensors, some of which have analog voltage outputs. In order to obtain information from these sensors, the microcontroller needs to convert the analog voltage signals to digital signals. Therefore, it is important to understand the principles of analog-to-digital converters and the calibration of sensors.

The microcontroller used in this project is the MC68HC908AP64 from Freescale Semiconductor, which has an 8-channel 10-bit analog-to-digital converter (ADC), so the internal analog-to-digital converter is used directly for sensor signal acquisition.

The sensors all have a certain degree of nonlinearity, which refers to the degree of deviation of the input (ideal) and output relationship from a linear proportional relationship. Without taking into account hysteresis, creep, instability, etc., their static characteristics can be expressed by the following equation.

$$y = a_0 + a_1 x + a_2 x^2 + a_3 x^3 + \cdots a_n x^n$$

y is the output, x is the input, a0 is the zero output, a1 is the theoretical sensitivity, and a2 , a3 , ...an is the nonlinear term coefficient.



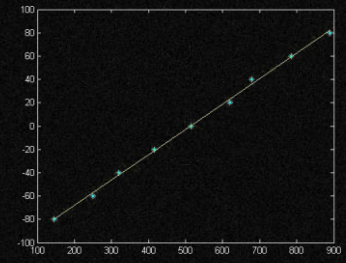
SENSOR LINEARITY

Experimental procedure.
(1) Select the tilt sensor as the calibration object and divide the sensor measurement range into a number of equally spaced points.
(2) Record the input and output values of each input and output according to the sensor's measuring range points, changing the input amount gradually from small to large.
(3) The input values are then diffusely reduced from large to small, while the input and output values are recorded.
(4) Repeat the above two steps to measure the sensor's forward and reverse stroke multiple times, tabulating or plotting the resulting measurement data.
(5) Processing measurement data and determining the linearity and other characteristics of the sensor based on the processing results.

After the sensor signal is passed through the analog-to-digital converter, the output values are shown in Table S1-1. The least-squares fit y=K*x+b, where K=0.2175,b=-111.592. The straight-line fit is shown in Figure S1-2.

Serial number	Angle y (degrees)	Voltage (V)	Numeric x	Serial number	Angle y (degrees)	Voltage (V)	Numeric x
1	-80	0.721	145	6	20	3.011	620
2	-60	1.190	250	7	40	3.356	678
3	-40	1.605	320	8	60	3.379	785
4	-20	2.065	420	9	80	4.230	890
5	0	2.505	514				

S1-1.

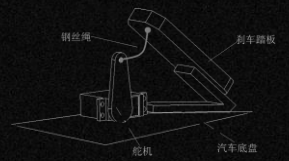


S1-2. LEAST-SQUARES FITTING FOR SENSOR CALIBRATION

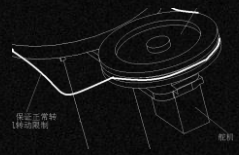
FINAL PRODUCT

V1

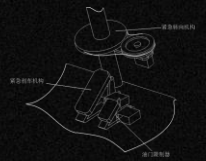
2012 I-SWEEEP competition in Houston，We set up such a station with the robot and his demo operating equipment. By controlling the steering wheel and the throttle and brake, we could make the model car drive in different attitudes.
The car has all kinds of sensors for demonstration. The robot can know the status of the body in real time through wireless connection. The front screen can show the GPS path, and warning information.



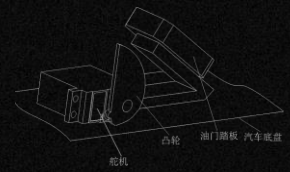
Braking System



Automatic Steering Wheel Alignment

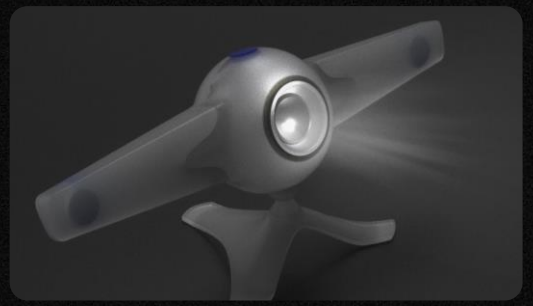


Emergency Steering



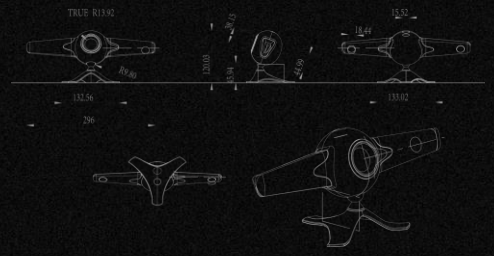
Speed Reducer

Competition site. Assembling, repairing machines.



V2

In 2016, as an industrial design graduate, I redesigned the appearance of the robot and added interaction methods such as gesture recognition, mirrorless technology, and projection interaction.



