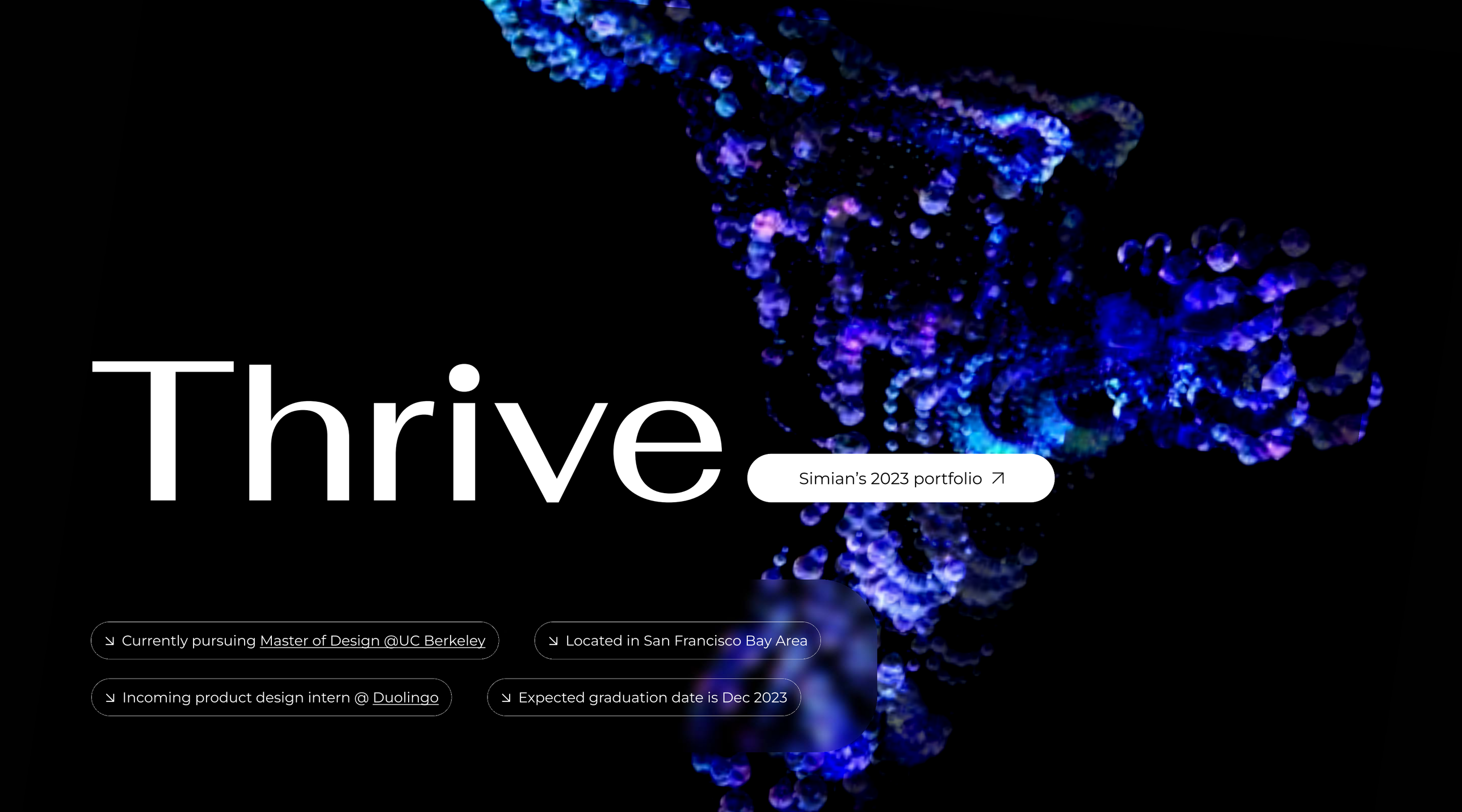

Thrive
Simian’s 2023 portfolio
↘ Currently pursuing Master of Design @UC Berkeley
↘ Located in San Francisco Bay Area
↘ Incoming product design intern @ Duolingo
↘ Expected graduation date is Dec 2023

Systematic study of human-computer interaction design

Exploring my areas of interest as a product designer

Aug 2022 - Dec 2023

Human-computer Interaction Design

Grad

University of California, Berkeley

Pursuing postgraduate study in the MDes program and collaborating with cohorts from multidisciplinary backgrounds has provided me with a deeper understanding of design innovation.

Aug - Dec 2022

Product management certifications

Systematic learning of product management and multidisciplinary team work

This was a great practice of product thinking, conducting research, user testing, iterations, and pitching ideas.

Jan - May 2023

User interface design and development

HCI basics, UI design and front-end coding

I learned HTML, CSS, and JavaScript in this course. Just as an architect needs basic structural engineering knowledge, as a product designer, I believe it's important to understand how to code.

Oct 2022

Lectured about my design role exploration journey

Since then, I have been mentoring others.

I was invited to share my journey in my undergraduate school. I know how hard to find out the thing

Oct - Nov 2022

Berkeley Haas Innovation Challenge Hosted by IDEO and SVB

Jan - Mar 2023

MIT Reality Hack

Explored the role of designers in the future of industry

I'm passionate about human-centered design inspired by emerging technology. I was so lucky to have the chance to Work with a cyborg anthropologist, NFT creator, and XR developer to design a participant-centric service system that helps the unhoused conceptualize, customize and co-create their very own home. Not only did our idea win the 'Best Use of Snapdragon Spaces' award, but it also attracted investment.

Jan 2023 - Present

Designer of Center for Responsible, Decentralized Intelligence at Berkeley

Be involved in web 3

A new technology application often encounters challenging user experience issues. I am passionate about interpreting complex workflows into simpler and more accessible solutions. I have been actively assisting RDI in addressing these challenges.

