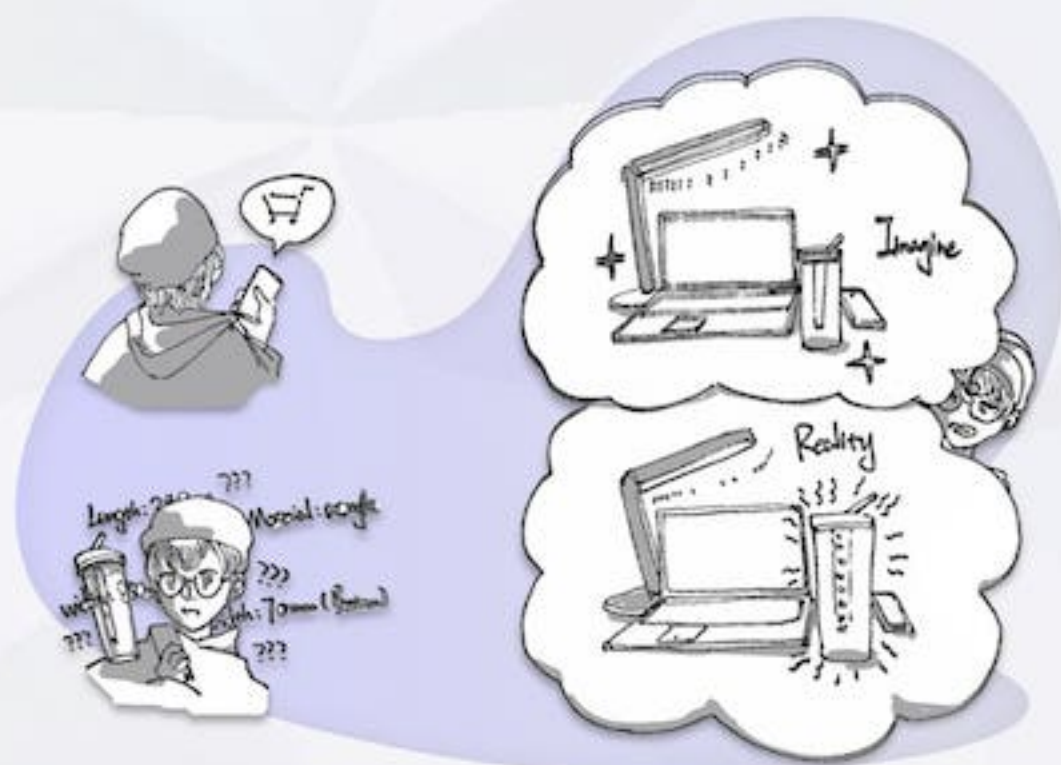# Inspiration and Expecting

Story

- When shopping online I have difficulty visualizing the size of the item, even when the merchant gives abstract numbers of the size. This leads to the likelihood that I will buy the wrong size item. The main factors that negatively impacted my online shopping experience in this process were
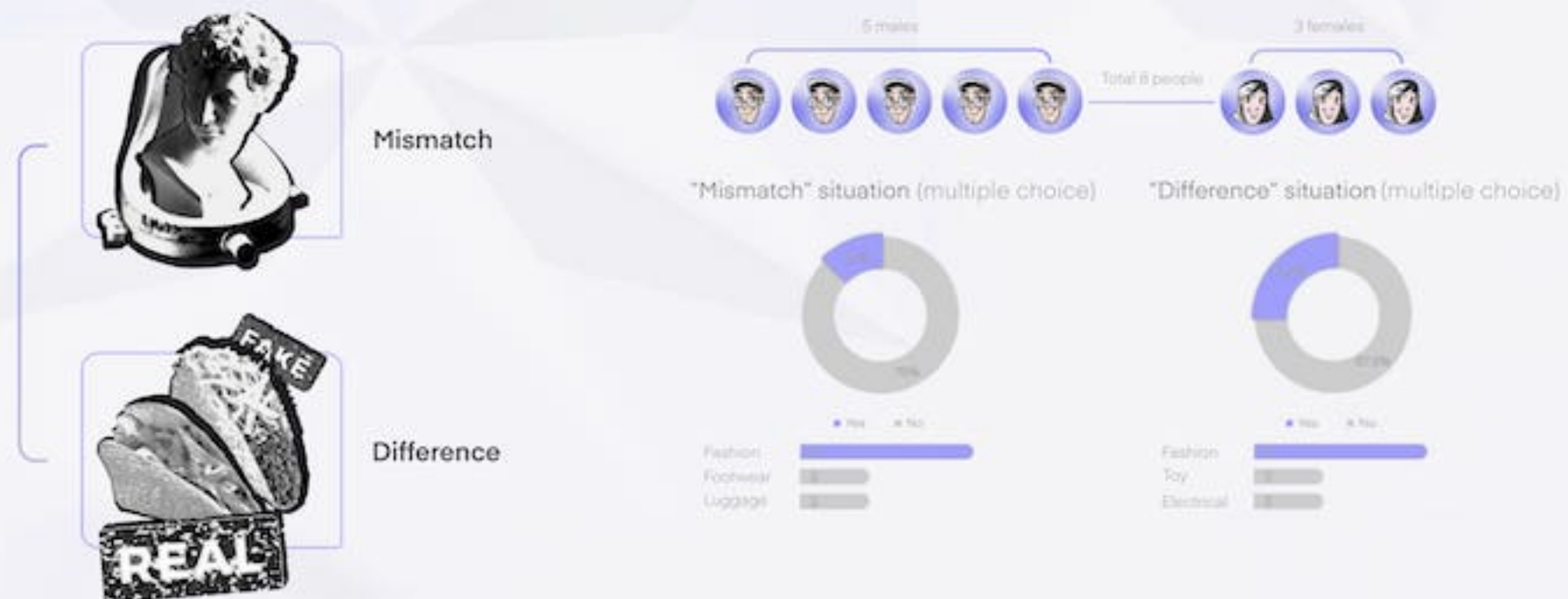
"Inability to visually compare the size of the item with other objects".

So I started the research.

Questionnaires

I first did a questionnaire to verify whether the bad experience I had when shopping online was a common phenomenon.
*Data from random sampling on campus.

Major bad experiences when shopping online

Mismatch

Difference

"Mismatch" situation (multiple choice)

"Difference" situation (multiple choice)

According to the data, this phenomenon is now a very common thing in the new network.

Reference

It is easy to see that the two main factors affecting the online shopping experience actually have a lot in common, such as both being visually based, both occurring only in online shopping, etc.