Made by Solidwork

3d Printing Outlook

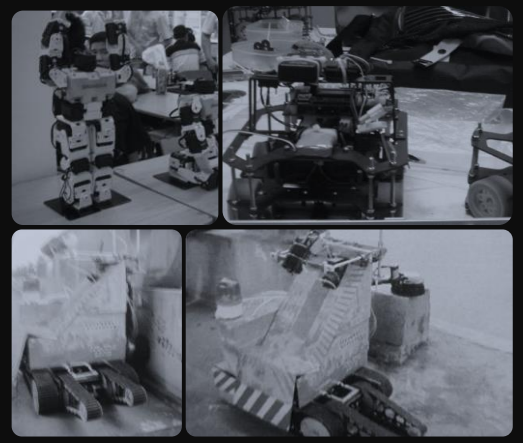
As an interaction design class assignment, I designed a whole UI interface for the robot.
From the boot screen, daily road strength planning, navigation, to emergency warning.

SOCIAL IMPACT

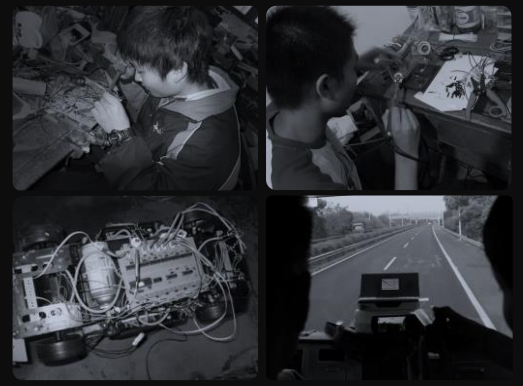
Since ten years old, I am passionate about robotics. Each year I'll join the national international Innovation competition like RoboCup \ I-SWEEEP \ FLL \ FVC etc.

After almost 8 years of learning robotics and join the competition, I grew from adversarial robotics competitions to science and technology innovation. This learning experience built a solid foundation for my engineering thinking and industrial design.

In eight years, I achieved eight national competition gold medal, One international gold medal. And a three national silver medals.



（Other project）Six years of robotics study at a middle school



Hands-on production and road driving test.

Presentation project for the judges.

International Competition

4

ADVERTISING / CONSULTING

dentsu AEGIS network

isobar nowlab

ADVERTISING CREATIVE

During my 4 years at Dentsu Aegis, I have worked on nearly 16 brands, such as
Unilever, Coca-Cola, KFC, Intel, iFlytek, Clarins, Hsu Fuji, Tencent Public Welfare, Skoda, etc.

I have not only been involved in public commercial projects, but also more experience in unpublicized internal commercial consulting or Design Workshop/Design Sprint with clients.

Daily Work
Most of the time, after a long period of solitary thought,
we would write down our ideas on a small piece of paper one by one.
All the ideas are laid out on a large table and sorted out through team discussions.

SAME PURPOSE DIFFERENT SOLUTION

This section will showcase some of my 4yrs experience in the advertising industry with **advertising creative and Innovation consulting （Design Sprint）.**

Four years of experience in advertising consulting has changed the way I think about creativity and problem solving from the perspective of product design and technology.

Purpose:

Road traffic hazards happen all the time.
There is a needs to design an assistance system specifically for safe driving.

Project:

My Robot Project

Highway traffic differentiation information service robots

Dentsu CDC Project

“Fami – Navi”

How It Work:

Understanding of multiple surrounding conditions (time, road, weather, driver, overall traffic, etc.) through sensors / Mathematical modeling of safety guidance through big data / Development of in-vehicle OBD industrial products to provide service terminals / Collaboration with car companies to improve connectivity with cars / Joint governmental optimization of products for more public transportation services.

Turn the navigation App voice into your lover's voice.

Final Result:

Drivers Driving Safer

In this case, I'll show the 3 advertising ideas,
Which is providing to **a voice artificial intelligence company** in 2016 China.

I need to hide the brand name because the project is not public.

This Tech Company Offers The Following Services:

1. imitating the tones of a particular person
2. translating speech in real time
3. projecting voice changes with age.

Purpose:

To Create a unique and engaging solution using Brand technology (Voice + AI)

Business to consumers
New product, app,atc

+

Business to Businesses
New social & business platform, App feature etc.

1

INSIGHT

It takes years to track down an abducted child. This makes identification a difficult task.

STRATEGY

What if we could use voice technology to help with identification?

CORE IDEA

Growing Hope

IN A TWITTER

To recreate abducted children's faces and voices for easier identification.

Details

A benefit concert about child trafficking, "Trafficked Children Acapella" power by AI voice Imitation.
"**We never really heard them sing, but it would be nice to hear them sing for real**."

Age- progression software to create an older version of the abducted child

Brand Voice technology to create their adult voice (base on child's voice)

2

INSIGHT

2016 saw a lot of iconic singers passing on

STRATEGY

What if we could relive memories with voice?

CORE IDEA

One last Song / Say

IN A TWITTER

We bring to life the voice from past famous singers and cover popular songs today.
Revive old voices from past famous philosophers and re-inspire

Details

Launch the first voice debut at SXSW during the music stage show.

3

INSIGHT

Some grandparents are lonely and not keen to use modern technology.

STRATEGY

What if brand could use your voice to accompany them.
What if your loved one's voice can be heard every day?

CORE IDEA

FAMILY FM

IN A TWITTER

We are imitating the tones of your voice and output them on grandparent's radio

Details

By using voice changing technology, we capture your loved one's voice and output on their favorite music, news or weather channel.