May 2023 - Present

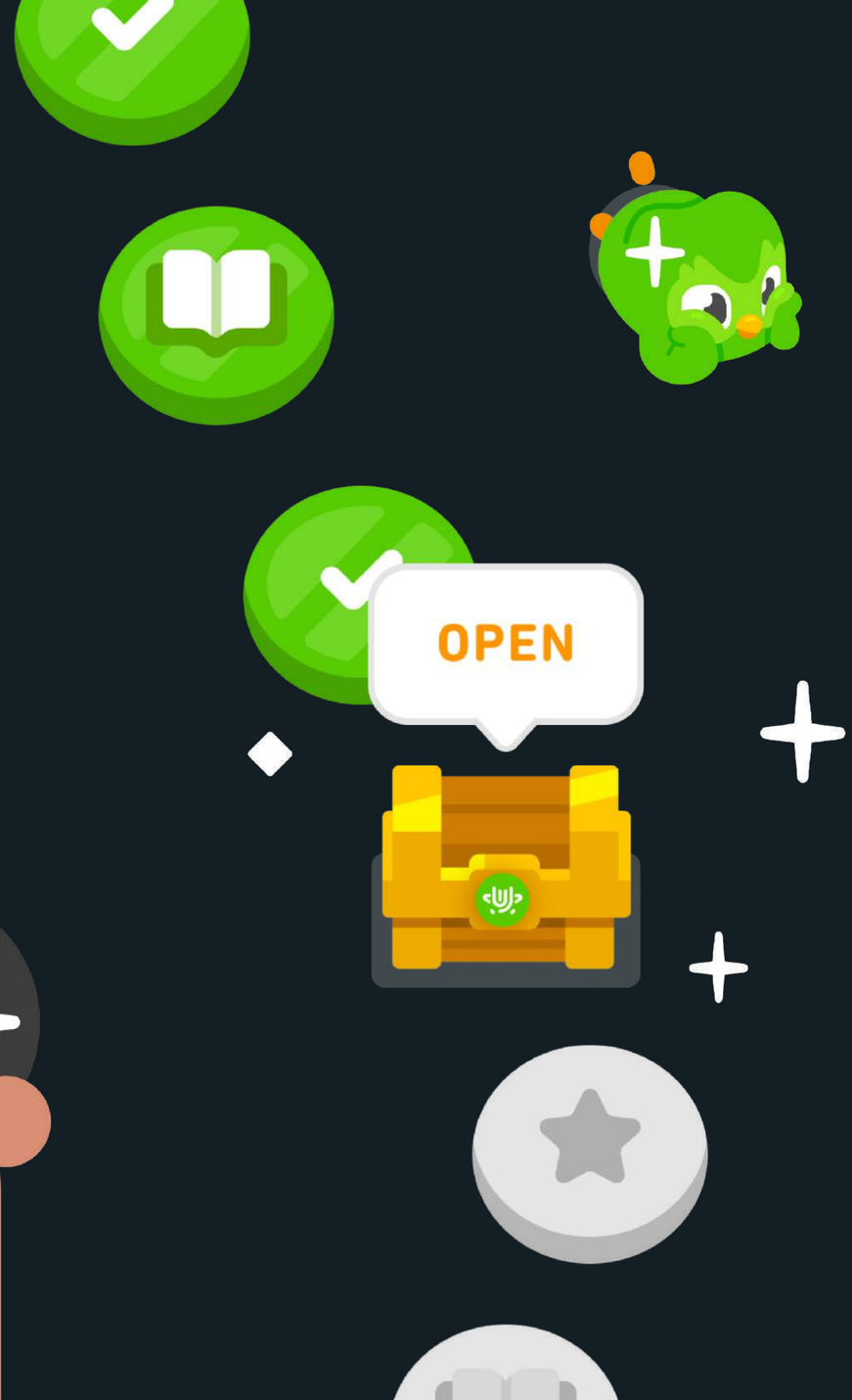
Product design intern at Duolingo

Duolingo is a pioneer in gamifying language learning. It has made education fun and available for millions of people around the world. Its innovative approach has democratized language learning and broken down barriers to education.

I am currently a product designer at Duolingo, working on the design system team within the product quality area. My main focuses are on redesigning and improving the accessibility, usability, and consistency of the app to enhance product quality. I collaborate with designers from various areas, including growth, learning, and monetization. Keeping abreast of the latest design trends in each area is an essential part of my job. In addition, I work closely with managers, engineers, and content designers. My experience as a systems designer enables me to approach projects from a high-level perspective and efficiently navigate through the finer details of the design process, using Figma proficiently to deliver high-quality designs.

