

PORTFOLIO



Leigh (lijiang) Fu

Industrial Design Student



COOKIE
Cooking on the Road



O SHELF
Kitchenware



CIRQUE
Coffee Maker



PRES CHOPPER
Kitchenware



PANOMO
Family Video Projector

To Be Continued.....

1 care about the health and the eating habits of Over-the-road (OTR) truckers

COOKIE

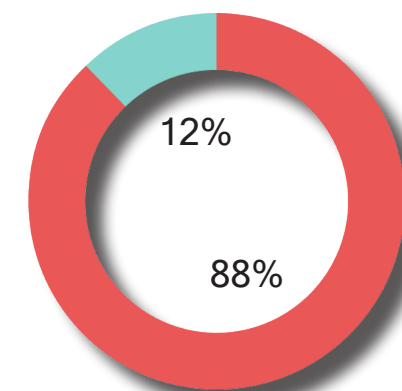
Cooking on the Road
Cookware Project | Sophomore



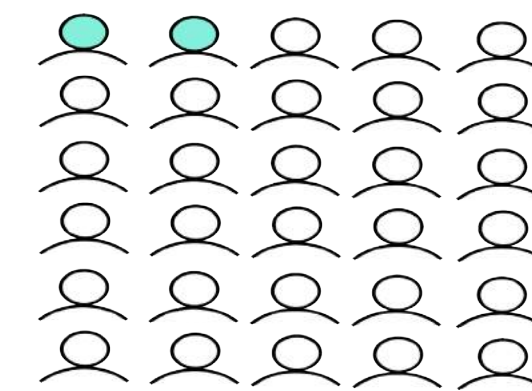
CONTEXT HEALTH PROBLEM OF LONG-TERM DRIVER

Over-the-road (OTR) truckers, also known as long-haul drivers, travel long distances and can be away from home for weeks at a time. For many, it's a tough job that leads to an unhealthy lifestyle. The very nature of the work is sedentary. The work in and of itself is somewhat monotonous. Many rely on enormous amounts of caffeine and junk food to pass the time and get energy.

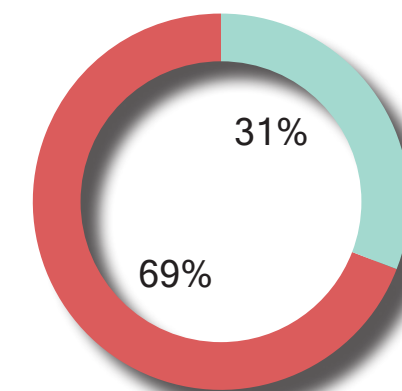
88% of the drivers surveyed said they had at least one risk factor – high-blood pressure, smoking, obesity, etc. – for chronic disease, compared to 54 percent of the general U.S. adult working population.



7000,000 truck drivers on our roads. In America, nearly 1 of every 15 people in the workforce is employed in the trucking industry.



69% of the drivers surveyed for the study were obese (relative to their body mass index), according to the survey's results. Seventeen percent were deemed to be morbidly obese.

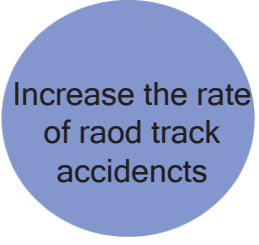


INTERVIEWS

- “I was still eating the cheeseburgers, French fries, soda, and candy, and chips, I was just eating whatever I wanted to eat, and that was horrible.”
- “Drivers will be just like I was. You know what you’re eating is bad for you, but you don’t know how to change.”
- “The places where you can find easy parking are truck stops, and that’s where they have mostly garbage.”
- “When I go to the fuel desk it’s king-size candy bars.”

CHALLENGES

- Difficult to get the healthy food on the road
- Healthy meal plans at the truck stop are very expensive
- Truck stops are loaded with deals on supersize candy bars and soda.
- Restaurant specials often revolve around high-calorie offerings.
- The food they packed at home are always cold and taste bad
- According to the tight schedul, they don’t have enough time to cook while resting

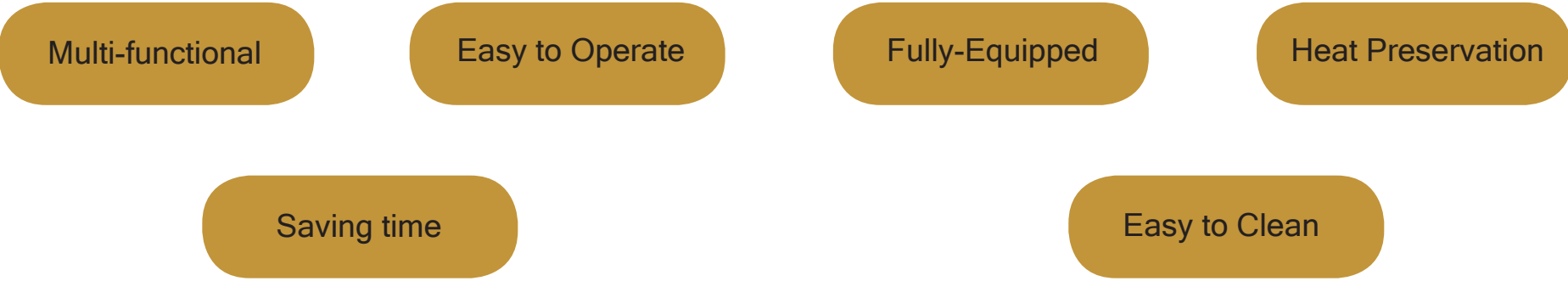


PERSONA

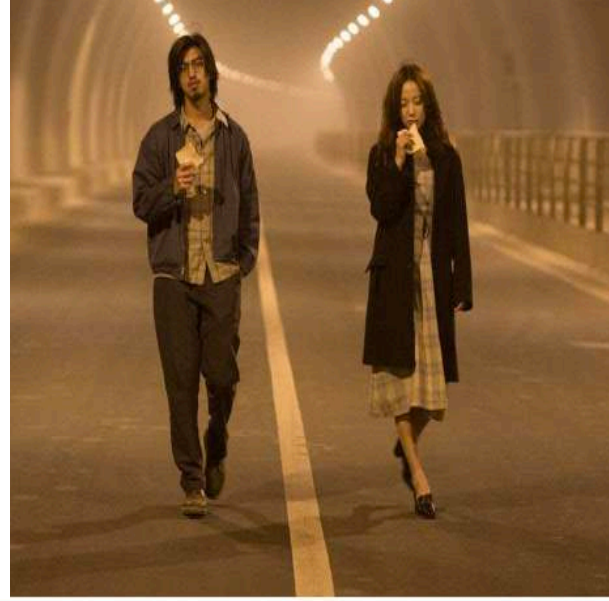


Name:	John
Age:	42
Job:	Long Distance Truck driver. Always on the Road.
Habit:	DIY, Cooking, Eating, Body-building
Characteristic:	Hygeian Healthy Busy Tired Below middle class, short of money Need energy Still care about the qulity of life
Requirement:	Want to eat healthy food for enough energy for driving Want to use less money on the food Need combined equipment for cooking in the vehicle

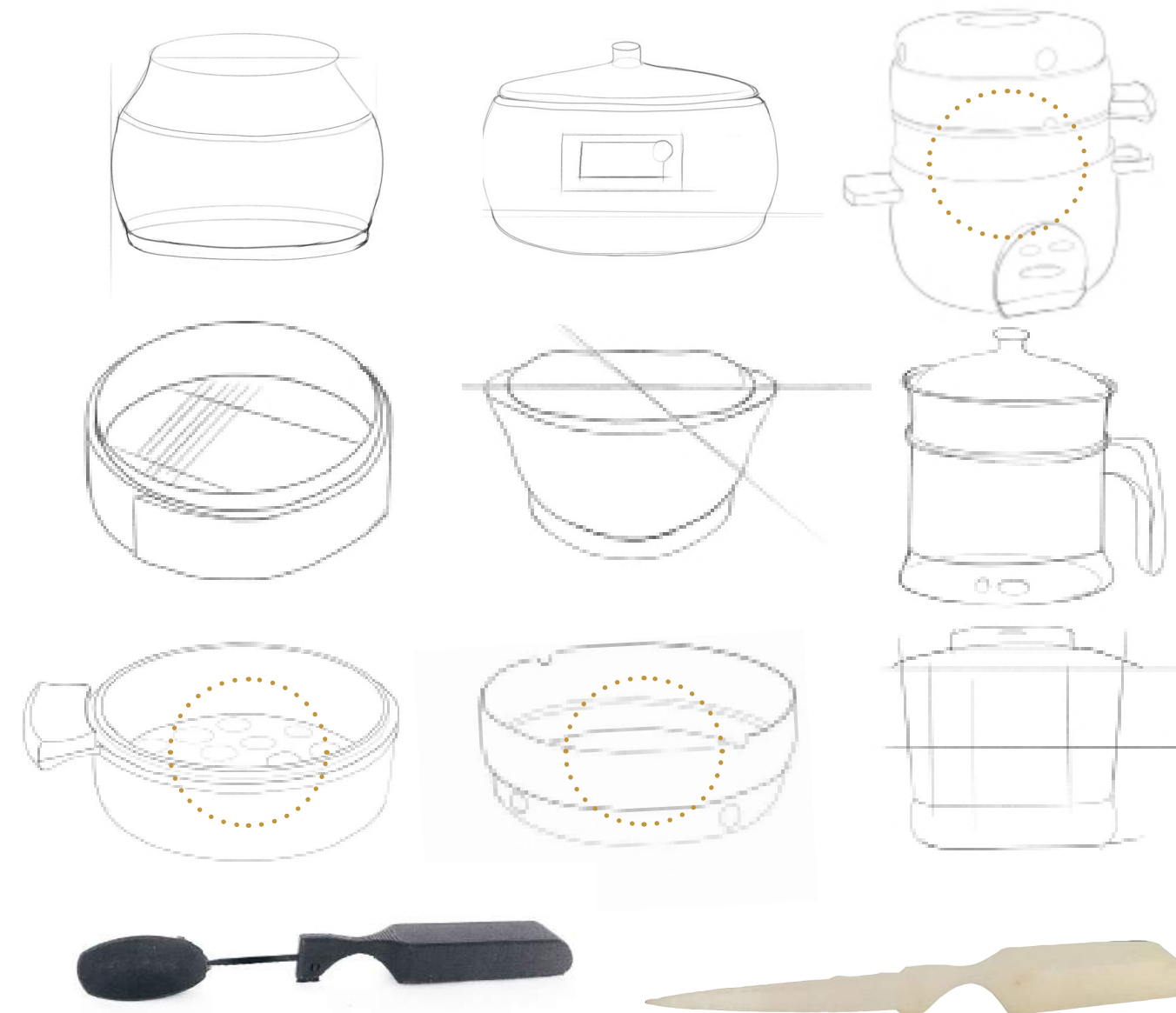
So the product need to be... ..



INSPIRATION BOARD



IDEATION SKETCHES, QUICK PHOTOTYPING, 3D PRINT



FINAL MODEL

3D Modeling



Design a set of **EASY TO CARRY**, **EASY TO OPERATE**, and **EFFICIENT** cookware combination for people who are always on the road.



Pot Set



Big Cooking Pot



Steaming Pot:
The steaming pot is placed above the big bottom pot and under the lid. Truck Driver can use this pot to steam vegetables and balance their diet so as to have a healthy body to support their long time driving.