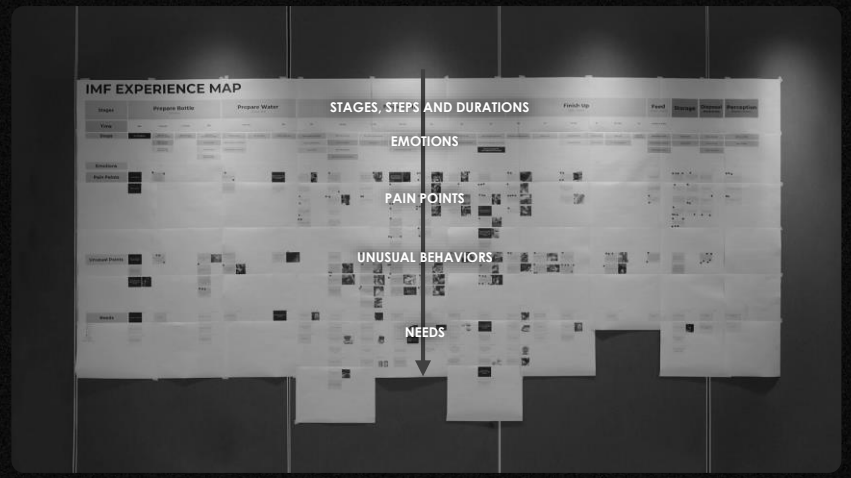
INNOVATION CONSULTING

The following is a showcase of all ideas divided into two groups: Problem Forming and Experience Enhancing, which could be used to set the roadmap for the actual innovation realization.

In this innovation programme we have generated almost 60 ideas based on real user needs, consensual objectives and design directions aligned with the team.

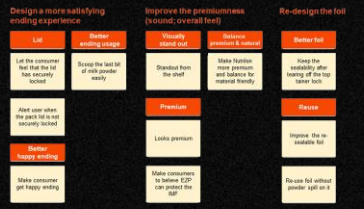
IDENTIFY OPPORTUNITIES AND SET DIRECTION

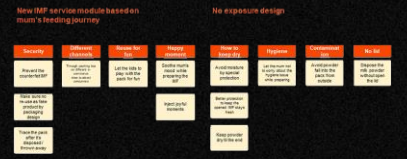
We used our Innovation Framework to unveil unmet user needs and mapped out the end-to-end journey for the IMF experience. In our innovation sprint, we have produced over 80 ideas together with the stakeholders, 10 of them have been selected for prototyping and testing.



“ experience map ”