unlocking the design systems chest

duolingo



Duolingo

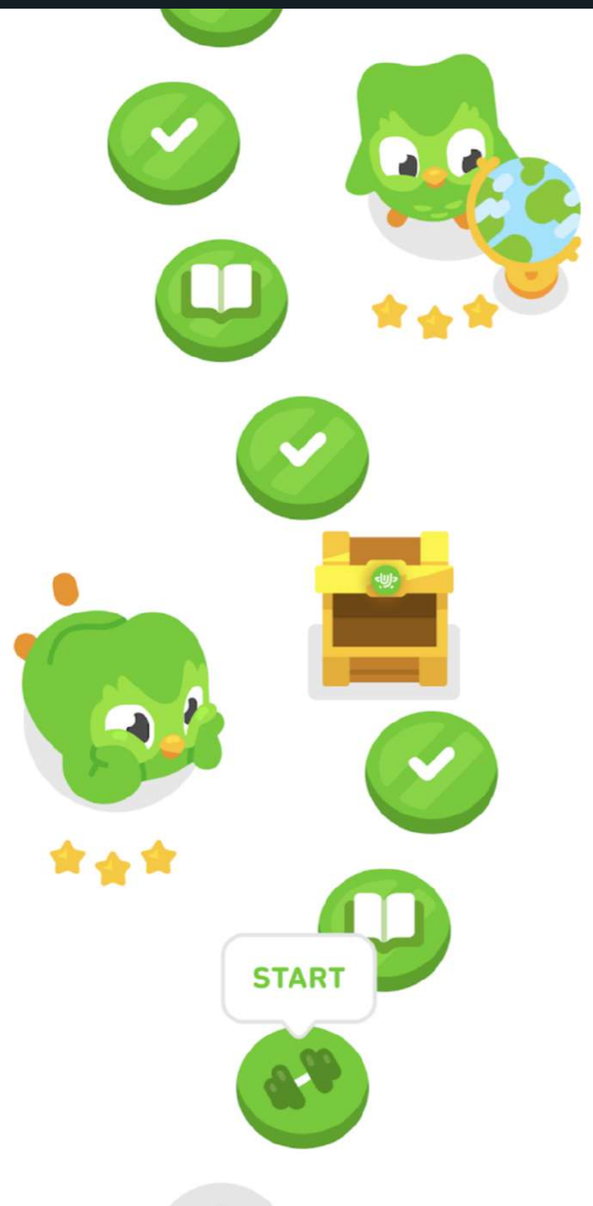
May 2023 - Current

Design system, product design

A product designer internship on the design system team, focuses on creating components and usage guidelines, to ensure a consistent, delightful, and high-quality product design.

Working at Duolingo involves cross-functional collaboration, communication, and critical thinking. My work on the design system aims to craft a seamless, delightful experience for designers and developers as well as all of our learners. This involves auditing and redesigning application components for optimal consistency and accessibility, crafting structured APIs(component's structure and properties) in Figma, consolidating inconsistent tokens to enhance interface efficiency, and providing spec guidelines to developers and adoption guidelines to designers. To foster a wider adoption of the design system, I actively showcase the work process at company-wide events and am a responsive resource on the design system's Slack channel.

Deliverables	Two components for mobile app, adoption guidelines, and specs
Design Tool	Systems design, usage cases research, UX/UI design, usability testing
Team	Design system team under product quality area
Responsibility	Systems designer



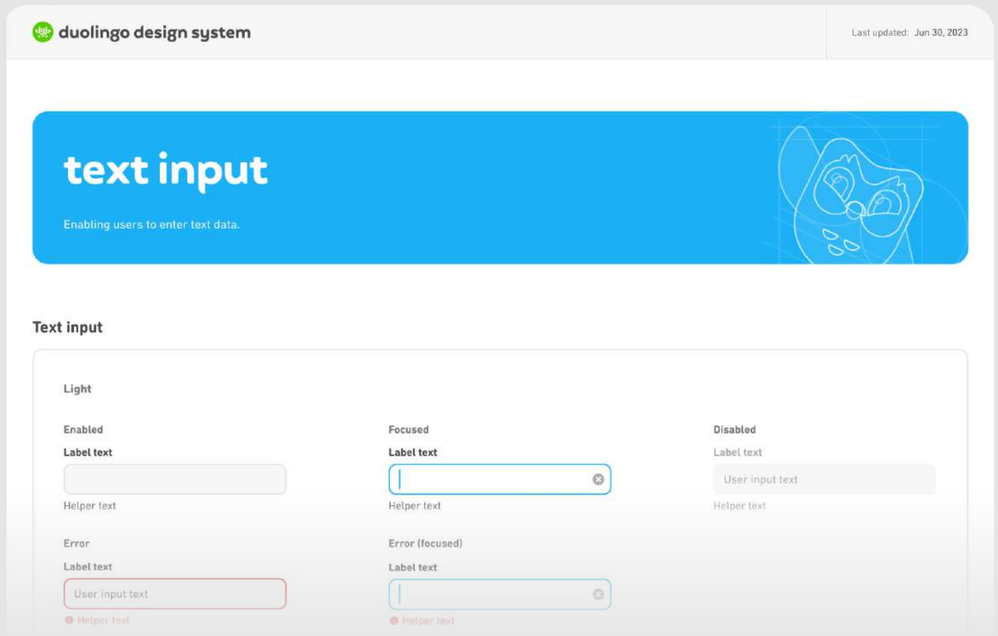
hello,
duolingo design system

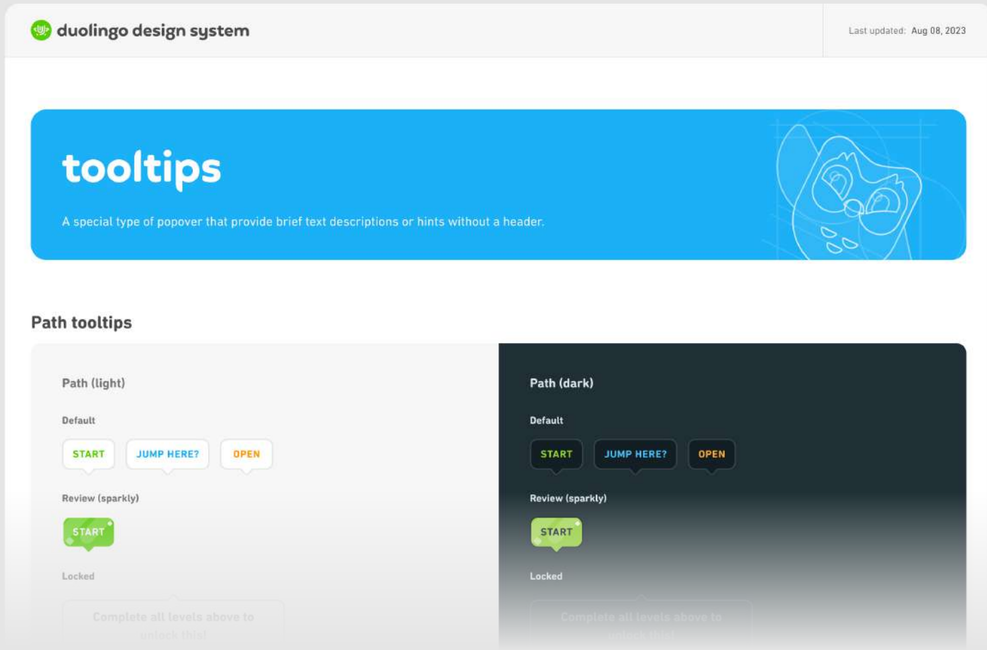
Our mission is to create systems that help small, fast-moving teams ship higher-quality products.