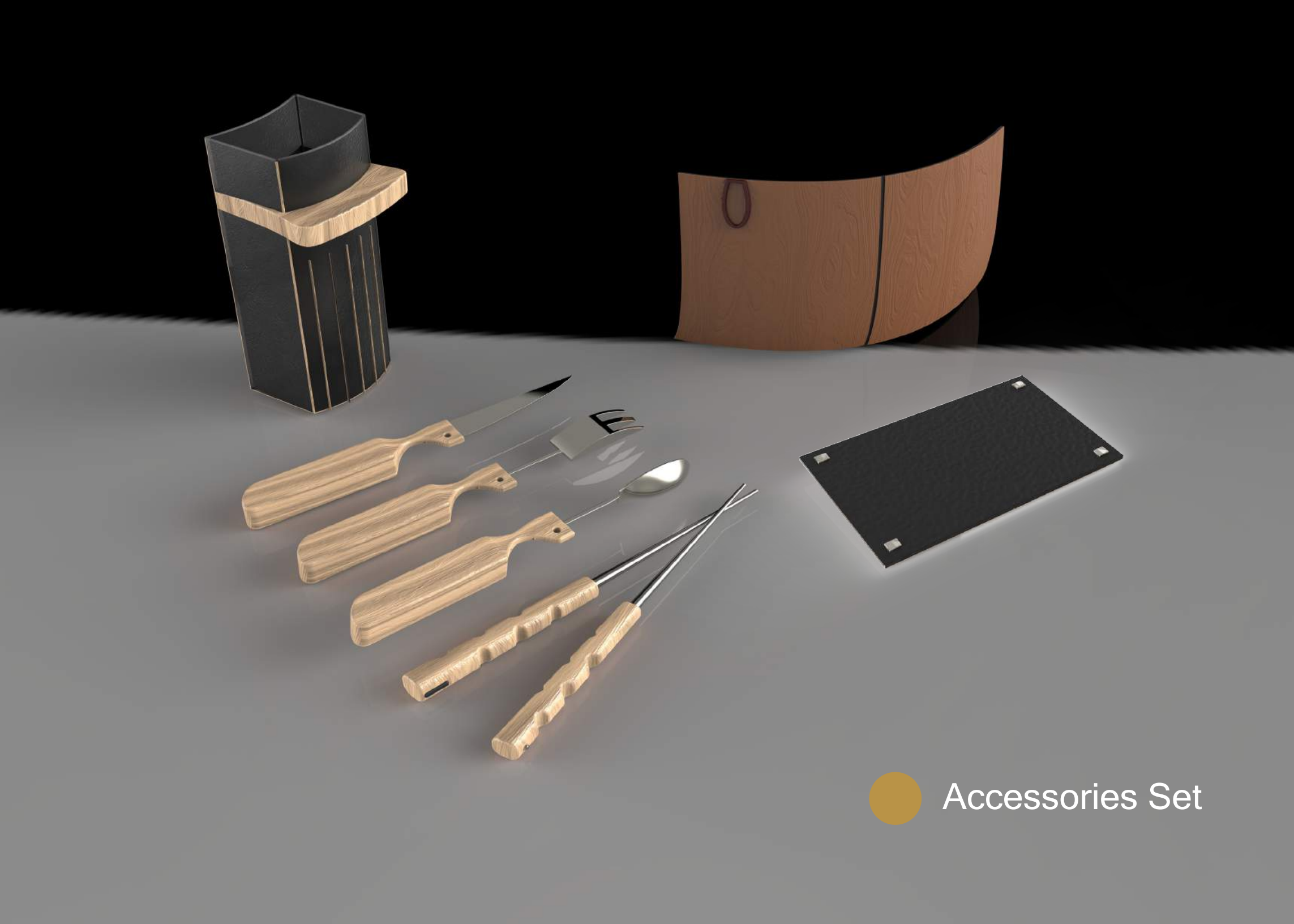
Lid and Bowl:
This object is a lid of the big cooking pot and the steaming pot. But it can also be used as a bowl for the truck driver to eat. It is a MULTIPLEPURPOSE object. It is durable.



The concave parts use the material, rubber with the texture of bumps to increase the friction in order to help truck driver to hold it easily.

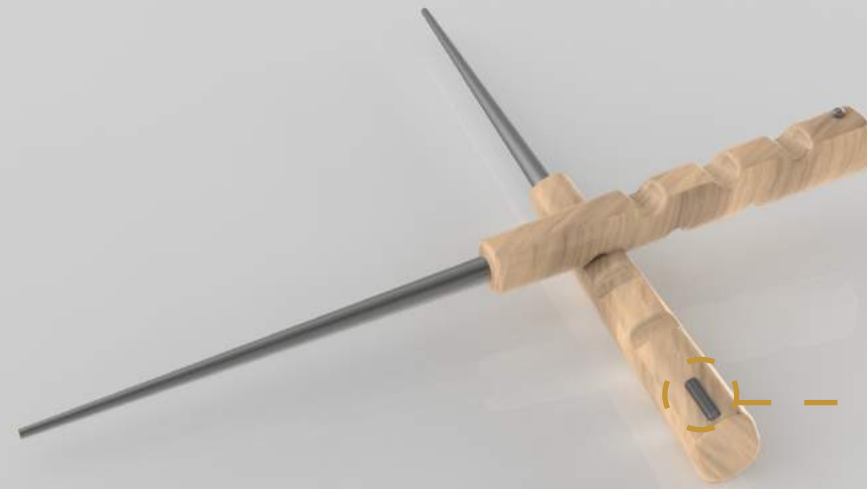


Material: Wood
Stainless steel
Rubber

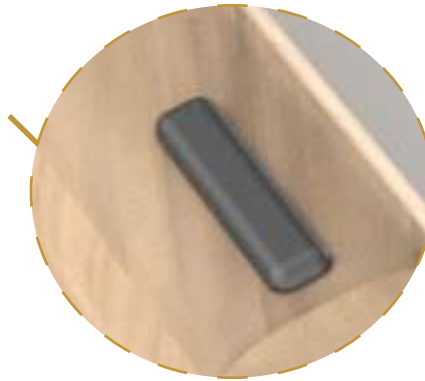


Accessories Set

Utensile Set



These Utensiles are mainly made by steal and wood. The shape is designed to fit the people's hand. They are all EASY TO HOLD. And and the size of those utensiles are neither too big nor too small. (TRAVEL SIZE) These useful utensiles can help drivers to cook a delicious meal.



It is a magnet that used for holding two chop-sticker together to avoid losing one of them.



Material: Magnet
Stainless steel
Wood

Cutting board

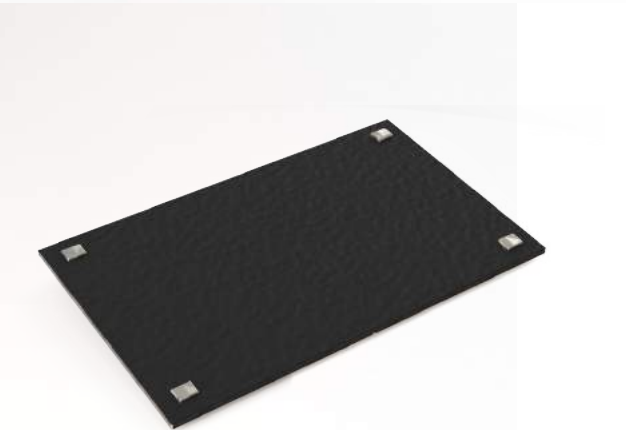
The Cutting Board is FLEXIBLE and REMOVALBE. It can be placed on the surface of the big cooking pot for SAVING SPACE. The surface used Piable Plastic with wood texture. The cutting part used the soft rubber.

Rectangle metal piece: for fitting in the cooking pot and as a standing.

Leather Handle: Pull this and you can get the cutting borad out easily.

Exterior: Piable Pliastic has wood texture to maintain the aesthetics.

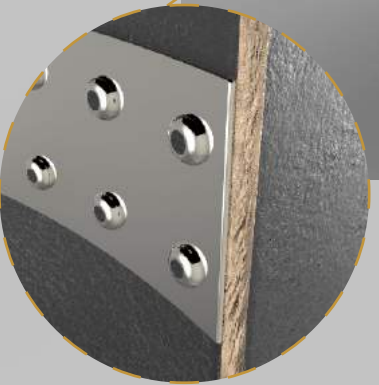
Material: Plastic
Stainless Steel
Leather
Rubber



The Bottle

The bottle is designed to be EASILY HELD and is STABLE.

Material: Plastic
Stainless Steel
Wood
Rubber



Small bumps are used to increase the fiction and make it easy to hold. The Bumps also has MEDICAL EFFECT. It can STIMULATE AND MASSAGE drivers' hand. They can help truck drivers to relax their hands.



EXPLODED VIEW



SCENARIO OF USE



Option 1:
Cooking in side the truck wile driving
on the road and keep it warm.



Option 2:
Cooking outside the car while resting.



2

create an organized space
in the kitchen



O Shelf

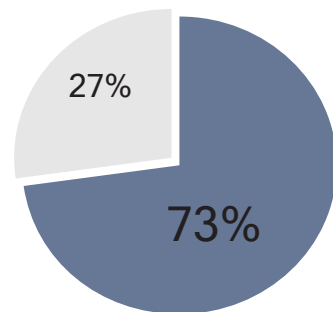
Biomimicry project | Sophomore
Concept Design



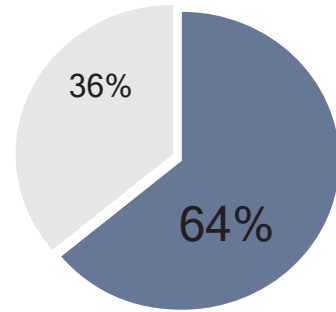
CONTEXT RESEARCH + OBSERVATION

PROBLEM INSIGHT:

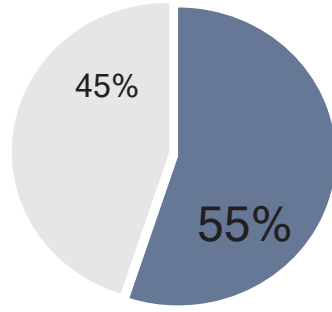
Nowadays there are many people using electronic devices, such as iPad and their phones, while they are cooking in the kitchen. Most of them have trouble protecting their electronic devices in the kitchen. For example, people do not have a safe and clean place to put those electronic devices. And organising their kitchen while cooking is also a very big problem in people's daily life.



73% of people use their electric devices while they are cooking.



64% of people mess up with their electric dVICES's screen while cooking.



55% of people can not find the equipment they want for cooking.

PEOPLE'S BEHAVIOUR IN THE KITCHEN:



Need an object to support and protect their electronic devices in kitchen.



Scattering utensiles and bottles everywhere on the working station.