How Might We on workshop's wall

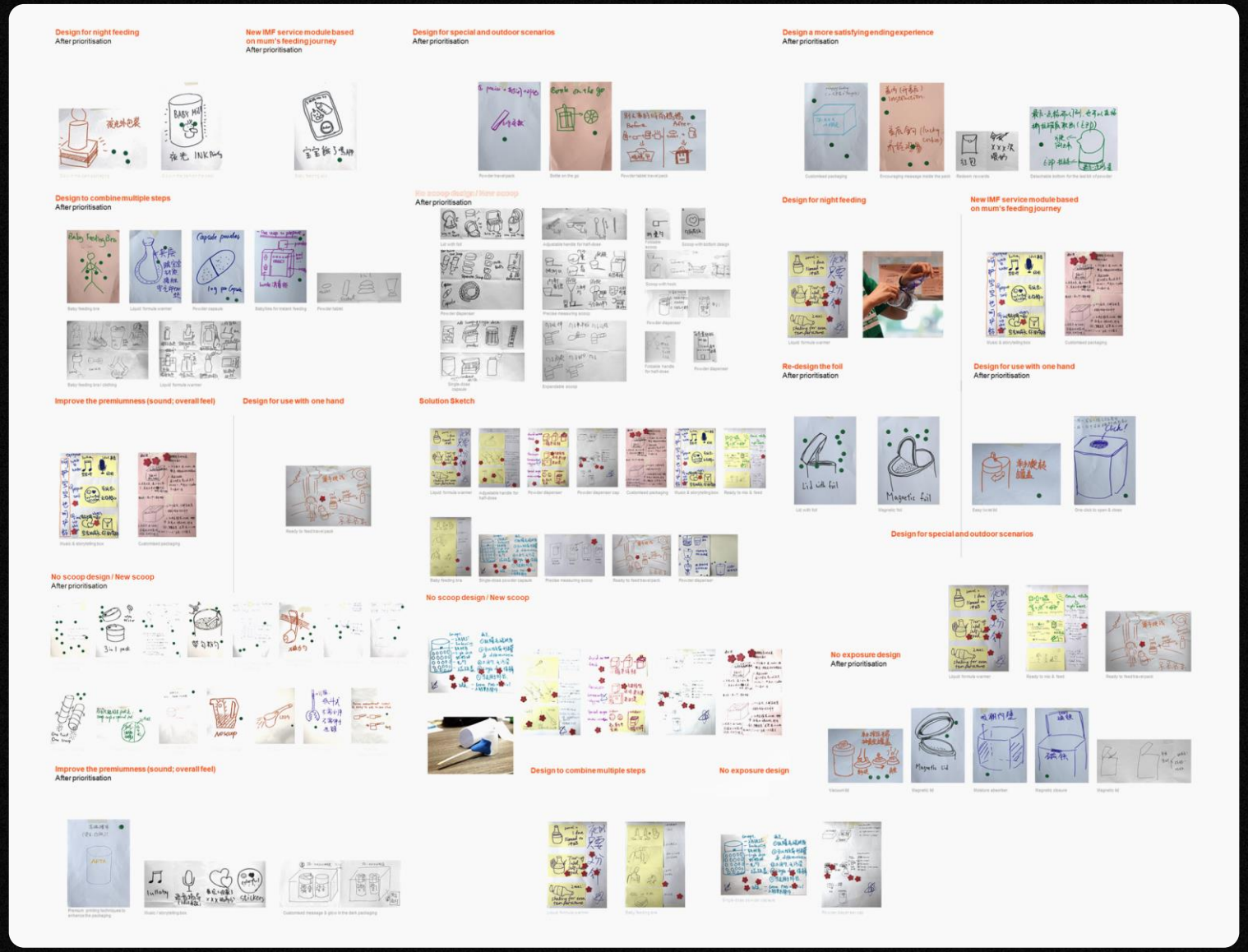




DESIGN MUSEUM

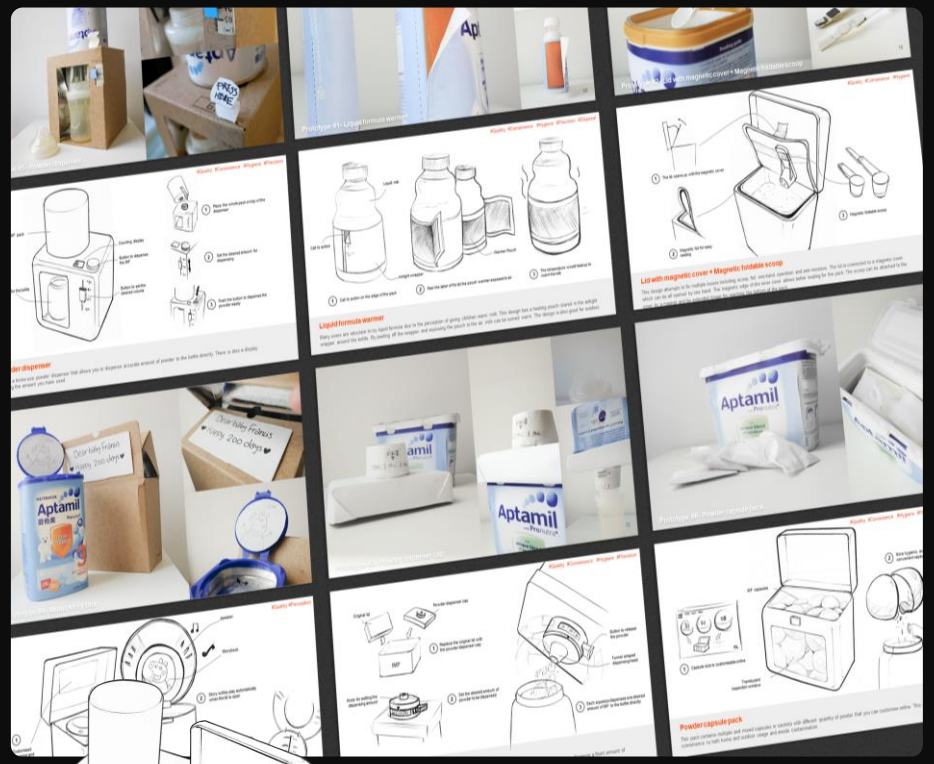
Design Museum is a list of products or services to review for inspiring solutions. Remind people to think outside of the industry or field, and to consider inspiration from within the company.

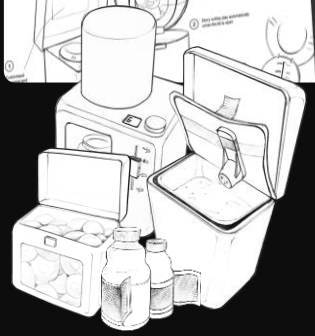
This is the part I am responsible for.



IDEAS / CRAZY 8'S

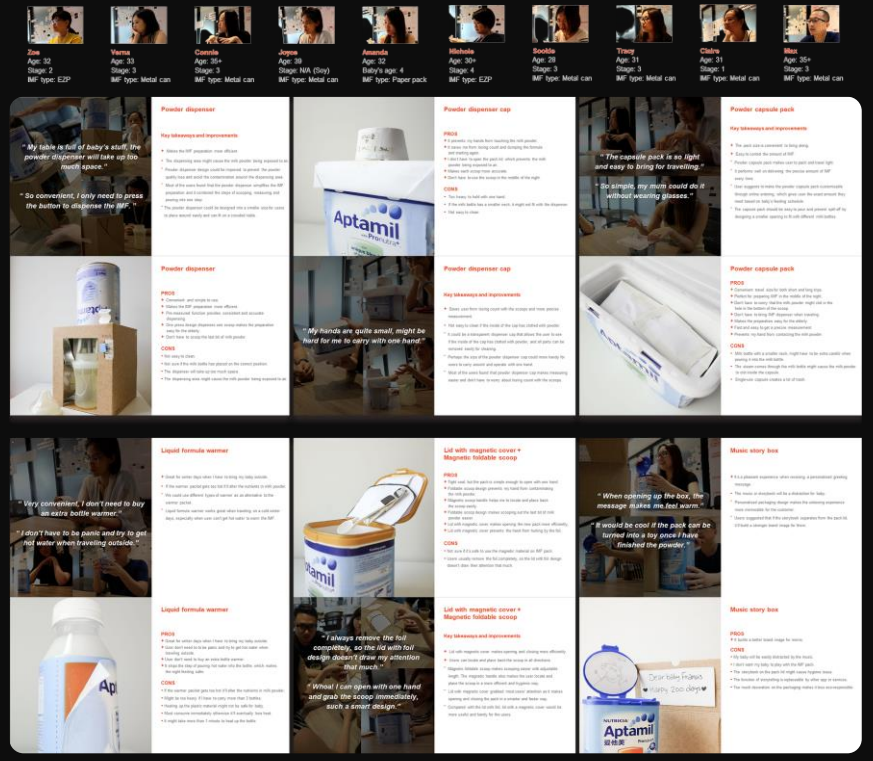
We used the result to develop a product roadmap which is instrumental for Brand to drive different innovation strategies for their brands.