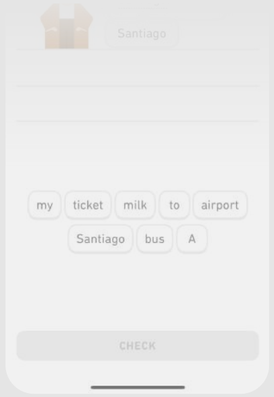
- The system design projects are driven by the need to continuously improve the product quality of Duolingo.
- Our target users are designers and developers as well as all of our learners.
- We maintain the components and patterns used in our product which allows designers and developers to focus on creative and effective solutions for product growth.

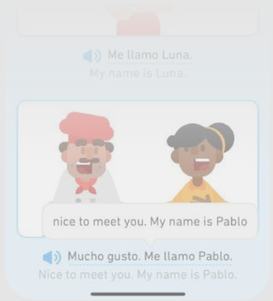
two months + one month

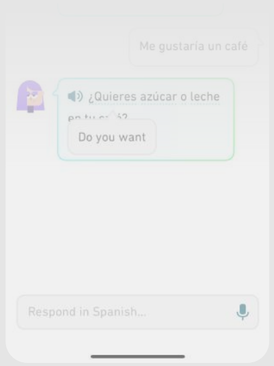
two projects

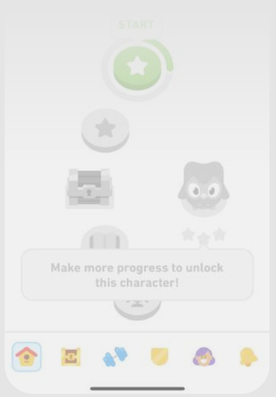






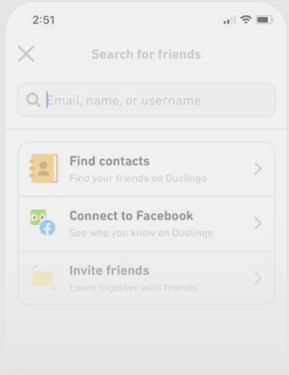


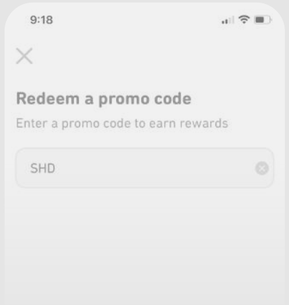