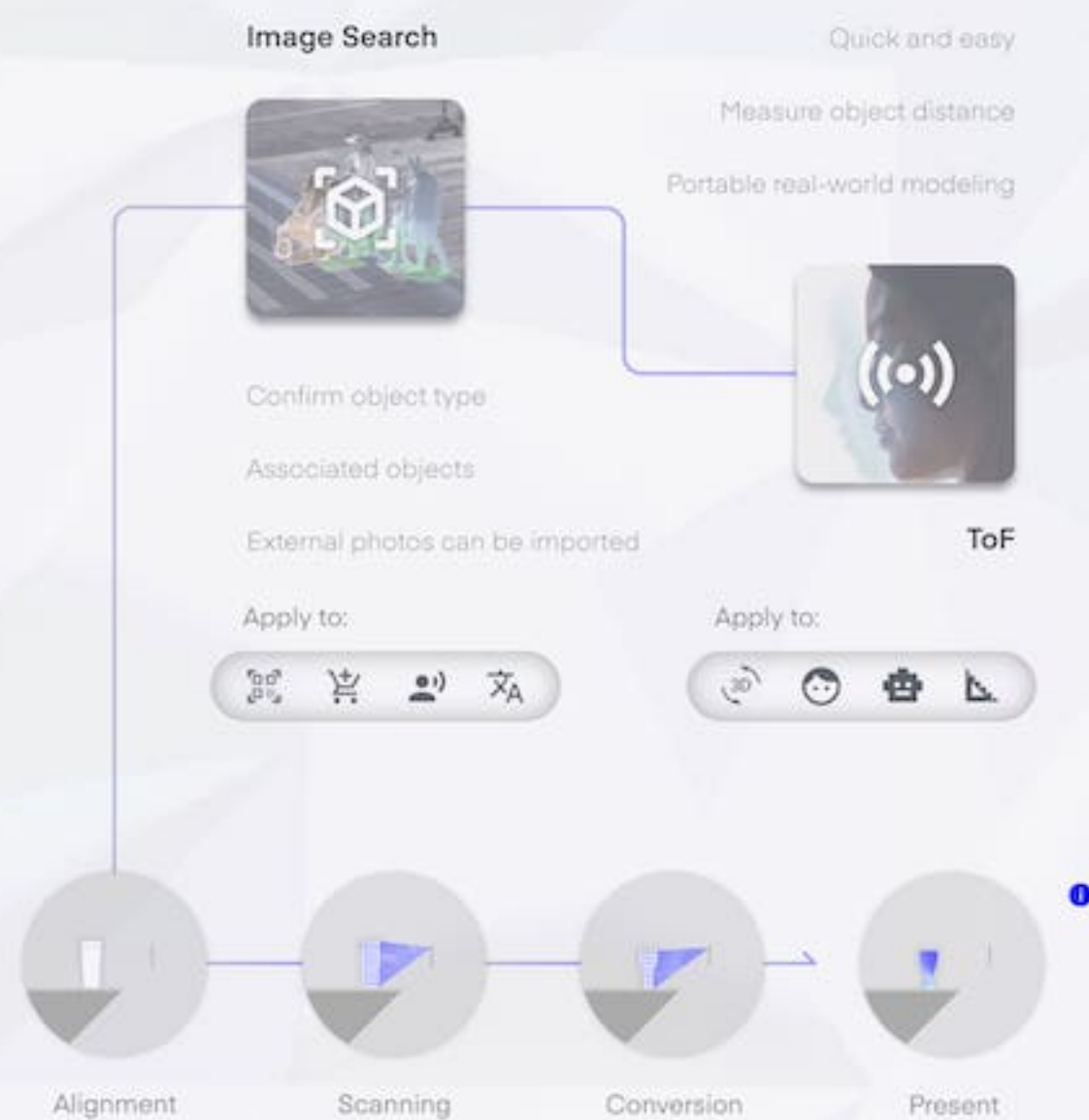I researched some apps that try to improve these factors.

These apps all use AR technology to improve the user experience, and they are all furniture apps.

But the changes they make are limited to visuals.

Ideas and Reasearch

Thinking

After watching IKEA Place, Amazon's software on AR technology, a bold idea came to my mind:

Could I design an application that could AR-image products anywhere, anytime, and hold them in my hands for physical interaction?

For this reason I researched whether there was technology available to make this idea a reality.

*ToF used

*ToF used

Mismatch

Difference

Needs

Style — Real visual presentation

Material — Common identical materials in life

Size — Determine length, width and height

Color — Contrast environments and objects

Solutions

AR / VR

Open CV

LiDAR / ToF

Open CV

1. Compared to VR, AR can be used anytime and anywhere on mobile devices, so I think AR is more appropriate than VR.

2. Powerful, lightweight computer vision library and can process images, computer vision, pattern recognition, etc. in real time.

3. Both are laser-based sensors that use the time of flight to determine distances of faraway objects. So I make a table to compare them.

4. Same as 2.

	ToF	LiDAR
Sensor	Laser	Laser
Type of pulse	One large flash laser pulse	Multiple laser pulses
Building method	Depth map	Point cloud
Feature	Length, width and height	Length, width and height
Precision	High ▼	Very high ▲
Cost	Low ▲	High ▼
Popularity rate	Any standard camera device ▲	LiDAR - compatible models ▼

https://forum.sketchfab.com/t/2020-ipad-pro-lidar-sensor/32894

https://earth.esa.int/documents/lidar/index.html

https://www.xda-developers.com/honor-view20-tof-sensor-magic-ar/

https://www.makeuseof.com/tof-and-lidar-difference/

Summary

As you can see, LiDAR is superior to ToF in terms of object detection accuracy. However, the popularity and cost of using ToF in the market are better than LiDAR.