FINAL IDEAS / SKETCH

As a product designer, I draw this sketch,
Visualization all the ideas



USER TEST

We used the result to develop a product roadmap which is instrumental for Brand to drive different innovation strategies for their brands.

5

“VR-LAB”

VR Nowlab Unity develop / VR Lab interior design

dentsu AEGIS network

nowlab

“VR-Lab”

Physical / Virtual

V-R Lab is a DAN innovation initiative to explore and demonstrate the possibilities of virtual reality in communications and human interactions.

VIRTUAL

“VR NOWLAB” UNITY DEVELOP

Through Unity development, I designed and built this "virtual lab" where players can use HTC VIVE to experience all the NOWLAB products and working environment.

I was mainly responsible for the model and scene building.

REALITY

“V-R LAB” INTERIOR DESIGN

As an industrial designer, I was involved in the design of the installation of the physical VR exhibition site. We call it " V-R LAB “, As the Group's showcase for innovative technology.
Address: Building 5, 16F, Shanghai Enterprise Zone.

I am mainly responsible for Ideation and model simulation.

1.1 " VR Nowlab "

UNITY DEVELOPMENT

VR- Nowlab
Screenshot

1.2 VR NowLab Unity Development

UNITY STUDY

Since 2016, I've been learning game development in Unity and gradually getting exposed to VR technology related applications.

The picture shows a game I designed for ISOBAR.
Players need to shake or run in place to control the game's characters to move and avoid the zombies.
The environment will change with time day and night.

GAME DESIGN

OVERLOOK

Through a month of development I created this scene. There are over 300 3D components in it, lots of lighting and material reflections.

FEATURES

1， Enter the game. You will see the ISOBAR company logo when you just enter the game and look up.

2， Over 20 Nowlab-produced 3D products can be picked up in virtual space. Placing the product in a glowing circle on the floor will trigger a 3D animation or make the product scale to become actual size.

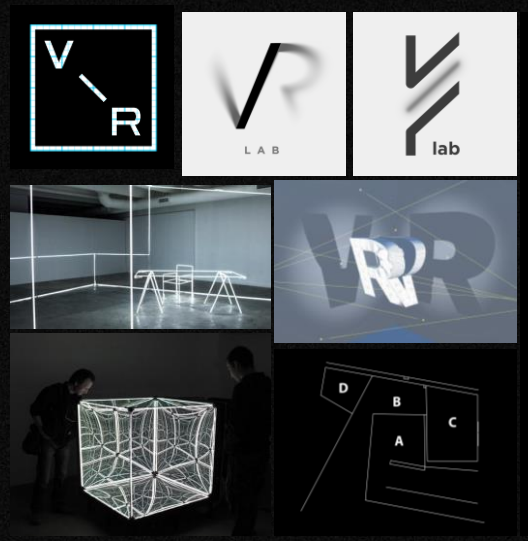
3， By strapping an HTC Vive handle to a real-world chair, you can also experience the "virtual chair" in the VR world.

VR- Nowlab Screenshot

1. ¨ V-R lab ¨ INTERIOR DESIGN

Ideation 3D modeling

2.1 VR LAB INTERIOR DESIGN
DESIGN PROCESS



A. Welcome Area

1. Logo (Shadow Art)
2. Information Display:
- Our Showcases
- About us (Video) (2 iPad Pro)

B. VR Bar

1. VR Goggles

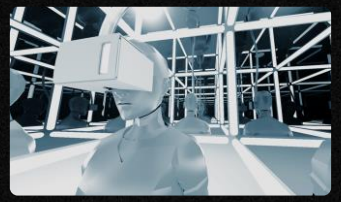
C. Experience Area & Lab

1. HTC Vive

D. Physical VR

1. HTC Vive
2. Physical Device

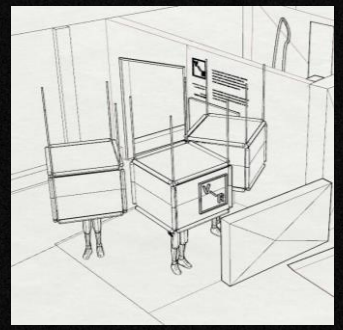
Visual Identity & Interior Design Ref
Reflections, Shadow Art, Light Bands

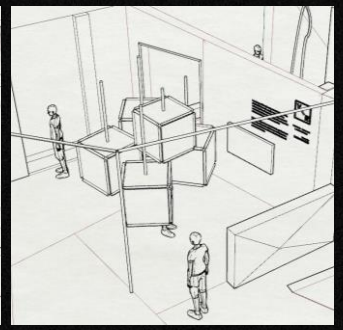


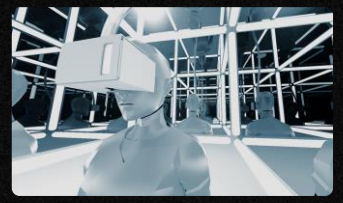
Use of single-sided translucent glass

The user's usage can be seen from the outside.