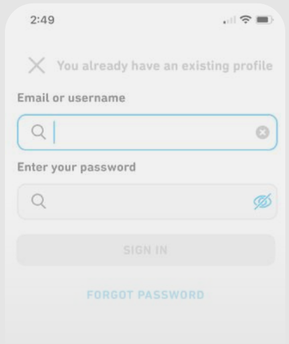


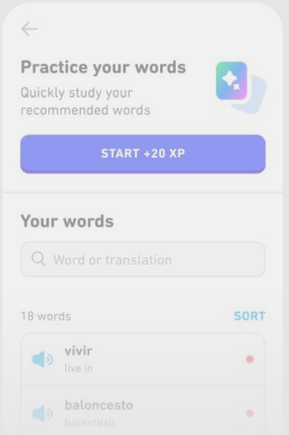
eighty percent screens

daily usage



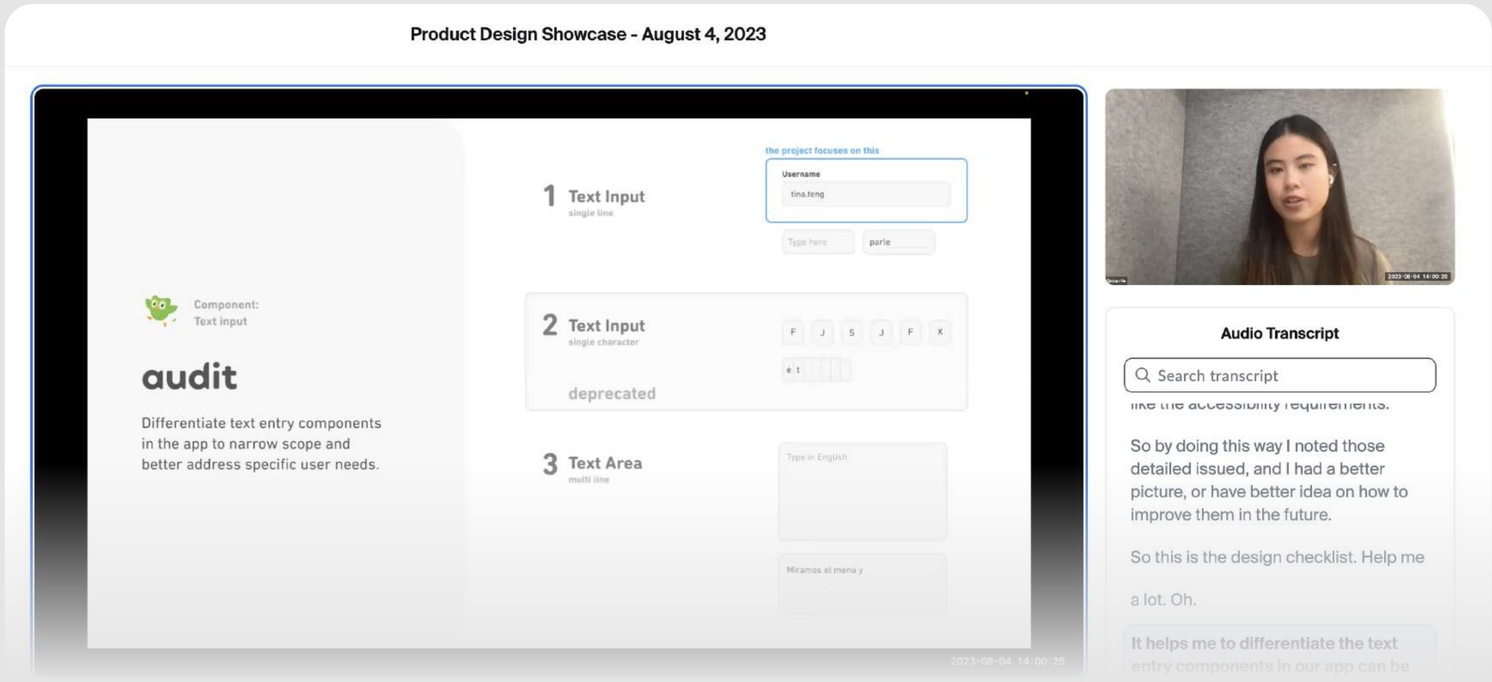






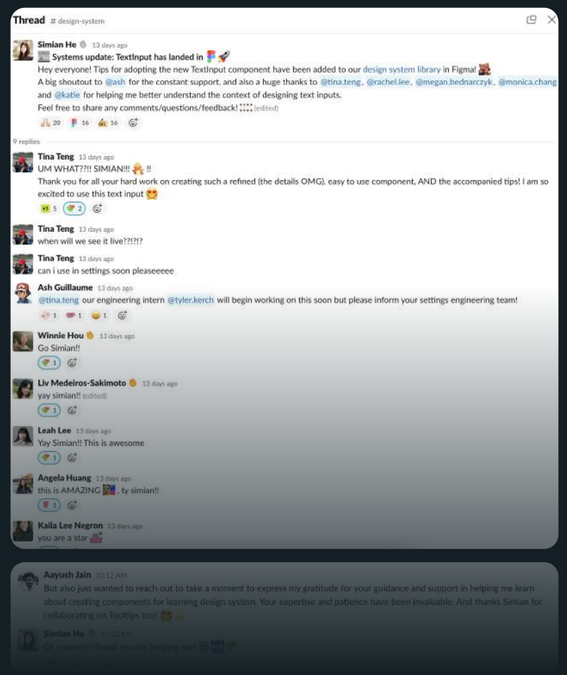
ten minutes

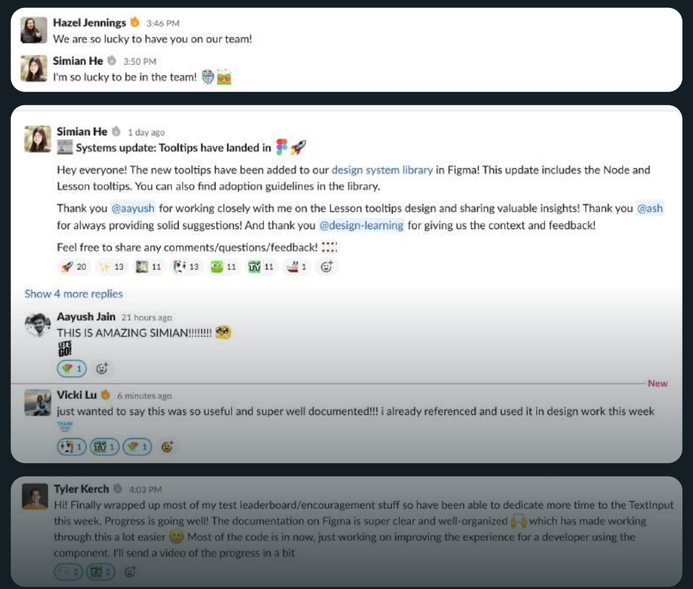
one work share

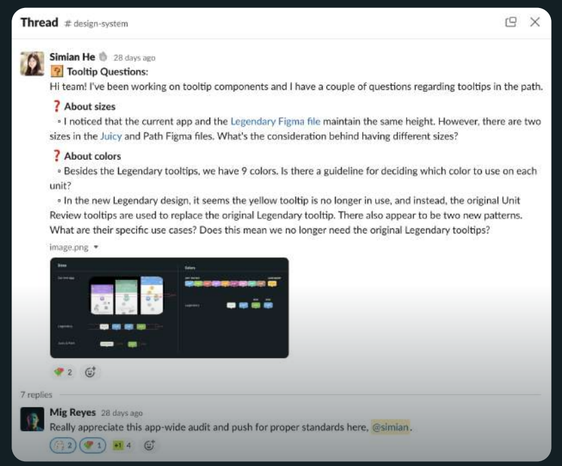


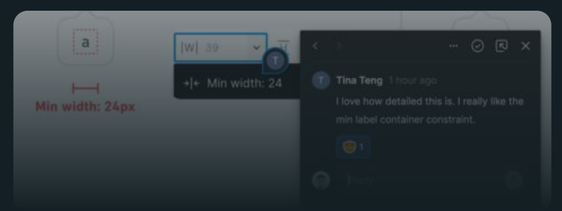
lots of supports

Working on the design system means lots of collaboration with designers and developers. Duolingo has a great work culture that allows me to communicate my ideas, and get robust feedbacks. I appreciate so many kind words from my talented colleagues that encouraged me to make critical design decisions.