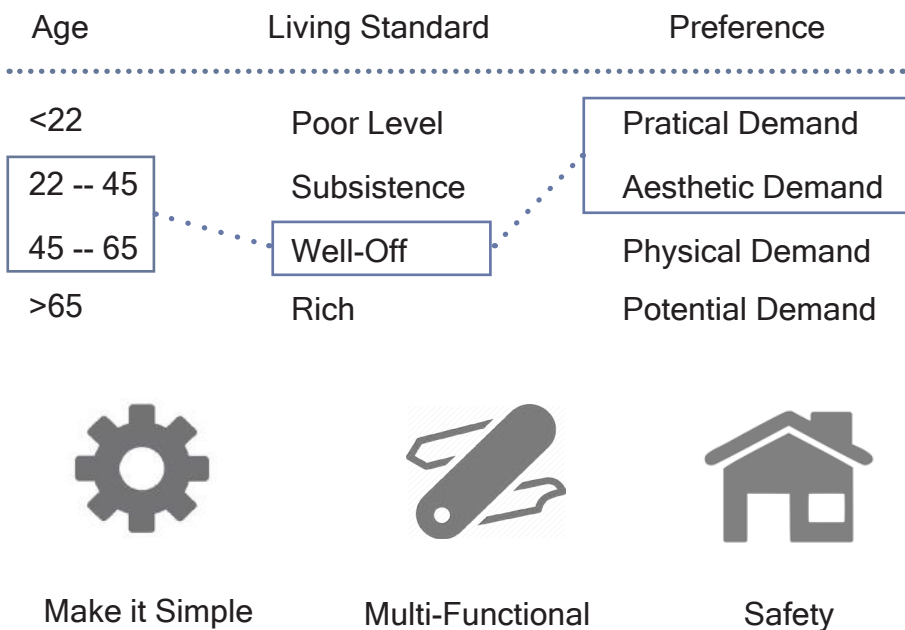
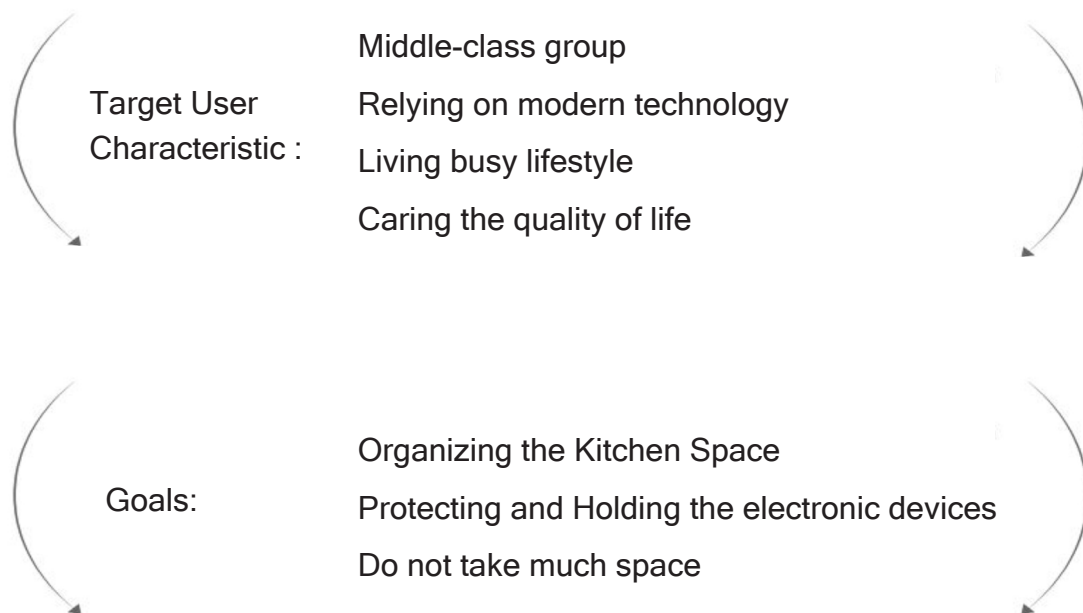
INTERVIEW

Name Monica Seeley
Age 41
Location Santa Rosa, California

Monica is a single mom with three kids. She is struggling with organising the kitchen and using the iPad while cooking, since there is no place to put iPad and to protect it away from liquid.

Monica wants to have some products that are designed to help her organize the kitchen as well as hold and protect the iPad while she is using it.

"My iPad needs a protector and I need a supporter in kitchen"



INSPIRATION BIOMIMICRY

Biomimcry of Octopus feet and suckers served as intial inspiration. There are three characters of Octopus are utilized on the puduct.

1. It can stretch out and draws back easily. Move freely.



3. It has strong sucker that tightly attach to any kind of surface.

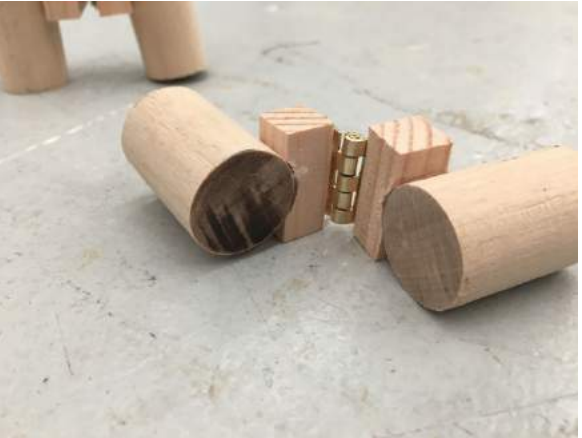
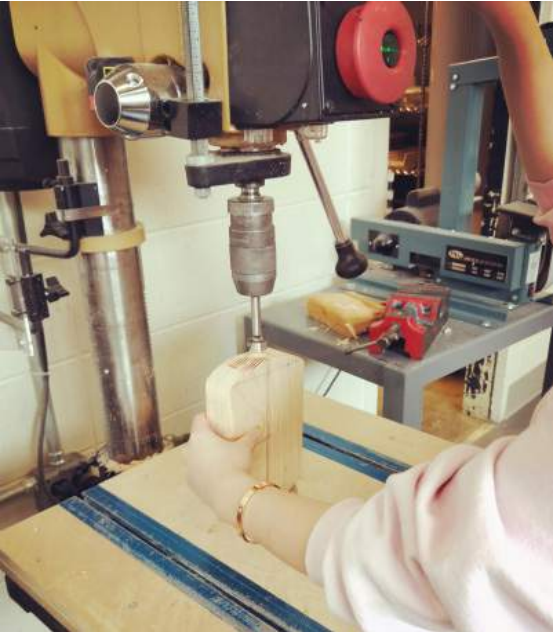
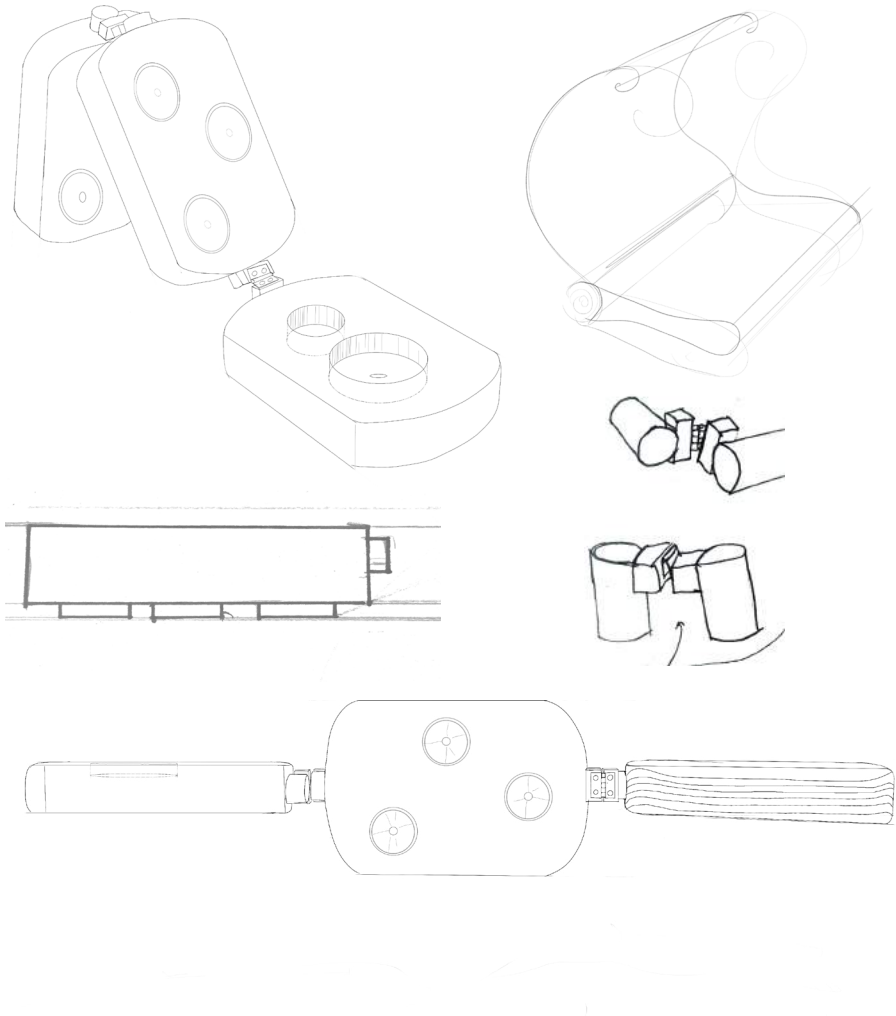


2. It can rotate 360 degree.

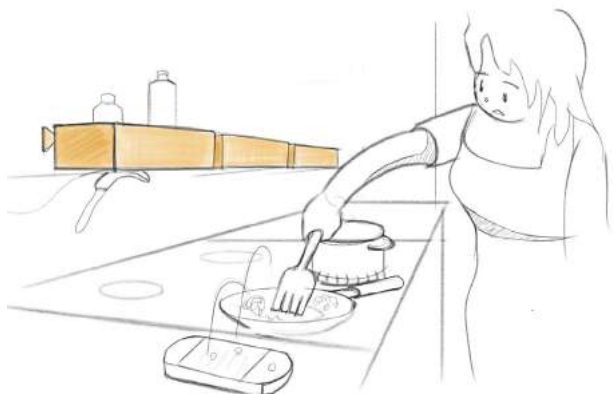


IDEATION Sketches, Quick Prototyping, Mechanism Experiment

The *O Shelf* is constructed by three flat wooden plate, connected by hinges. The middle part of the shelf can rotated 360 degree. And the shelf can be changed into different shapes. It also can be folded so as to take less space in the kitchen. The shelf is attached to all kinds of surface. It also can collect kitchen utensils and other stuffs to make the kitchen neat and clean.

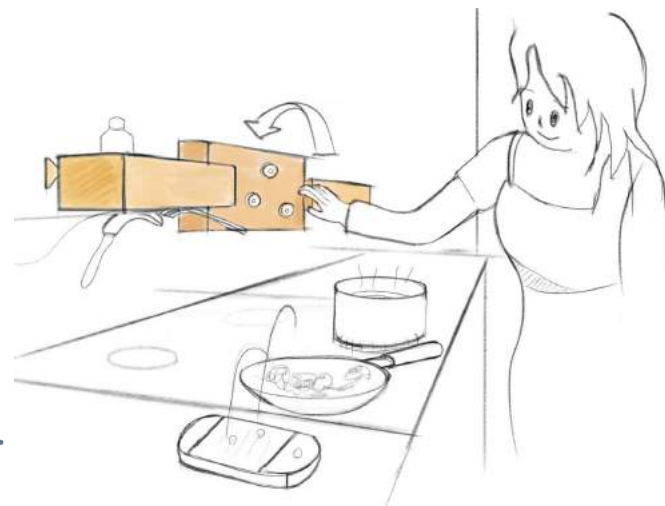


USER SCENARIO

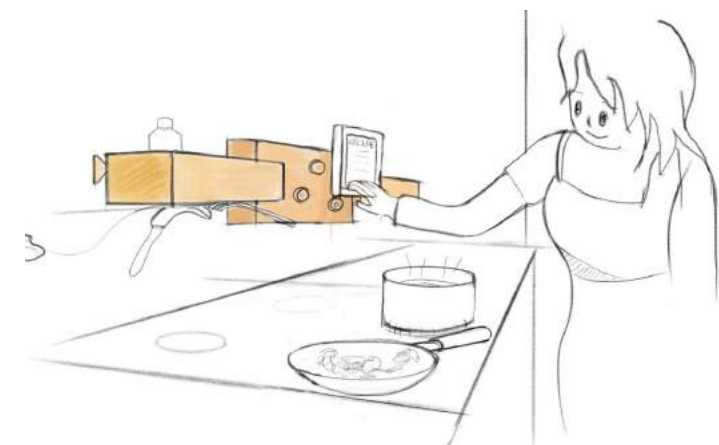


1. When it is flat, you can put seasoning bottle at the top of the shelf and attach kitchen utensiles at the bottom of the shelf.

2. When you need a place to put your iPad or phone, you can rotate the middle part of the shelf to create larger surface.



3. And then put your electronic device on the shelf. The sucker can hold it tightly.



FUNCTIONAL MODEL



OTHER SCENRIO



It does not only for the wall, it also can be stably placed on the table to hold the electric devices and utensils.

After cooking, users can also remove *O Shelf* from the wall and fold it into a small piece and put it aside.



increasing people’s sense of belonging in a group while enhancing the interaction between the coffe machine and the users

3



CIRQUE

Cookware Project | Junior

RESEARCH Behaviour of drinking coffee



Used to use Bowl.
Can feel the warmth of
coffee and dip bread
in the coffee easily.
Have more interaction
with the coffee.



Chatting
with friends
in coffee
shop.