From the inside, you can't see the outside, but you can see the infinite reflection of the light.







We use mirrors, one-way reflexive materials, shadows and lightings to depict the virtual space in contrast with the reality.

MY ROLE
Ideation, 3D Modeling, Concept Video

2.2 VR LAB INTERIOR DESIGN
FINAL RESULT

Dentsu Aegis Network China has launched V-R Lab in Shanghai. The lab is designed to provide clients with VR solutions for the opportunity to experience, explore, evaluate and expand their understanding of VR.

VRlab is located at the main entrance of Dentsu Aegis on the 16th floor of Shanghai. A lot of people visit and experience VR

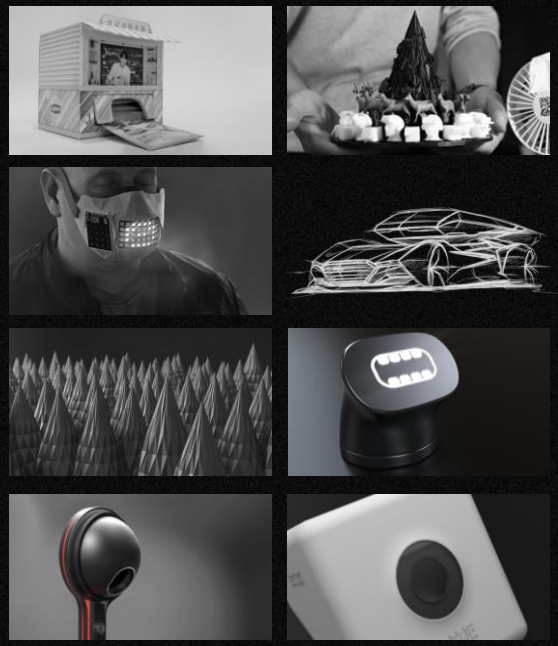
Showcased almost every VR-related device available at the time.