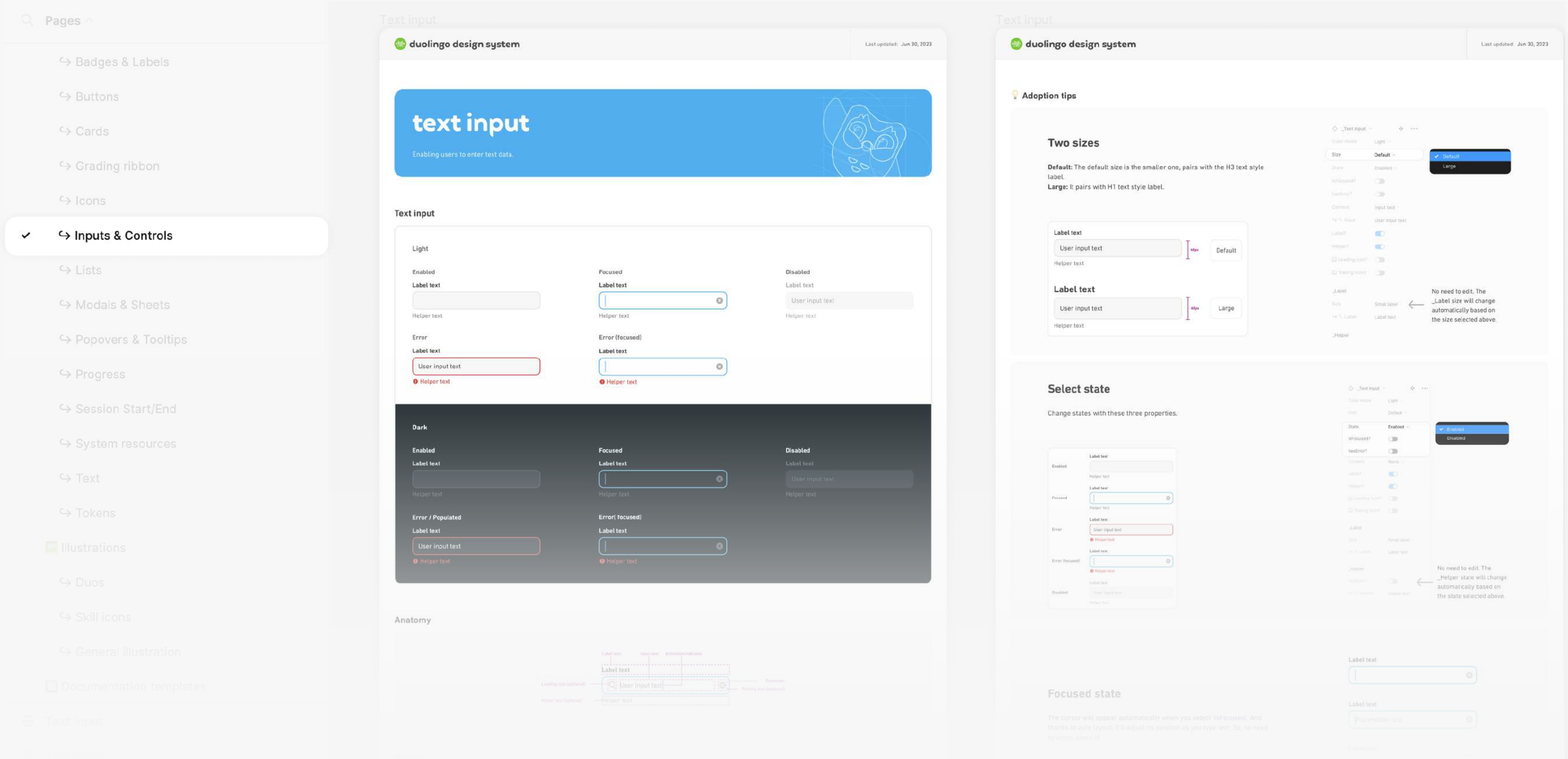








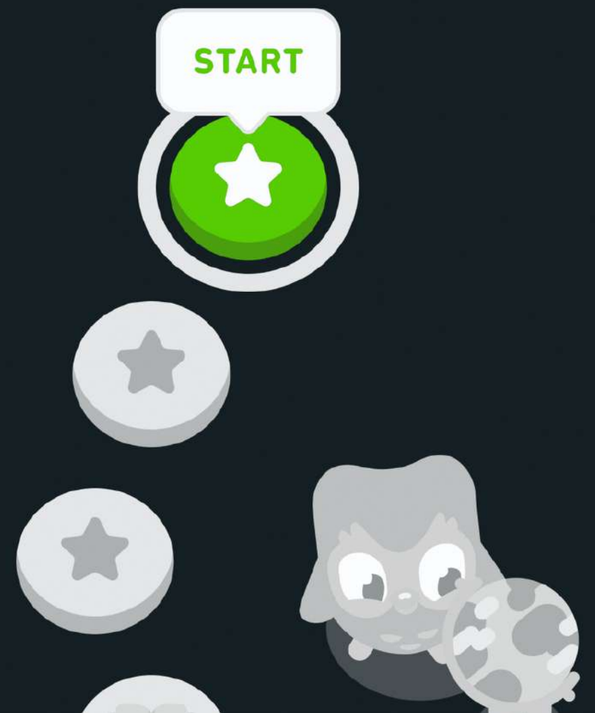
Project 1:
text inputs

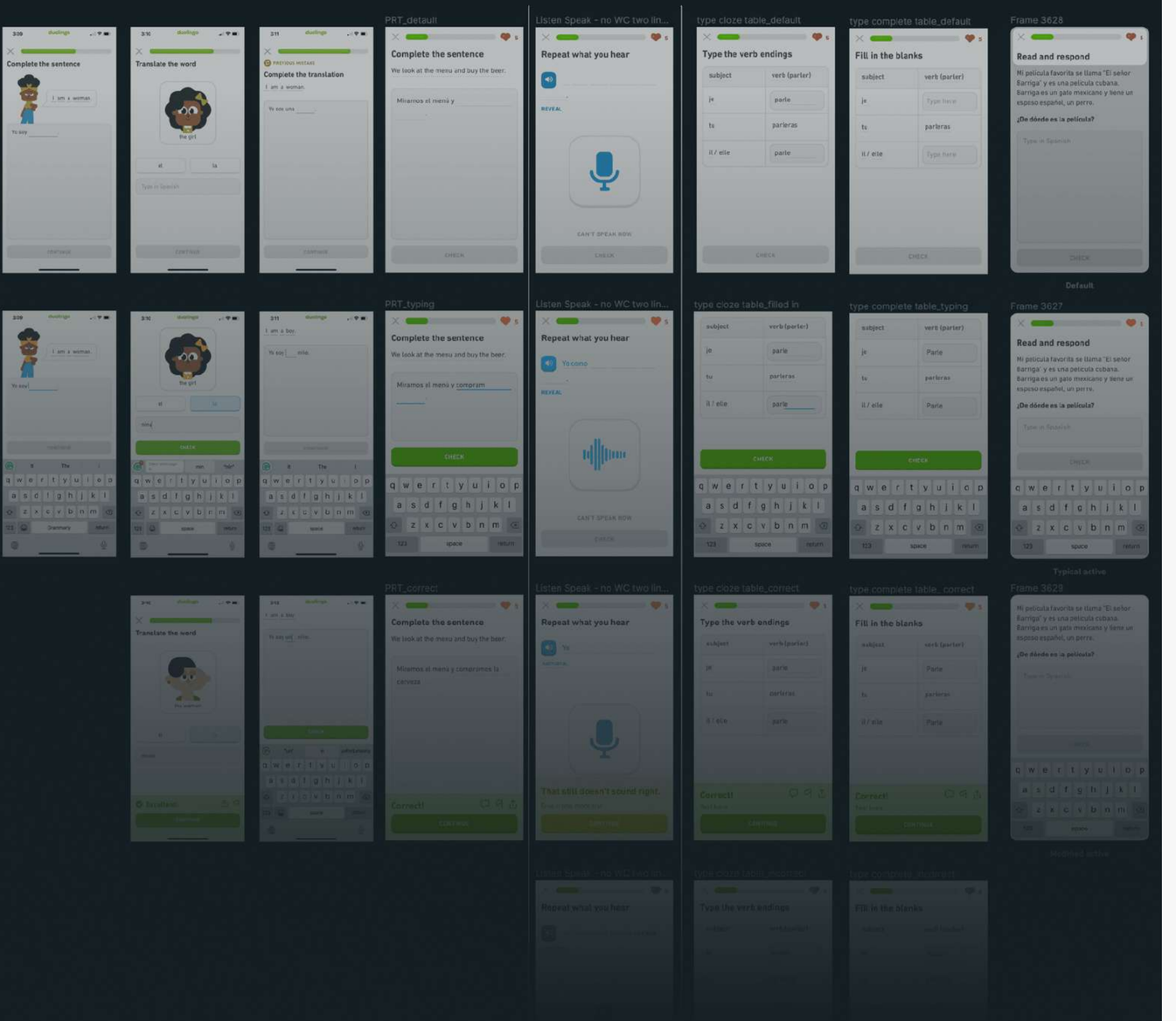


audit