It is worth mentioning that more and more brands are now developing ToF technology and putting it on the latest mobile devices. For example, Google, Samsung, Huawei and so on. This has led to a rapid increase in ToF technology. So I think ToF is a better choice than LiDAR.

Final Ideas and Process

Thinking

Image Search

Quick and easy

Measure object distance

Portable real-world modeling

Confirm object type

Associated objects

External photos can be imported

Apply to:

Apply to:

ToF

Alignment

Scanning

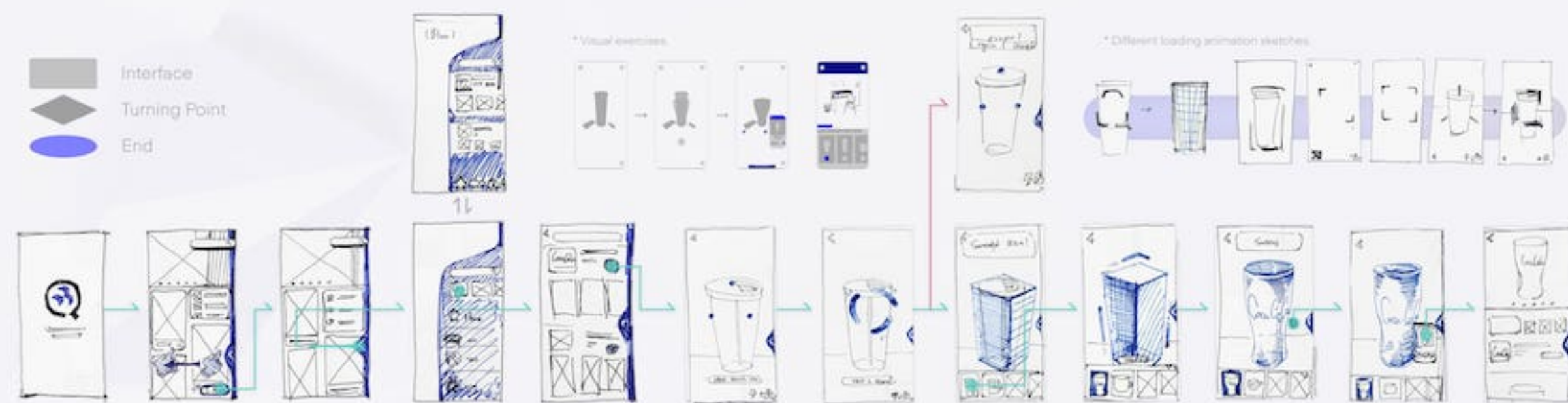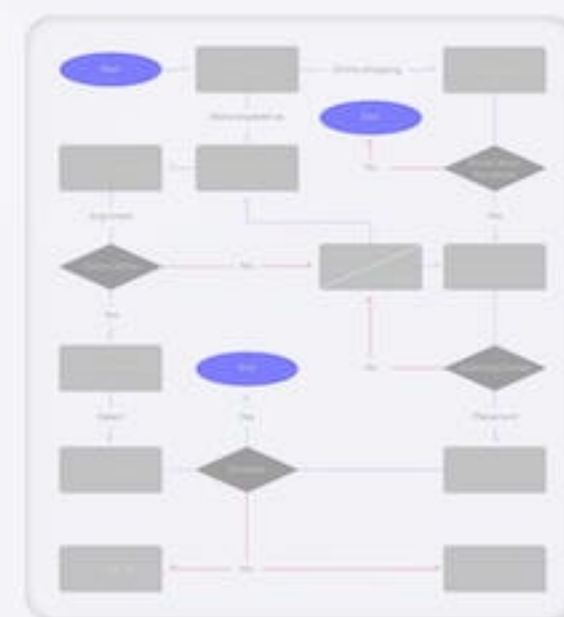Conversion

Present

Instruction

- How to generate physical interaction with the AR model.

Most of the current AR models that cannot be physically interacted with are mainly because they are "projected" in space.