UNITY / 3D MODELING / INTERIOR DESIGN / INDUSTRIAL PRODUCTION

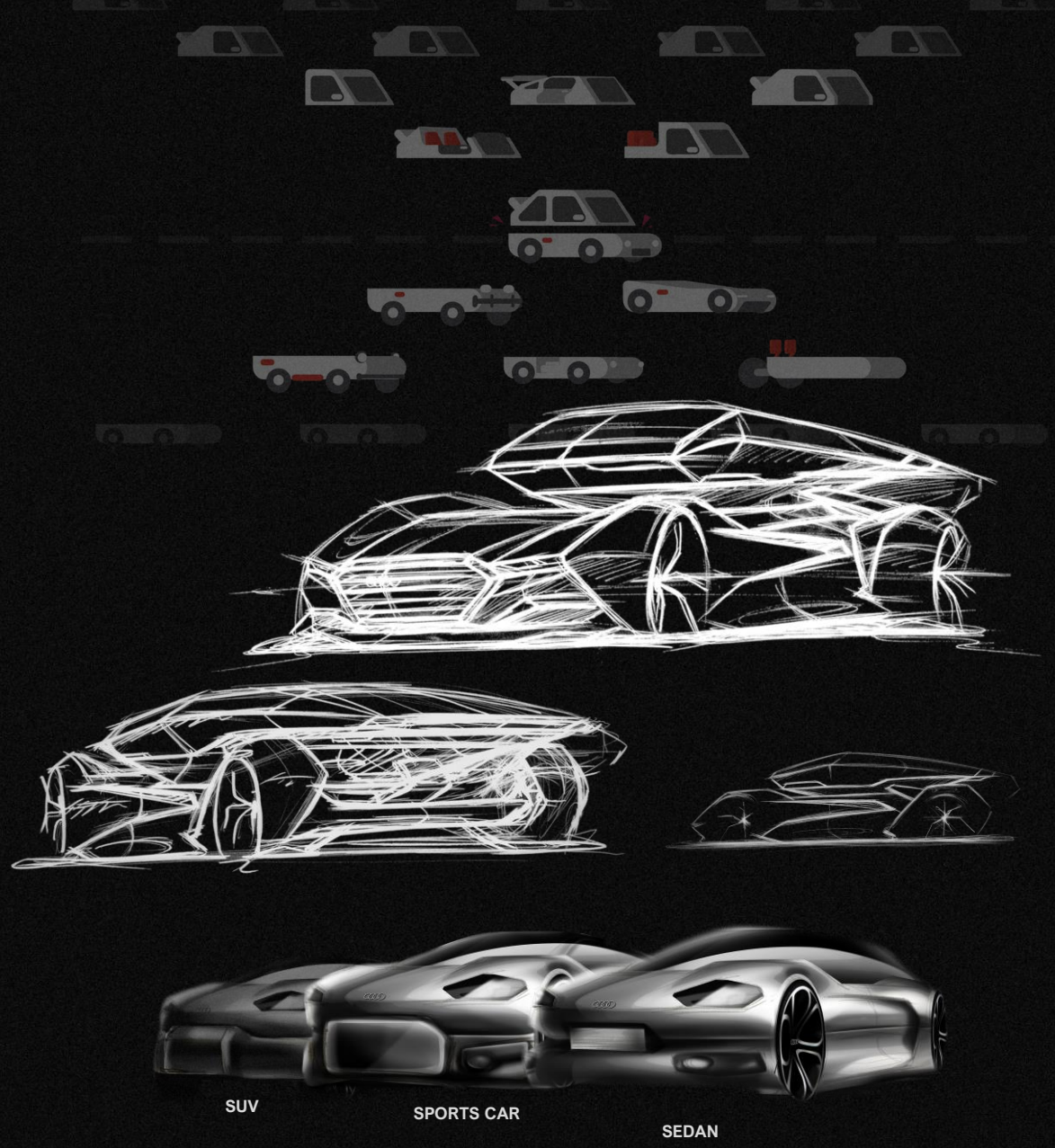
6

SHORT BUT IMPORTANT

ONE PROJECT ONE PAGE , EIGHT PROJECTS



2016 JUN - NOV DENTSU AEGIS NETWORK



AUDI

MODULAR ELECTRIC VEHICLE

BODY → **BUY** Owned By Customer

CHASSIS → **RENT** Owned By Audi

In 2015 Audi innovation lab held a competition in China.I became one of the top 30 for my project "highway traffic differentiation information service system".
In the subsequent 24-hour hackathon, I worked as an industrial designer with two other engineering and commercial teammates to propose and design a modular electric car.
Because of the success of the project, I was invited to Barcelona to experience and learn from the Audi Autopilot development team.

Clay Model

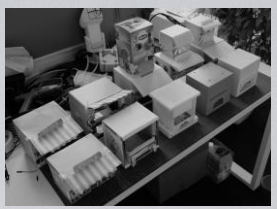
The project went from set-up to completion in just a 1 month.
My Responsibilities: **Sketch, ideation, Clay modeling.**

LIPTON
WU TEA STORE

In 2016, to help Lipton's 11.11 campaign in China, I was involved in developing this Lipton Tea Shop special packaging. As an industrial designer, I went through 5 prototypes as well as experiments and participated in the production and processing process at the factory located in Dongguan.

At different points in time, when you take out the tea bags from "Wu tea store", Wu Lei will offer you different blessings for drinking tea.

The final project then sold over 3,000 units on Taobao, creating communication value for the brand.



Prototype

How to fold the outer packaging

The project went from inception to completion 3 month's.
My Responsibilities: Product Design.

SOBO

CUSTOMER SERVICE ROBOT FOR BUSINESS

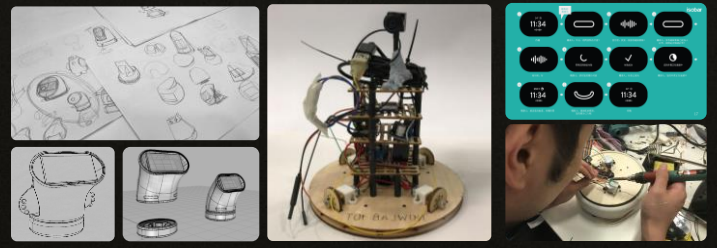
A smart voice-activated robot that brings consumers and their favourite brands “face to face”.

Custom Design & Build
Customizing robot design to fit brand image

Profit Sharing
Sharing profit earning from customer’s orders

Monthly Service Fee
Charging the monthly fee to maintain the service

Selling Data Insights
Selling insights data collected and analyzed from the robot

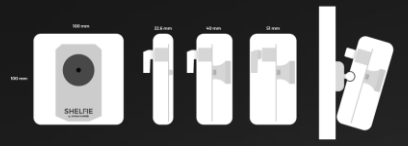


The project went from inception to completion in just a month's spare time.
My Responsibilities: Ideation, Sketching, Modeling, 3D Printing

SHELFIE

by isobar nowlab

SHELFIE (自拍柜) is an interactive POS system that engages customers via WeChat and collects behavioral data at different retail spaces using various AI technologies. It also has a modular IoT system (smart camera, IoT lock, etc.) that fits the needs of different physical locations and a dashboard to visualize the customer data.



LYNX

FIND YOUR MAGIC

Installation art created for LYNX in 2017.
Putting your head in can blow out different hairstyles.

As an industrial designer, I helped to participate in the production of product appearance and animation

CLICK AND PLAY
OFFICIAL VIDEO

ANIMOJI MASK

In 2016, the air pollution in Beijing reached an unprecedented level, people used to wear masks every day, but it was as if there was an extra layer of separation between people and their communication.