Reviewed existing text inputs across the learning app.

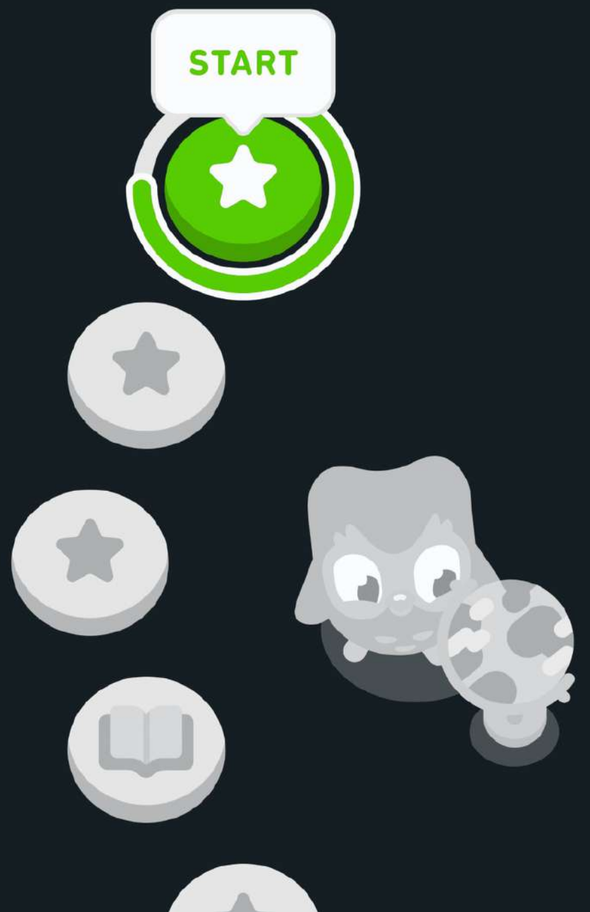
- What is the current usage of the text input?
- How might we scale this component in the future?