Used to drink coffee
with a group of peo-
ple standing. Coffee
helps to bond the
community.

Traditional behaviour

Grab a coffee to go
and drink it on the
way to work. Coffee
is nothing other than
a drink for energy.



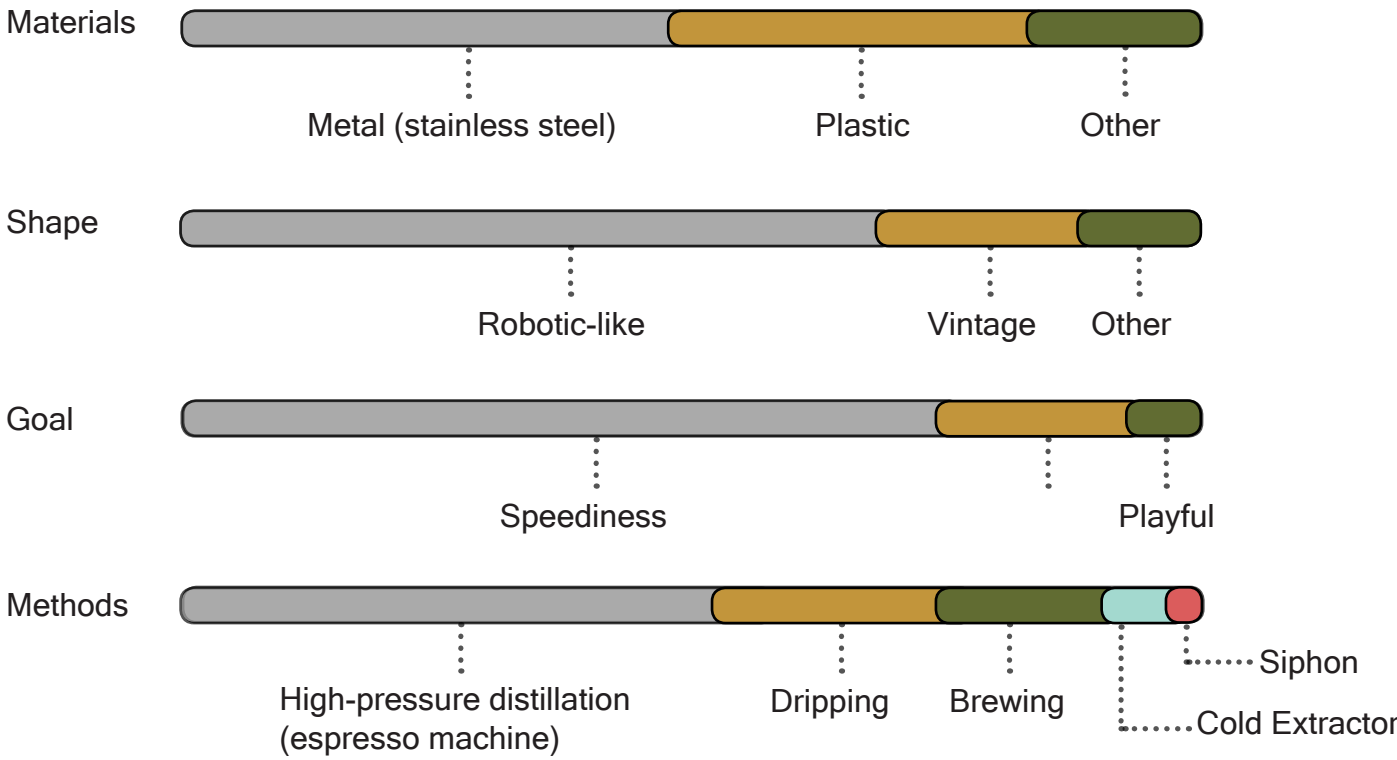
Drinking
coffee while
doing other
things.



People sitting alone
studying or working
in the coffee shop.
People do not pay
attention to coffee
at all.

Today's behaviour

RESEARCH Marketing Analysis



In current market, the coffee machine has been fully designed. The existing products are focusing on how to make a cup of coffee as quick as possible which makes the making coffee process very convenient. So almost all of existing coffee machine only produce espresso. However, it also turns the coffee nothing other than a caffeine drink. The leisure time for people to interact with the coffee has been lost. Most of the products are made by metal and look like robot which gives the sense of coldness.



Design a milk coffee maker for a group about 3 to 5 people at home or at outside. The design is focusing on the idea of reducing the loneliness of people inside a group by increasing people's sense of belonging and enhancing the interaction between the coffee machine and the users.



Coffee Bowls

Based on the traditional behavior of drinking hot coffee, the coffee cup is designed as a dual use bowl which allows the user have direct interaction with the warmth of the coffee and increase user's sensory experience of drinking coffee.



IDEATION

SKETCHES, QUICK PHOTOTYPING, 3D PRINT



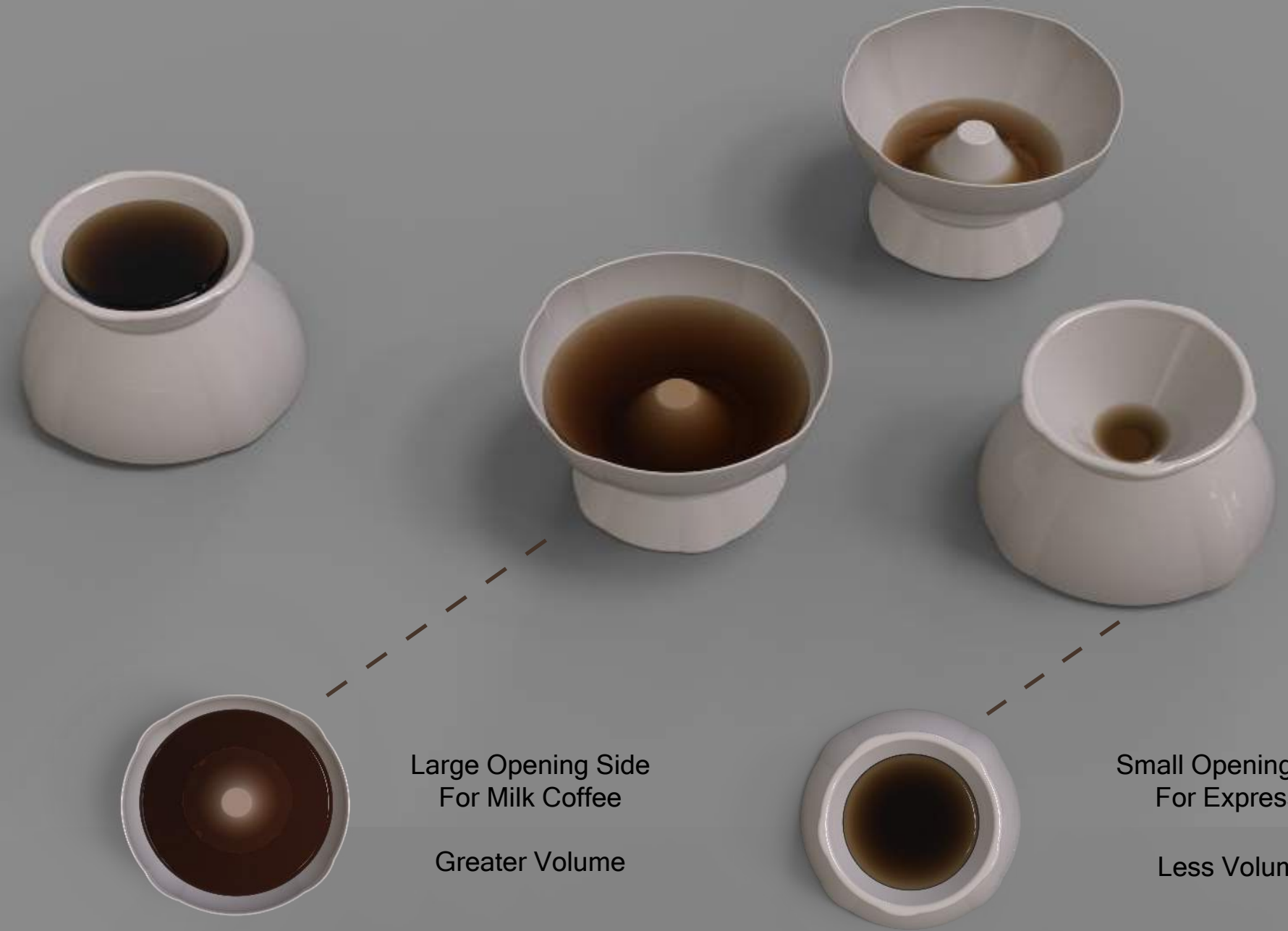
3D Print Model



Render



Final Sketches



Large Opening Side
For Milk Coffee

Greater Volume

Small Opening Side
For Espresso

Less Volume

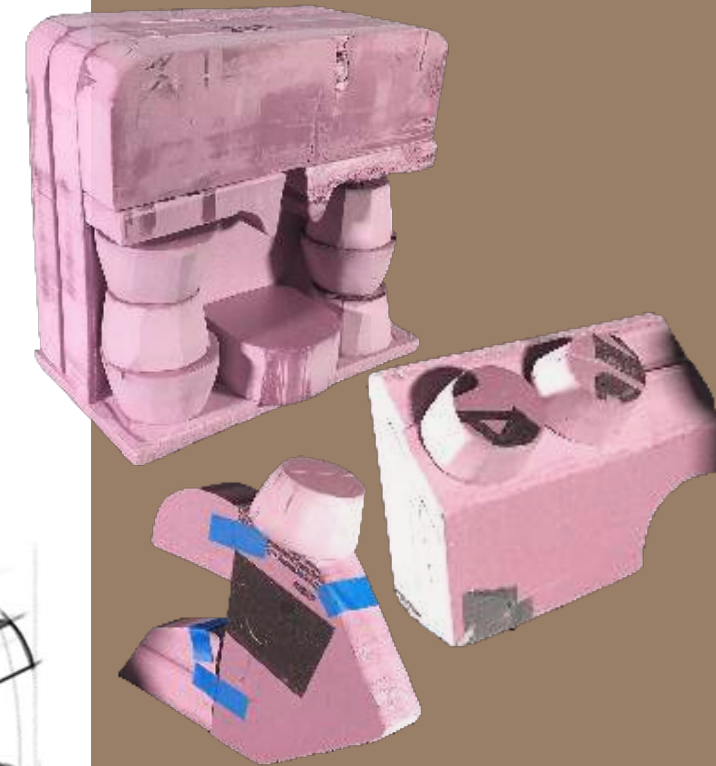
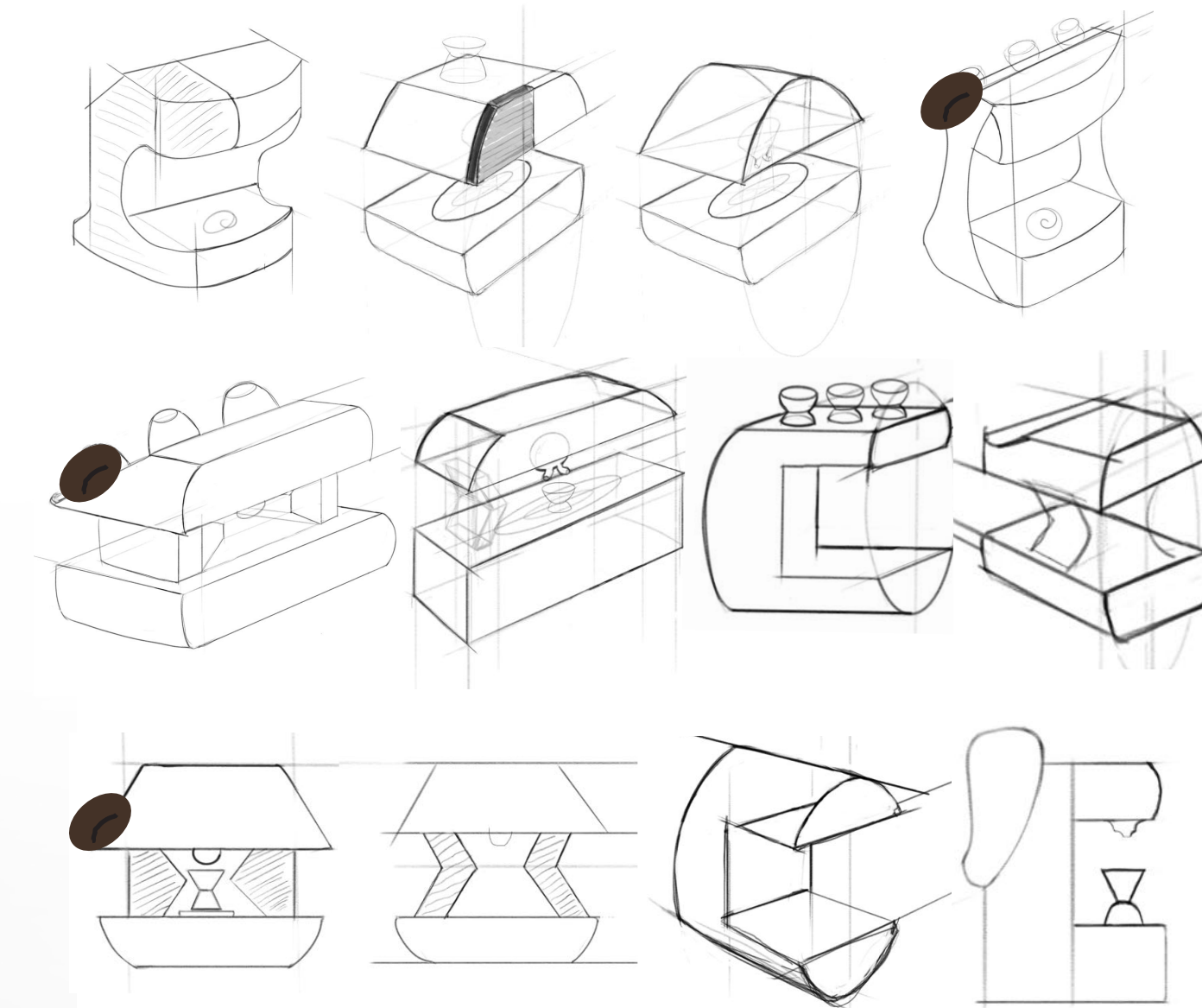
The Coffee Maker