It lacks an accurate point of orientation.

Then an object is first positioned, and then the model is applied to it to achieve physical interaction with the virtual object.

Flow Show

Interface

Turning Point

End

*Visual exercises.

*Different loading animation sketches.

Final product show

*Only the main processes.

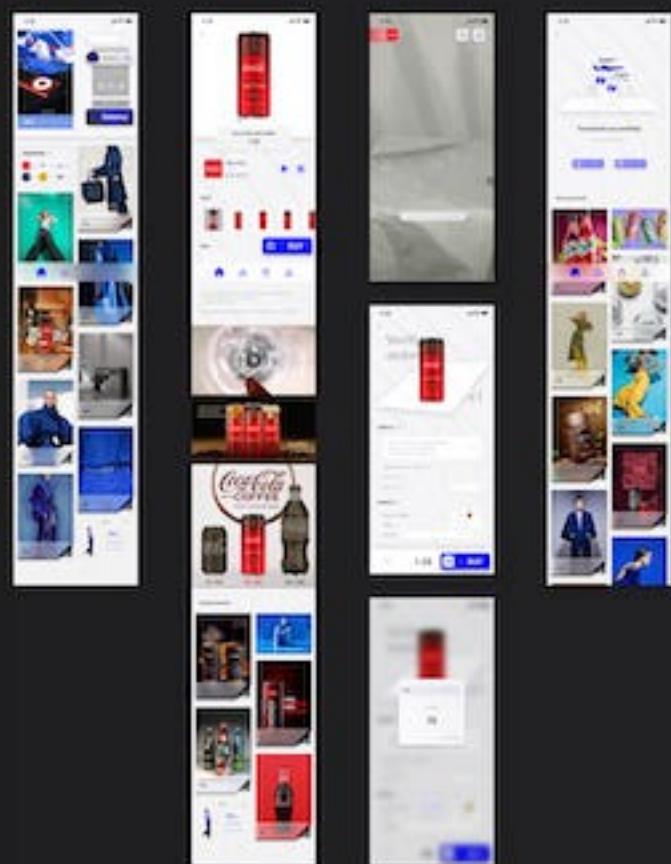**Self-created brand: QuarkBlue**

QuarkBlue is an app that uses AR technology to improve the user's shopping experience,
allowing users to not only see the product in front of their eyes,
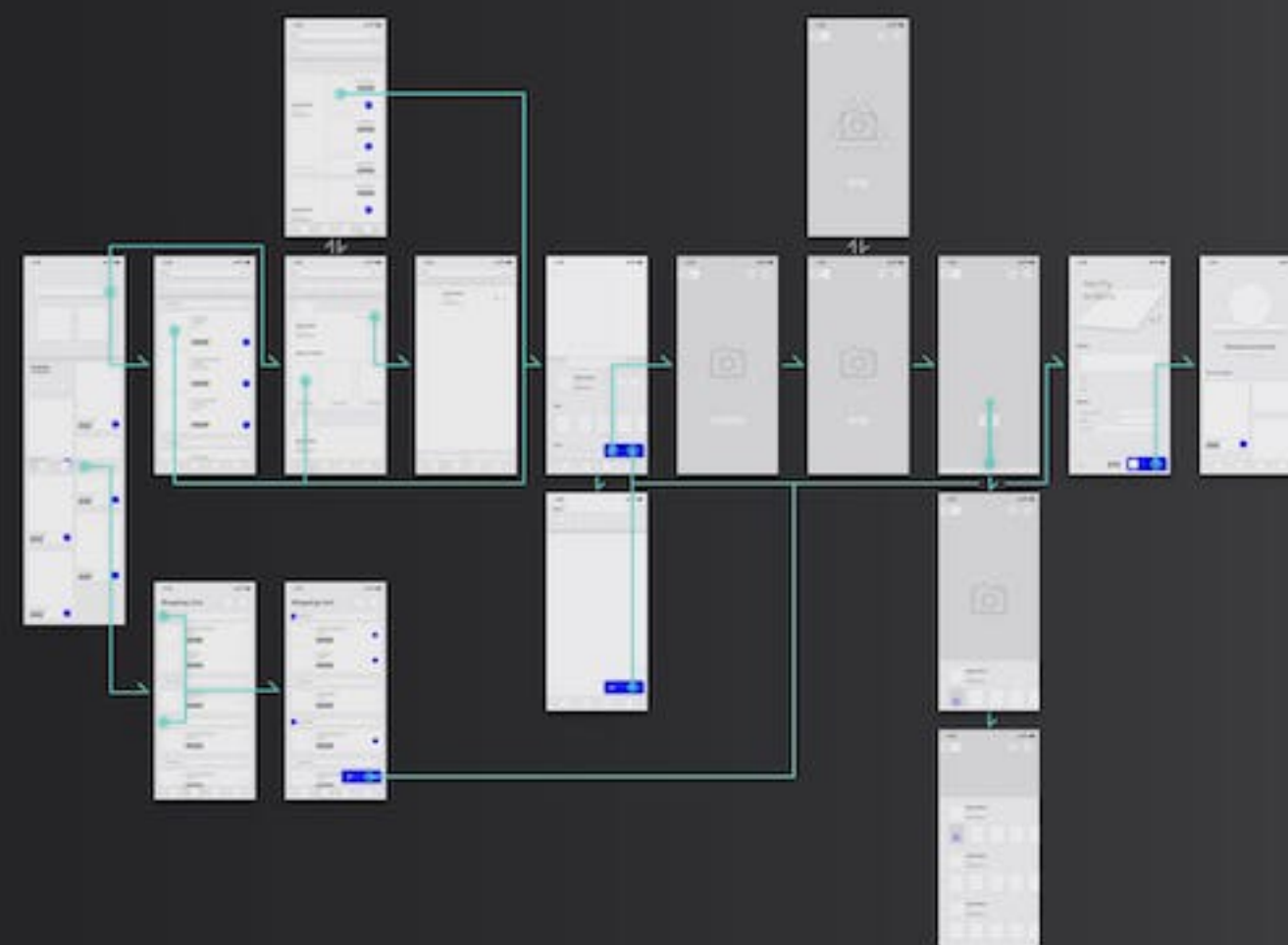but also to touch it and play with it in their hands.

⏎ Login Page

← End Page

Purchased successfully

Recommended

📱 Product Page

Coca-Cola with Coffee
1.5$

Coca-Cola
★★★★★

Types

Sizes

BUY

Username
DaoE3

Password
••••••••••

Login

Register

G   🍎   a

Wanna see more?