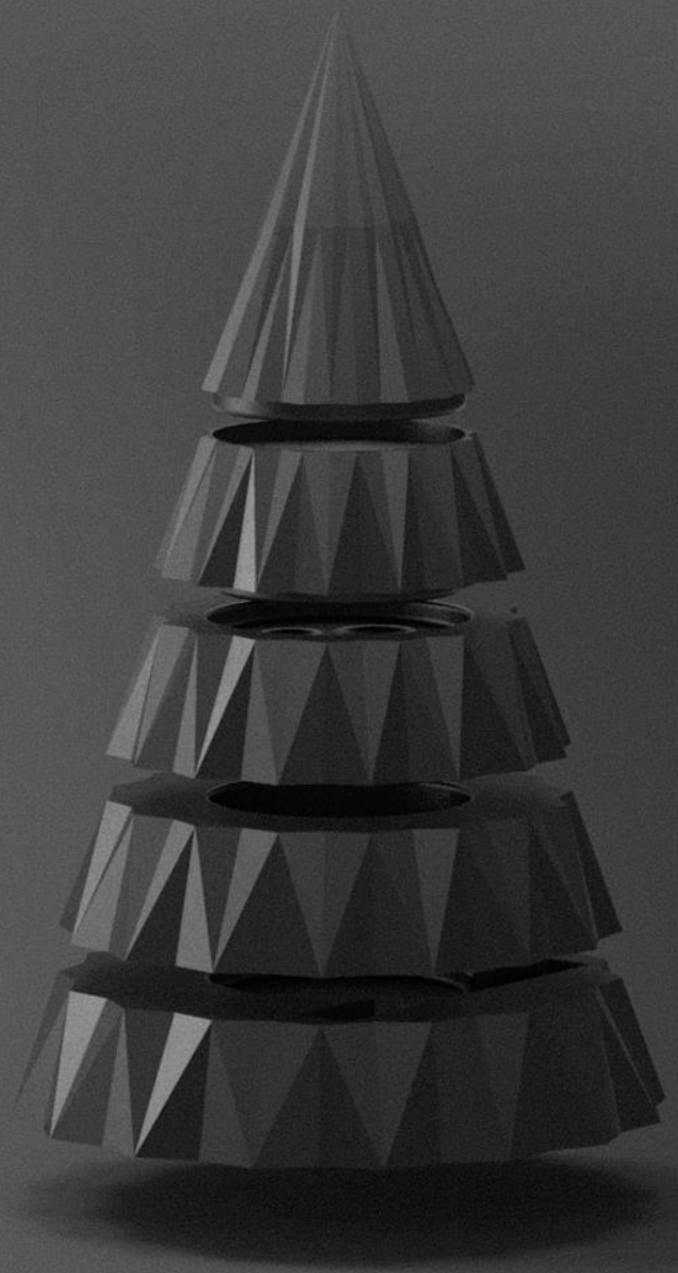
In nowlab, we spent less than 2 weeks discussing and making a prototype of an Animoji mask, where the speaking volume is animated and displayed on the LED screen in front of the mask, and to express different emotions, (without AI emotion recognition) you can enter an expression on a touch panel on your cheek.

Different Emotion

Prototype

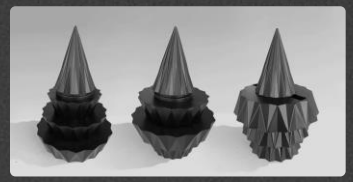
The project went from set-up to completion in 2 weeks.
My Responsibilities: **Modeling**, **3D Printing.**

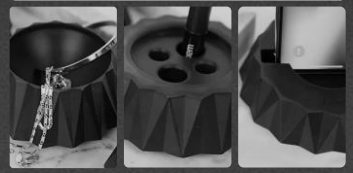
CLICK AND PLAY
10S OFFICIAL VIDEO



LYNX
CHRISTMAS TREE

A small tabletop ornament. The first work I made in the advertising industry that was publicly available for sale. As part of LYNX's special Christmas packaging. Each part of the tree can be detached. Use it to place different things.





The project went from inception to completion in just a month's spare time.
My Responsibilities: Ideation , Modeling, 3D Printing

CLICK AND PLAY
OFFICIAL VIDEO

ZOETROPE

3D PHYSICAL ANIMATION

For Christmas 2018, we combined NowLab's work with Zoetrope (3D physical animation) and Christmas elements to create this small installation.
Using Formlab's 3D printer, we printed out the sequence of digital 3D models frame by frame. In combination with a flashing light that flashes at a specific frequency, the viewer can see the model's animation with the naked eye.

Set up

Let it Spin

Using flashlight. Enjoy Animation~

Physical Animation with the naked eye

The project went from set-up to completion in just a month's spare time.
My Responsibilities: **Modeling, 3D Printing, Videography**

CLICK AND PLAY
10S OFFICIAL VIDEO

Thank You

PRODUCT DESIGN

Hsu Fu Chi Theremin Music instrument （2019）
Animoji Mask（2016）
Soy bean machine（2015）
Lipton Tea box（2017）
Sobo Robot（2017）
Lynx
Christmas tree（2016）
Find your magic（2016）
special package（2017）

INNOVATION / ROBOT / EXPERIENCE

Highway traffic differentiation information service robot（2009-2016 ）
Audi Modular electric vehicle（2015）
VR lab / VR nowlab（2017）
City cleaner robot（2007）
Zoetrope Nowlab（2018）
Christmas box for MT（2017）

APP

《Find the missing words》（2019）
Healthy （2019）

ADVERTISING

Qoo 2017 campaign（2017）
KFC low tier city experient deisgn （2019）

WORKSHOP

Skoda innovation（2017）
Danon innovation （2018）
KFC Innovation（2019）

VIDEO / DOCUMENTARY

《US》（2016）
CCTV《The Engine of the Future》（2016）
Merry Christmas MT（2017）
Dentsu Online Recruitment Conference（2017）