The Coffee Maker does not only make espresso, but also produce milk coffee. It is designed to increase the interaction between users and the coffee maker by letting user watch, smell, and feel the process of making coffee.

It is suitable for a group of 3-5 people to enjoy the coffee.



IDEATIONS Sketches, Quick Prototyping



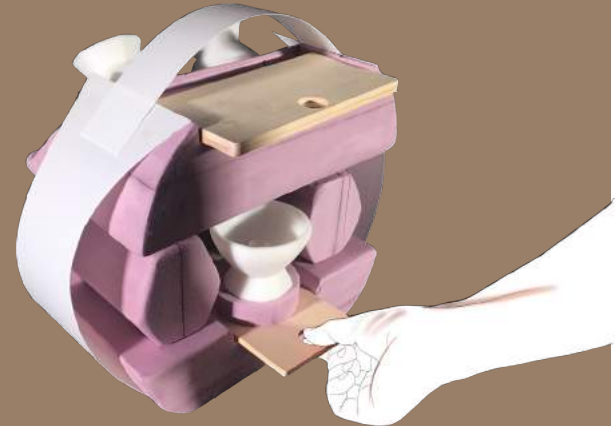
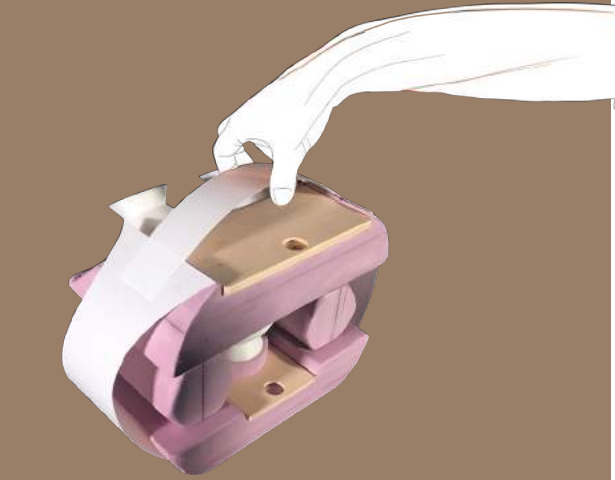
The shape of the coffee maker should present the idea of **INCLUSIVE**. To reduce the loneliness of user.

The top of the product should able to hold the coffee bowl for warming the bowl while making coffee and to give the sense of **INTEGRITY**.

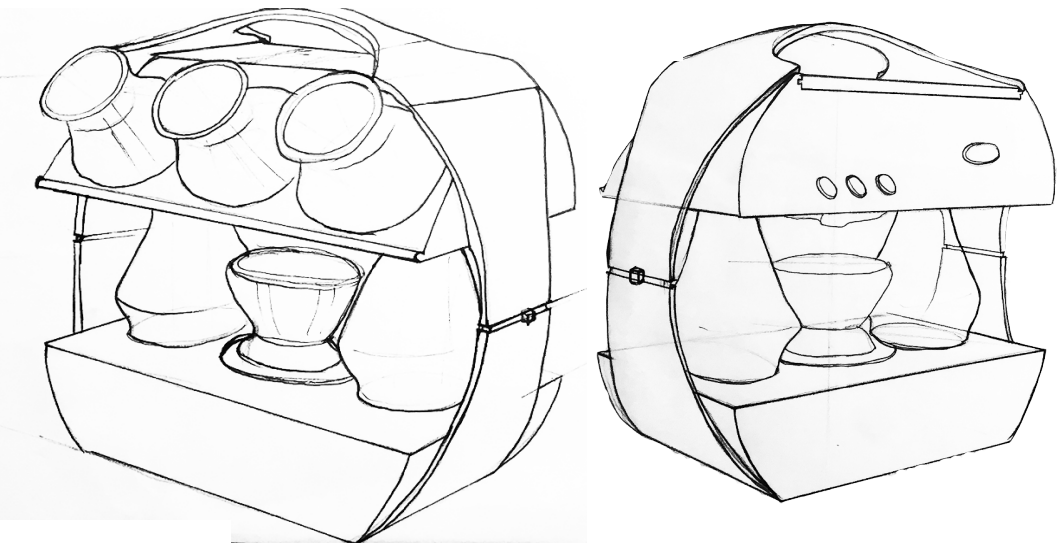
The materials for the product should allow the user to have direct sense of the process of making coffee.

There should be a part for making Latte Art

FINAL



PORTABLE:
Can take it to different
places. For example,
enjoy coffee time with
friend outside.



Inclusive Sense:
The slide system is designed for people
to put the bowl inside and get it out easily.
The movement of putting the bowl inside
the coffee maker is like put the last piece
of puzzle together.

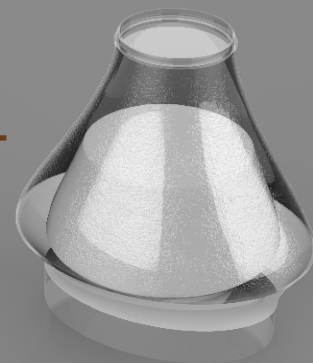
Personalization:
The milk container
is removable. Users
can add more milk
afterwards.





The place to put coffee bowls:

The way of putting the coffee bowls at the top of the coffee maker will pre-heat the bowl while boiling the water and making coffee.



Doubleglazing Transparent Glass Container:

Two layers of glasses for heat preservation; The Transparent glass provides people the direct experience of coffee making process.

Connectin Button:

When users press both buttons at the same time, the wooden supporting plate will extend to get the glass container out.



Metal Spinning Plate:

Making Latte Art easily and quickly while the milk and the coffee is dripping down.





find the problem of the assigned product and revised it to a better state

4

PRES Chopper

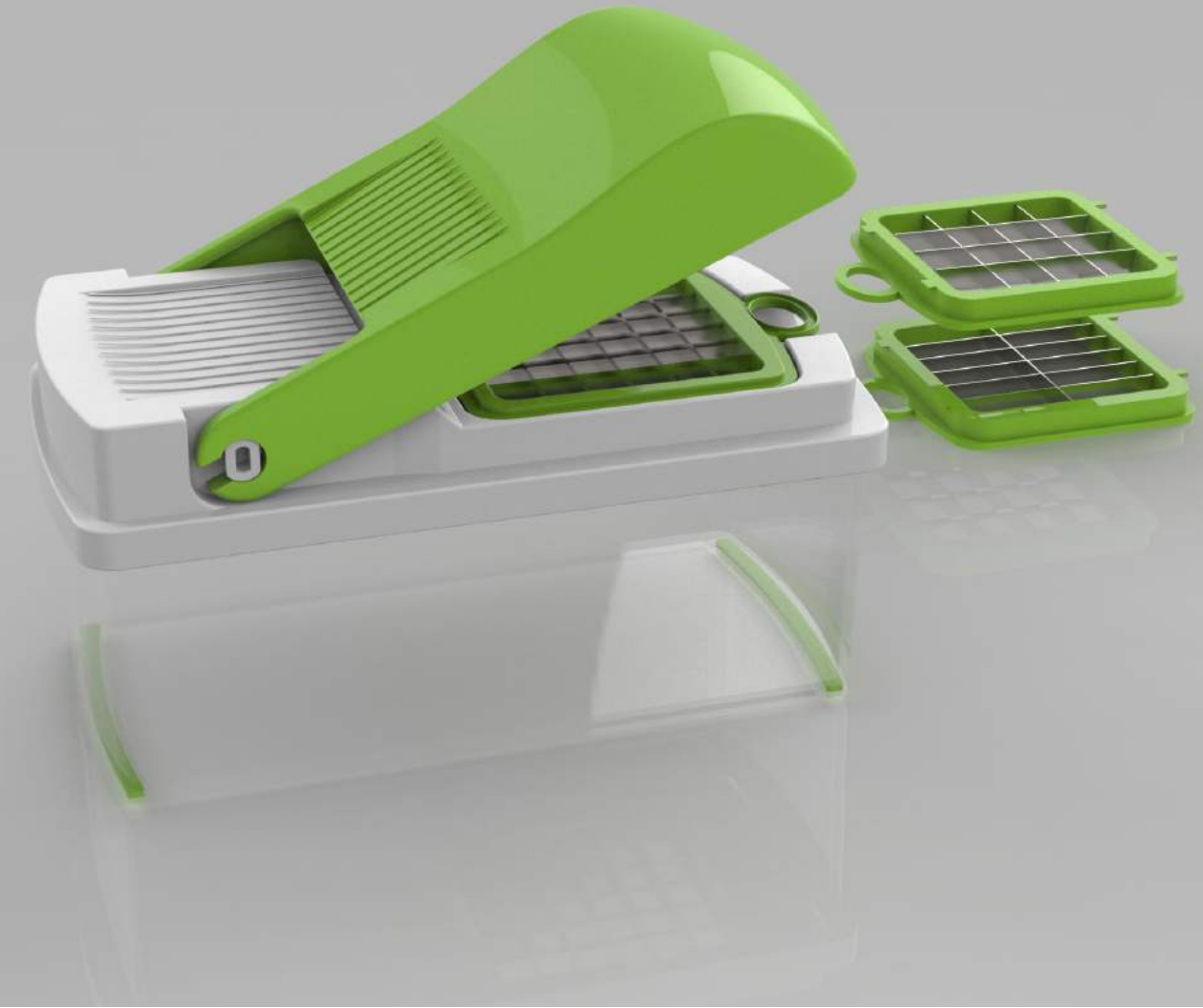
Reversed Engineer | Sophomore

THE TARGET CHOPPER

“

Find the problems of the given Chopper and redesing it into a more efficient product with more aesthetic appearance.

The orginal Chopper aims at helping consumers cutting vegetable and fruit into pieces eai-ly and safely. However it has many design problems.