▶ DaoE 12 👤
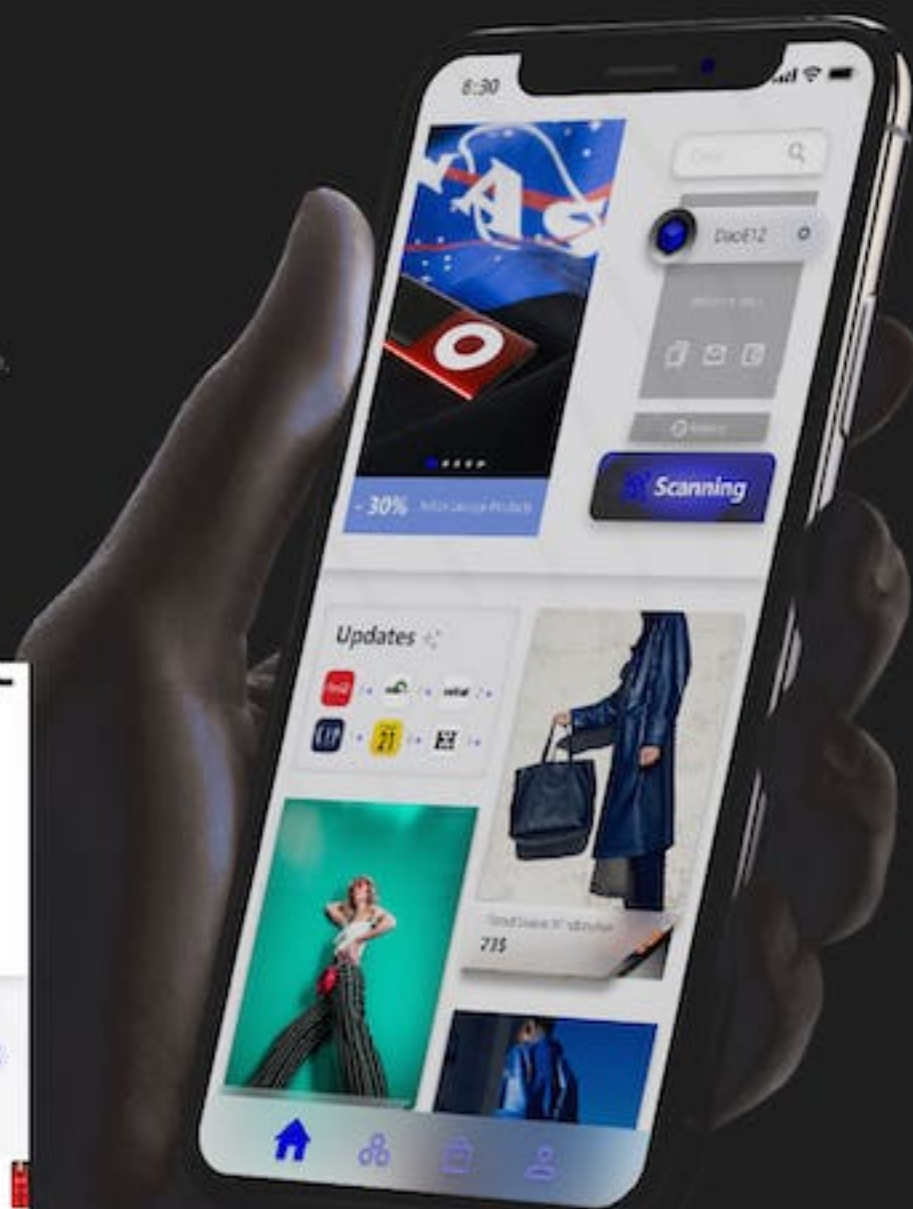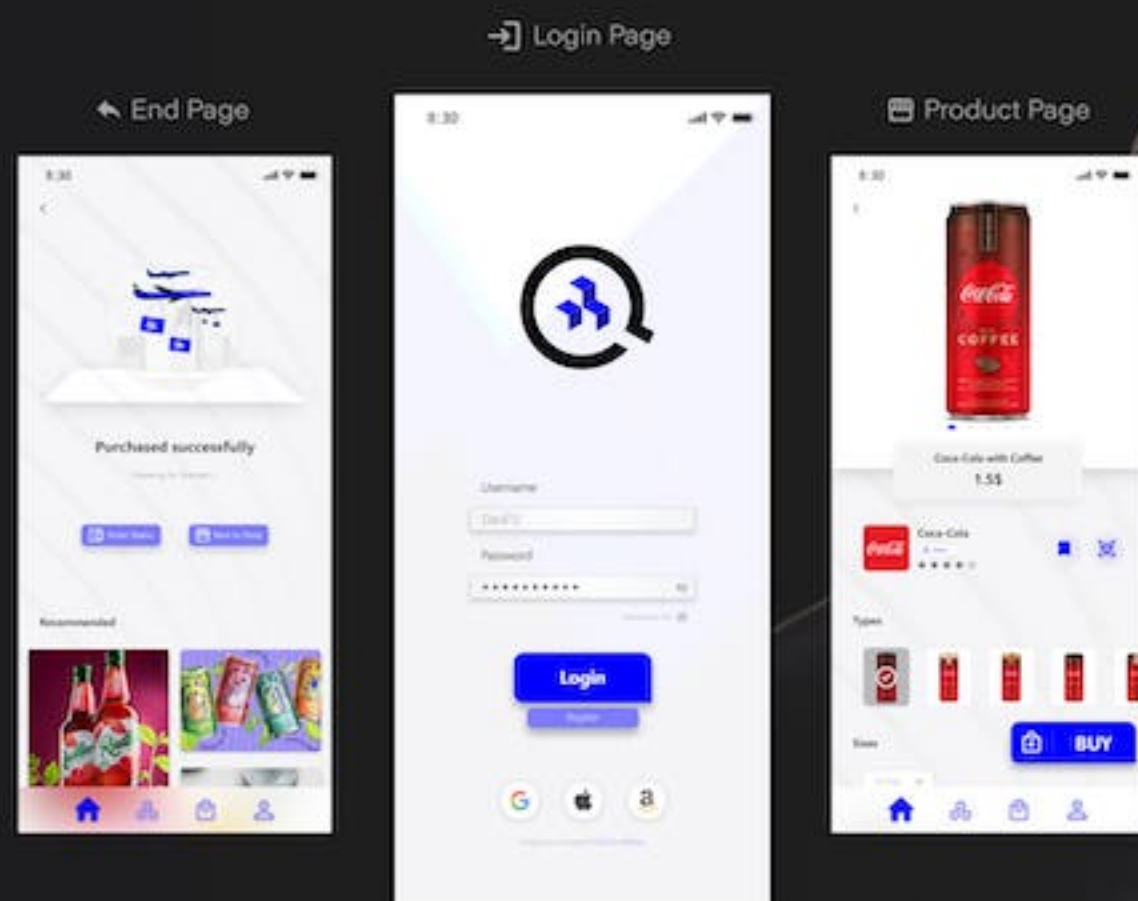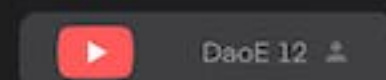
Visit my Youtube account to watch the animated content already :)