USER TESTING 1 Interviews -- from shopping website

- CeeBee: “Requires a lot of effort to push through cutting blades. Don’t like it. Very disappointed.”
- PRASHIL: “while chopping , the LID i tried to close but it does not get locked, while cutting vegetables the whole lid get misplaced.”
 “I started with micro chopper for Onions , the one which we get from Costco , they are BIG , i had to cut it in 4 pieces
 and then I tried in this chopper, it required me to put a lot of power , also the plastic lid was not thick enough, and lid is
 not robust enough to accommodate the push, was getting bend and still was unable to cut onions.”
- Wolfimhemd: “The product comes with some sort of rack to clean the top part. Other products have much smarter solutions, such as a
 button on the top part with with you some sort of press out of the remainders of onions etc. that are stuck on the other
 inner side of the top part.”

USER TESTING 2 Personal Experience



- Existing Problems:
- Consumers have to cut the Vegetables and fruits, like apples and potatoes into slices in advance with another knife, and then use the chopper to the sliced food cut into pieces.
- The cutting part of the Chopper is too small for the normal-size food. Even a samll apple can not fit for in it.
- The juice of the food will spill out easily while cutting it and make the working station very sticky and hard to clean.

IDEATION Quick Prototyping



Low Fidelity Model

Testing for the Dimension and differnt ways to solve the problems and try to eliminate using extra knives to cut the food in advance.



Revised Model

FINAL



The New Chopper is designed to solve the problem of using extra knives to cut the food in advance while at the same time, maintain the original brand features.

More efficient
More safety
More aesthetic



Shape blades: Cutting food into slices.
Metal.

Corner: Increase the friction for holding.
Rubber.

Embossment: Lock with the Notch.
The seamless way.

Window: For replacing the blades.

Lid: Easily pushing food into the chopper.
Comfortable to hold.
Plastic.

Channel: For the sliced food go through
into the next state.
Easy to Clean.
Glass.

Blade 1: Cutting sliced food into the
small cube-like pieces.
Replaceable.
Plastic.

Notch: Lock with the Embossment.
The seamless way.

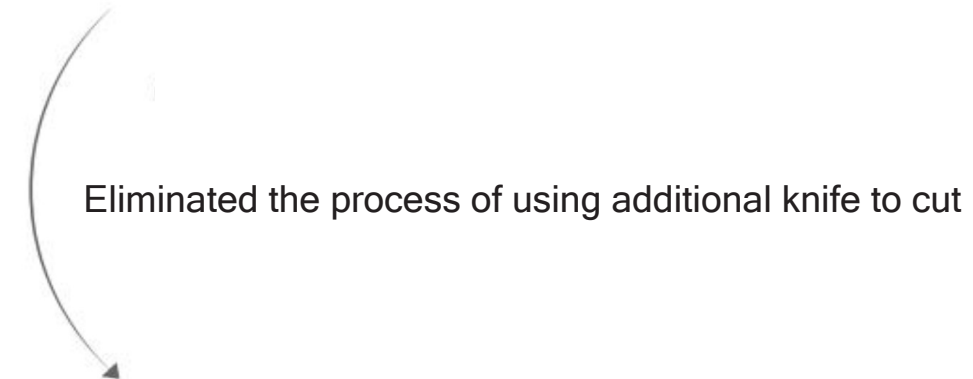
Container: Holding the chopped pieces.
Glass with texture.

Blade 2: A replaceable blade for
different shapes and sizes.
Plastic.



HOW DOES IT WORKS?

- First state of chopping food: cutting the whole food in to slices.
 - Using the lid to push the food into the transparent channel of chopper.



- Second state of chopping food: cut sliced food into pieces.
 - Removing the transparent channel and put it at the side.
 - And continue to use the lid to push the sliced food through a replaceable blade and then cut into the pieces

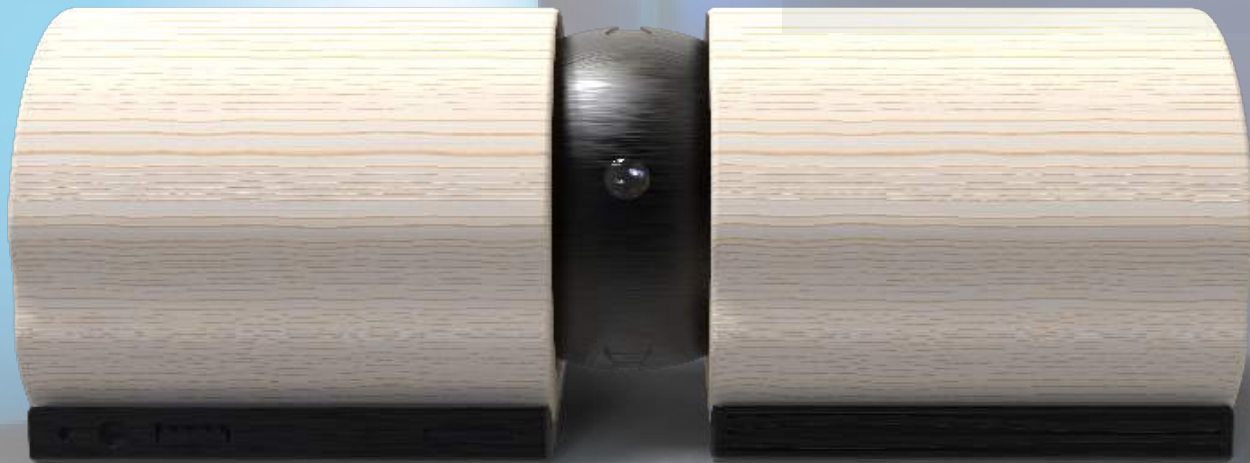


5

Creating comfortable atmosphere of watching movie at home and educating children with advanced technology

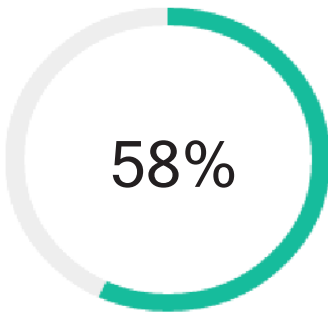
PANOMO

Houseware Project | Junior

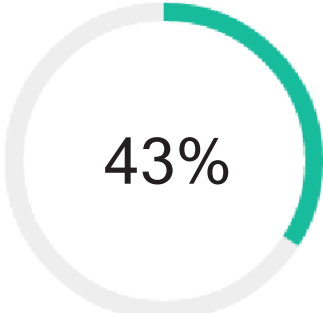


RESEARCH

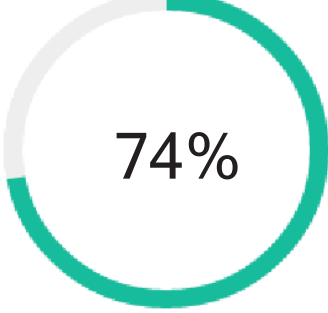
More people prefer to watching movies at home instead of go to the theatre, since the home setting is more comfortable and they can pose in their most comfortable way to watch movie. And 74% of people agree that watching movie is a very effective way to increase the connection between the family members and friends. And their many people hope they can have better device to watch movies at home. However, most of them do not have the suitable family video projector for them to watch movices at home. There are 43% of people do not satisfied with their current devices and equipments of watching videos at home.



58% People who prefer watching movie at home.



43% People who watch movie at home are not satisfied with their current devices.



74% People think watching movie is important for bonding the realtionship.

MARKET RESEARCH Exterior + Function

Exterior Design:

Problems that current Family video projectors have:

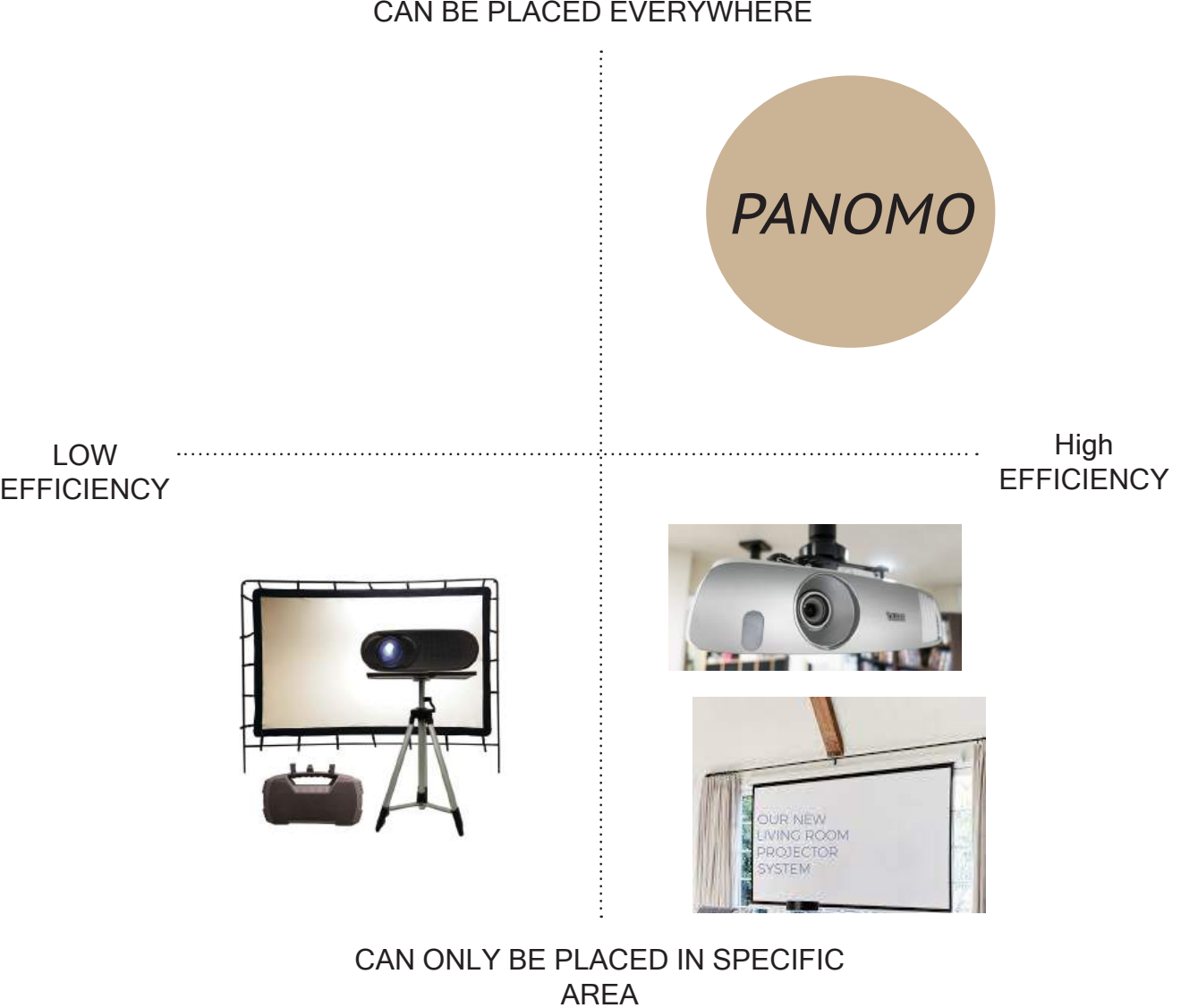
1. Too big and too Heavy. The chunky family video project take too much spaces at home.
2. Can only be placed in specific area, and limits the space of watching videos. For example, most of the projector can only be put on a stable table or on the floor. It can not be placed on the bed, otherwise it will fall off.
3. Most of them looks like boxes and made by the cold metal with not aesthetic releasing heat holes and charging holes.
4. Need extra stand to hold it.