*Covers most processes.

Final product details

Future Prospect

- After I finished the high-fidelity production, I realized that my ideas seemed to be limited by the "scan-convert-render with AR" process. If the selling point of the app is limited to a process, that process can always be attached to a shopping platform like Amazon.

  The first one is called All-view conversion, which is similar to the previous AR conversion function, but the portal is not limited to the product page. Users can use it to convert plural objects at the same time, for example, convert a brand of products or match them by themselves.
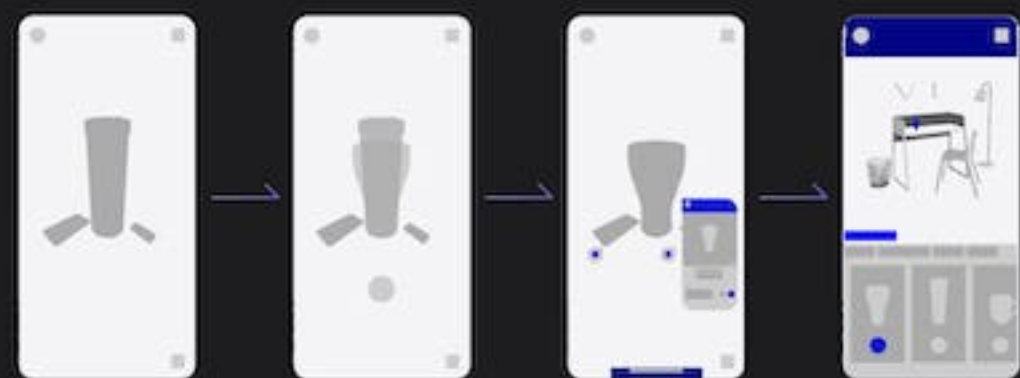
The second idea is for after-sales service, called Full feedback, which allows users to scan and upload their received products to the Internet when they need to return or exchange them, making it easier to communicate between users and merchants.

Quark Blue may be able to go much further.

Design points

1. Quick Bookmark button (Bookmarked/uncollected)
2. Frequently used functions are concentrated on the home page.

Logo Sketches

Three cubes

- The 3D three-dimensional shape symbolizes the use of AR technology.
- The square is because the presentation is in pixel dots.
- "3 quarks make up a proton", which means attention to detail.

A circle with an opening

- The overall shape is the initial "Q" of QuarkBlue, which is also a simplified magnifying glass.

Finalization   Abandoned cases