Function Design:

Problems that current Family video projectors have:

1. Needs too many wires to charge and to connect with other devices, like Laptop.
2. Do not have speaker and cannot restore the original movie effects.
3. ONLY CAN BE USED AS A 2D VIDEO PROJECTOR
4. Need specific professional screen to project on.
5. Hard to install



INTERVIEW

Name Deb Viola
Age 42
Locatioin Chicago, Illinois

Deb is a business woman with two kids. Her family members and herself all love watching movie. But, after weekday's long time working and studying, they are always too tired to go out to watch movie. She is also afraid her little kids would make noises in the movie theater. However, she said using the TV or laptop to watch movies does not provide her a very good experience. She has a family video project at home. It is too big and can only be placed on the table which limits her space of watching movies.

Deb wants to have some products about family movie theater, which will not take much space and easy to carry around. Something her children can also play with it and learn from it after school. And the product can be placed at anywhere she wants, and the movie can be project to any surface she wants, according to her pose of watching movies.

Portable

AR

Education

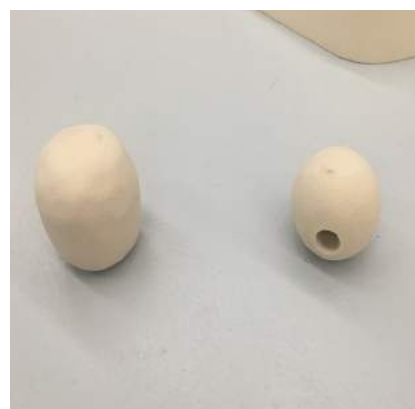
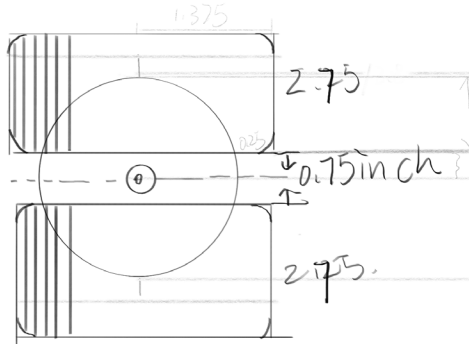
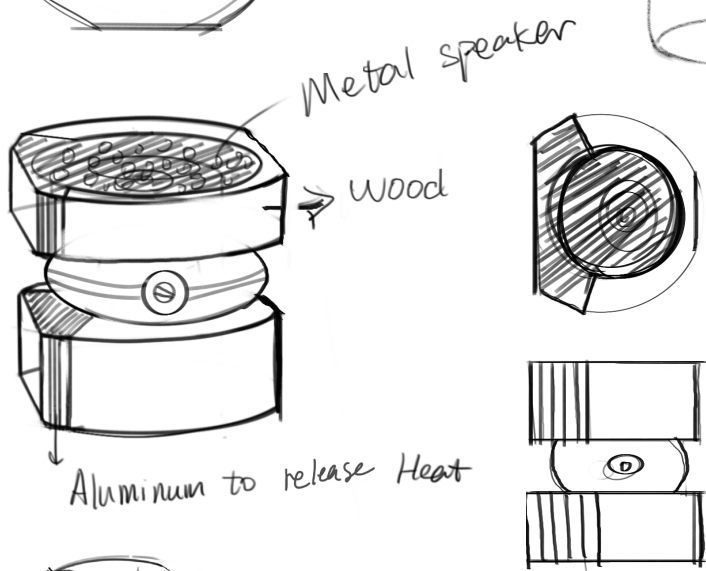
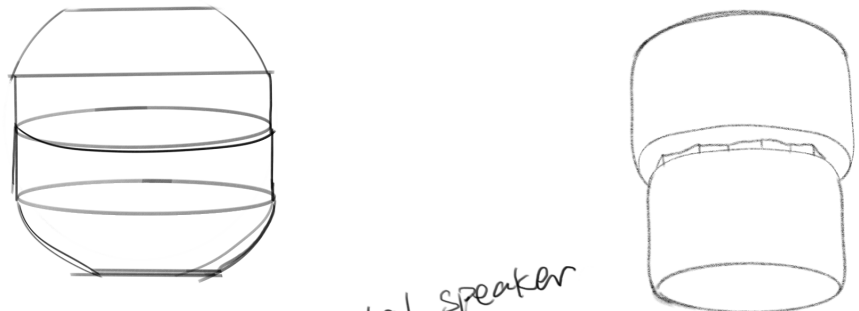
Can project on
every surface

Can be placed
everywhere

Good quality
of Sound



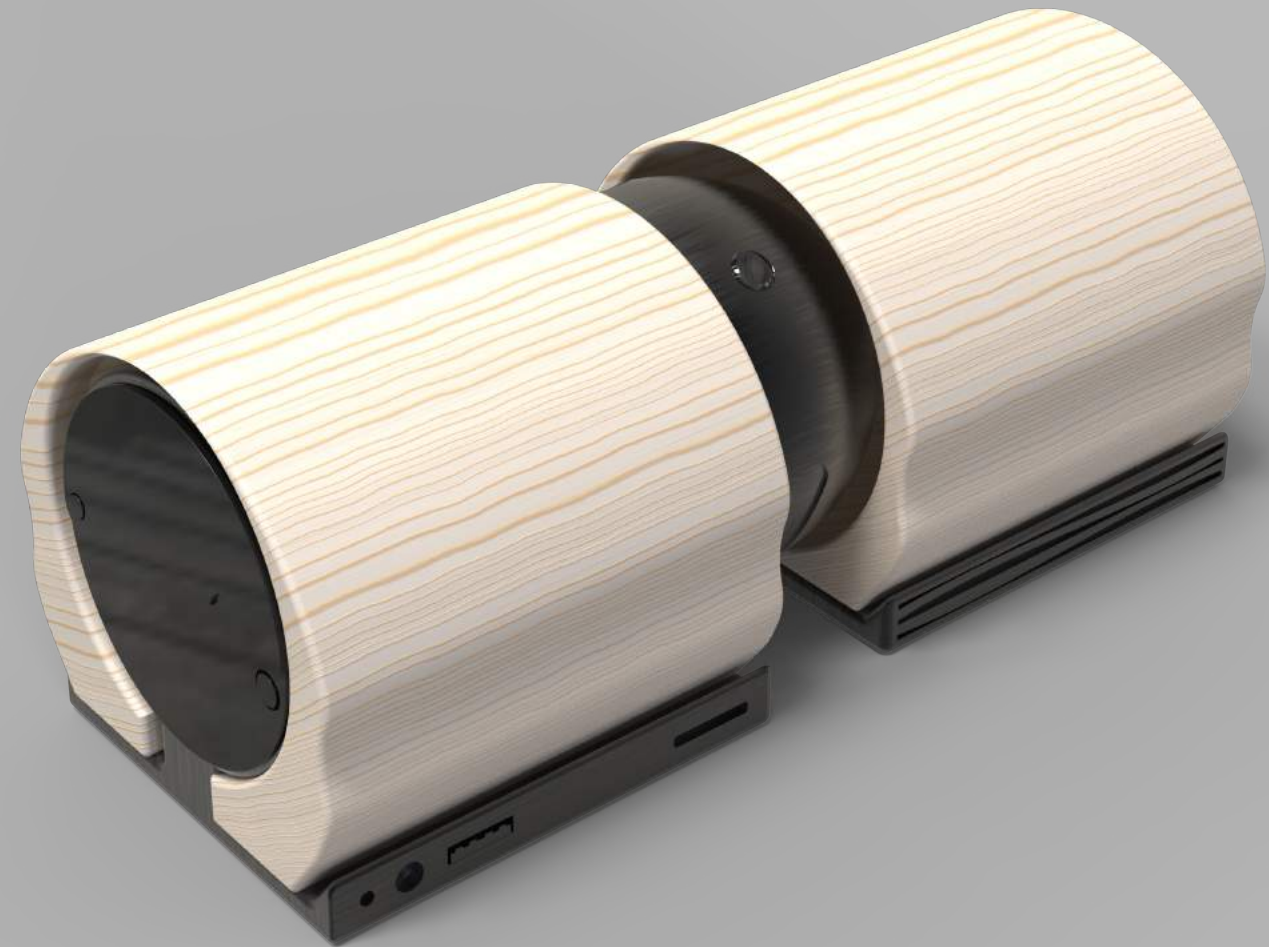
IDEATION



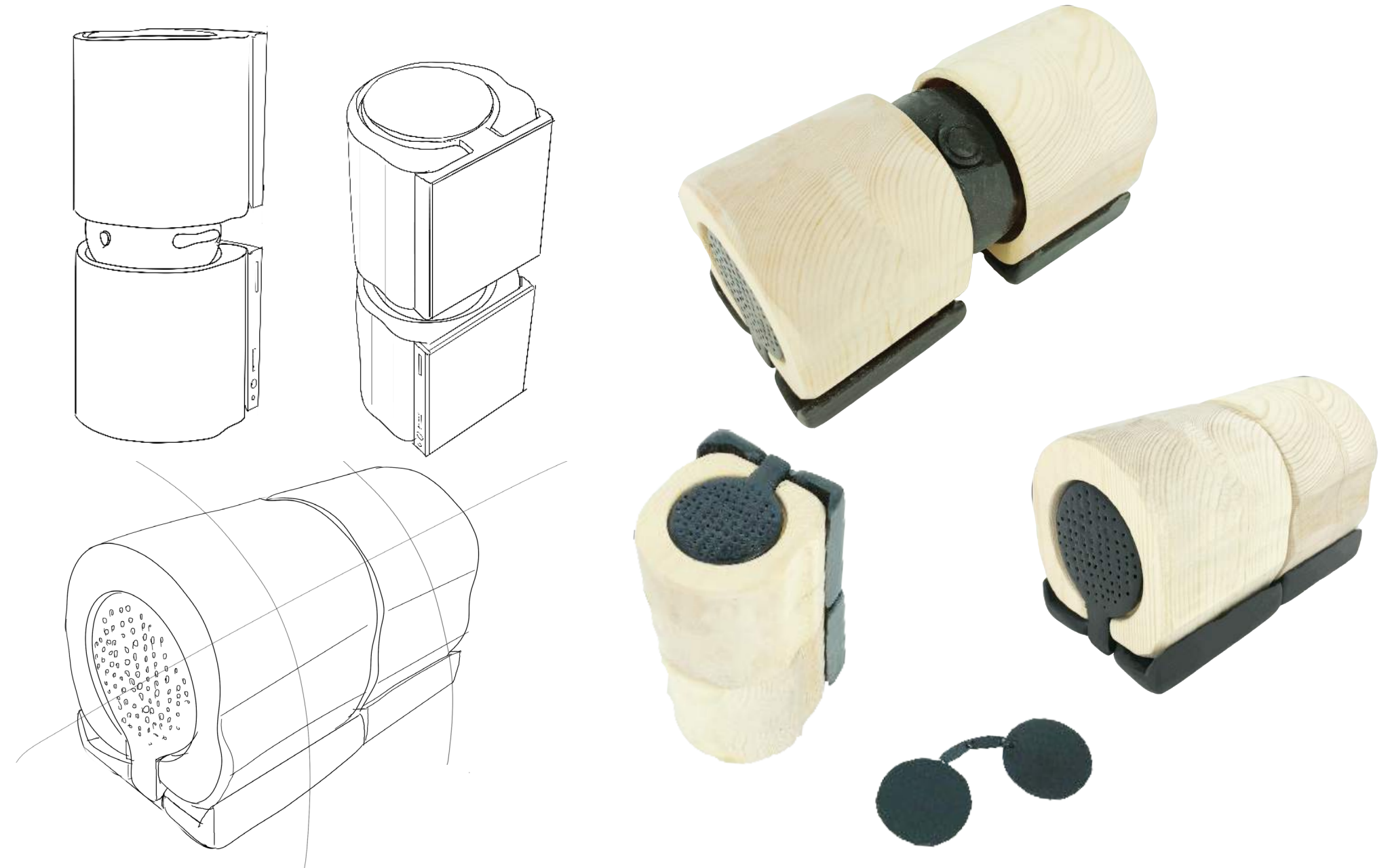
FINAL

The product is designed as a portable family video projector with great quality of sound, which can project not only 2D videos, but also 3D videos with 3D glasses.

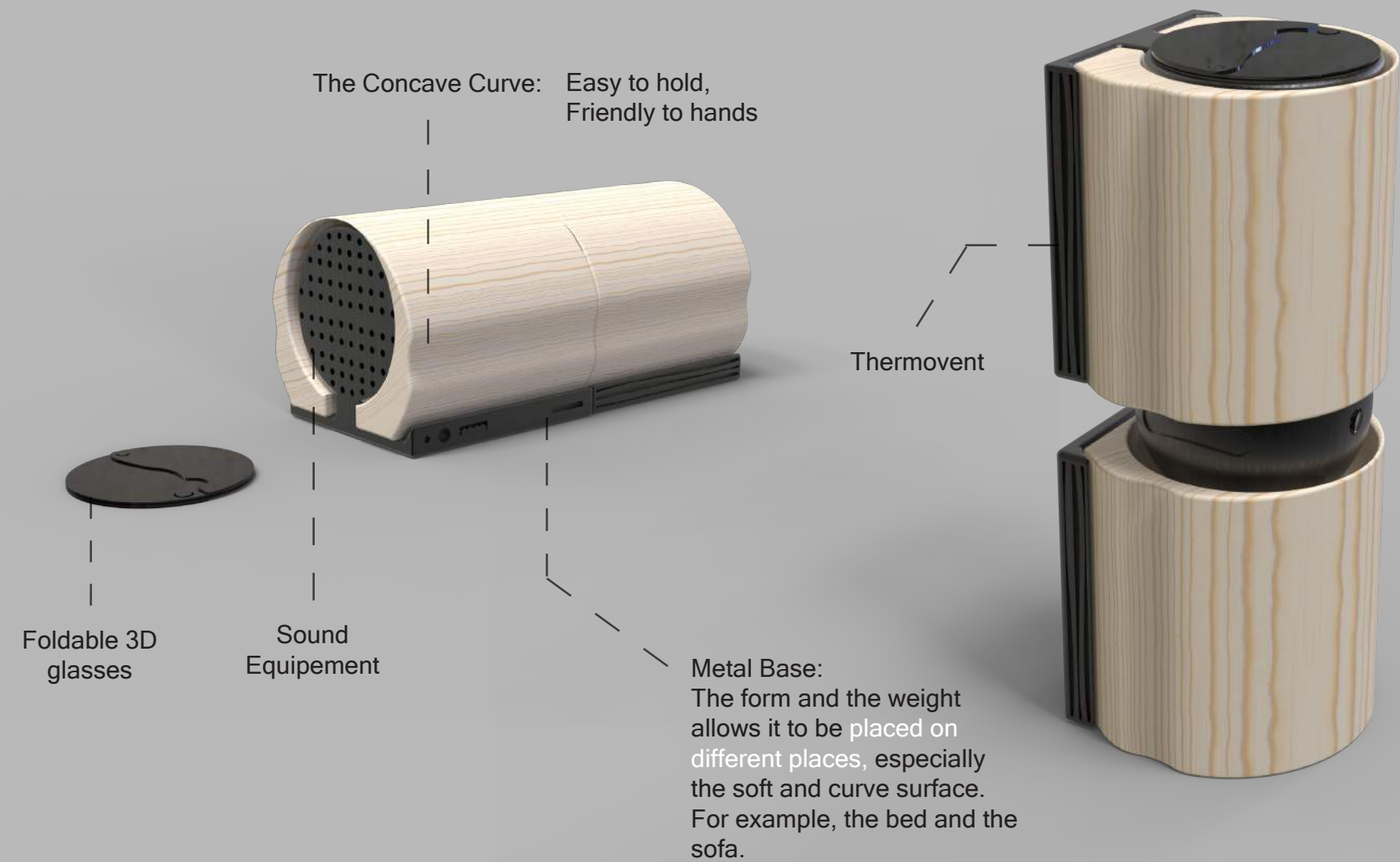
It also has AR function which can be used as an education tool for children to learn and to create.



FINAL Sketches + Prototyping



FINAL

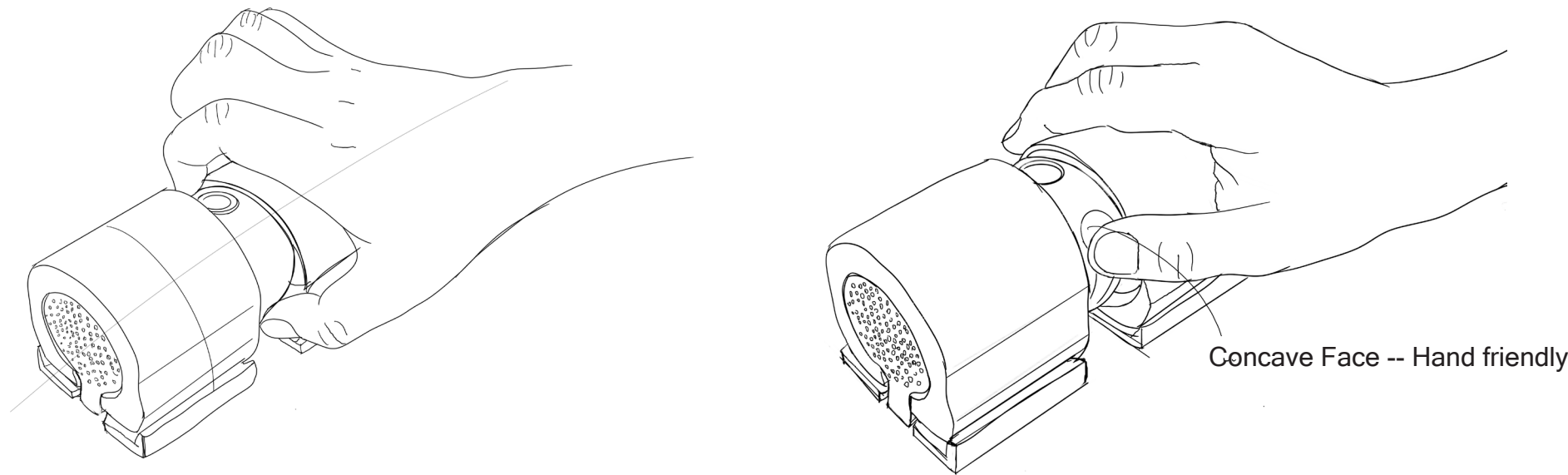


USER SCENARIO

Two ways to open it. When the Projector slides open, it is automatically on.



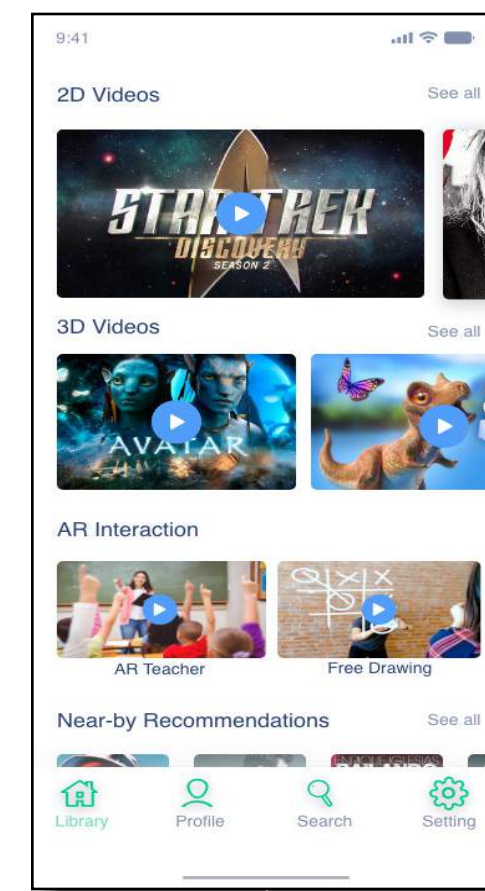
Two ways to rotate the Ball in the middle to adjust the projector lens position and focus.



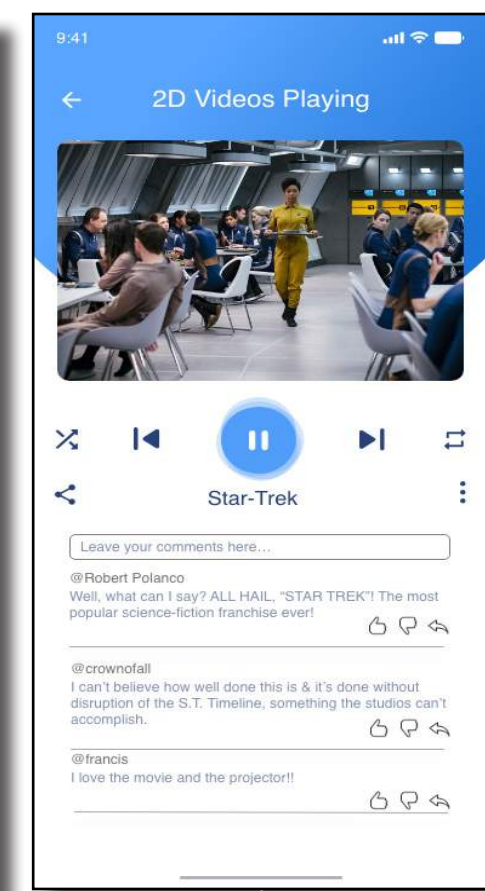


APP Screenshots

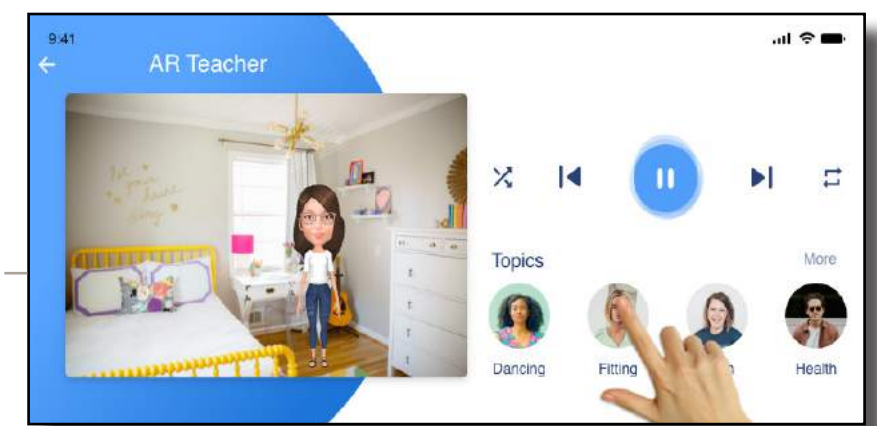
The Family Video Projector also cooperate with the App -- Panomo, which allows the user to search 2D or 3D videos and share their comments about the movies. It helps to bonding the community of movie lovers. Because it has It also can act as an education tool for children.



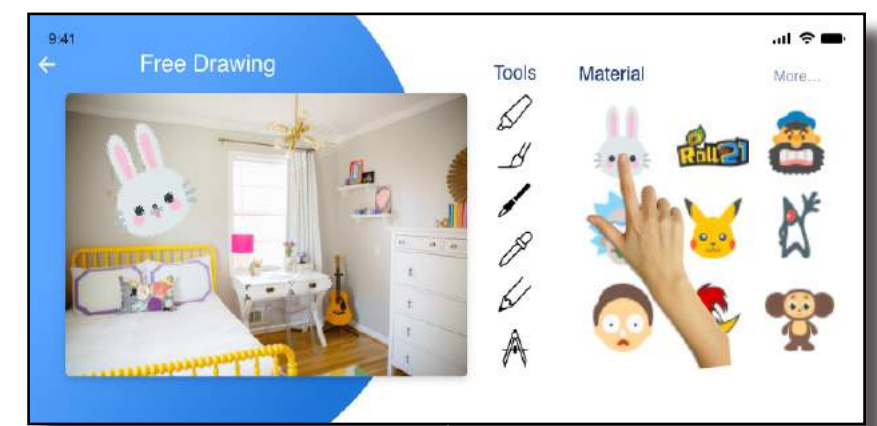
Home Page



Sharing Community



AR Education



Creativity



Furniture Workshop Product