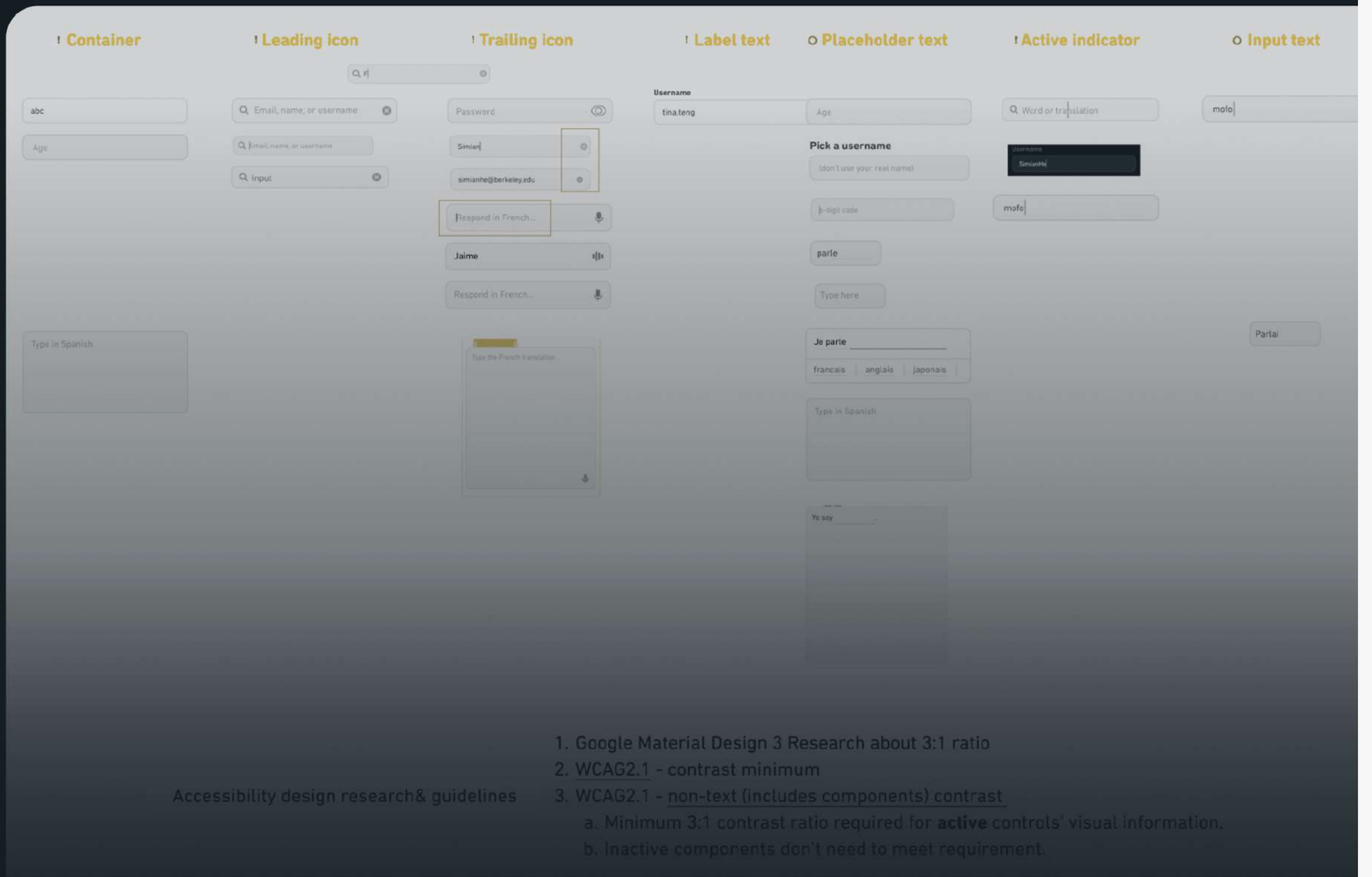




audit

Compared and note inconsistency and issues, identified the major goals.

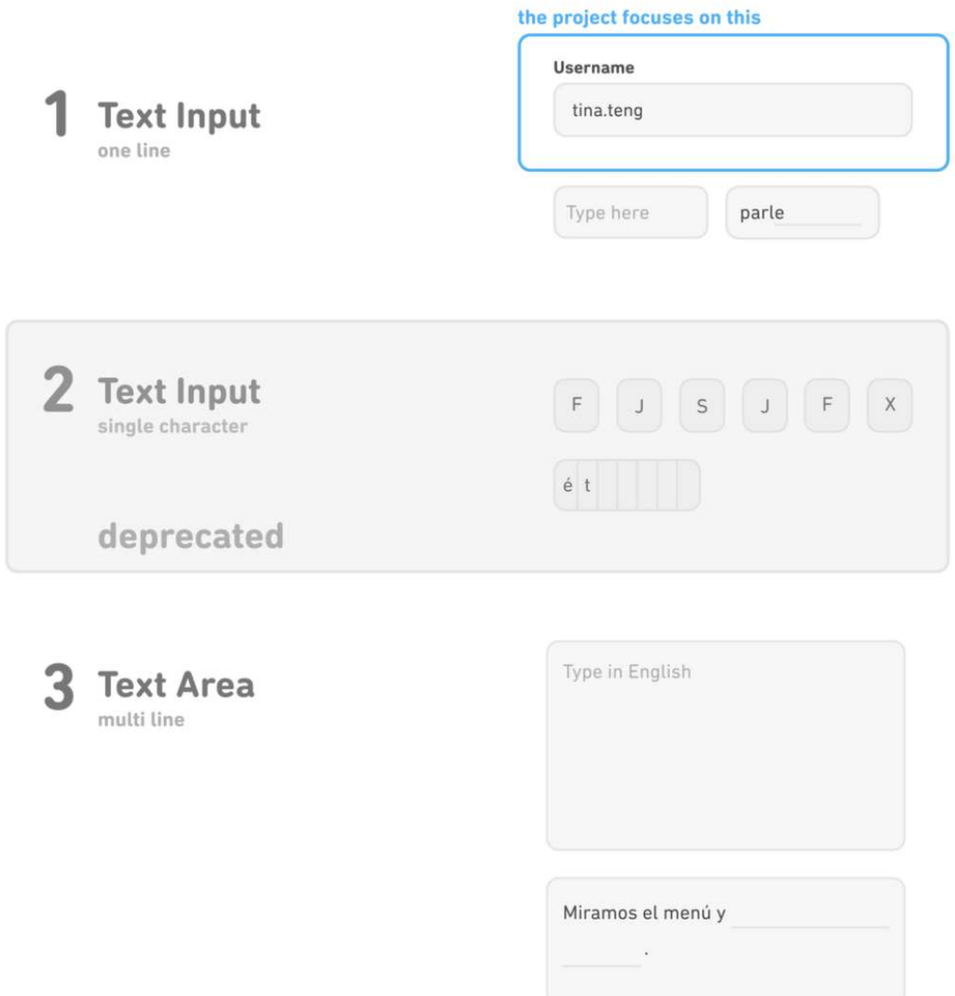




Accessibility design research& guidelines

1. Google Material Design 3 Research about 3:1 ratio
2. WCAG2.1 - contrast minimum
3. WCAG2.1 - non-text (includes components) contrast
   a. Minimum 3:1 contrast ratio required for **active** controls' visual information.
   b. Inactive components don't need to meet requirement.

1. The border color doesn't meet the 3:1 contrast ratio (border color: background color), making it difficult for people with visual impairments to recognize.



Differentiate text entry components in the app to narrow scope and better address specific user needs.

Following the discussions, I learned that the single character inputs have been deprecated, and realized even the one-line inputs can be divided into two types, which we hadn't considered before. It made it easier to prioritize and decide this project's target component, which is the one-line text input on the top.

specify goals

Two prioritized topics need to be addressed to enhance the accessibility experience.

1 How might we design to improve accessibility while maintaining the consistency in the overall user interface design?

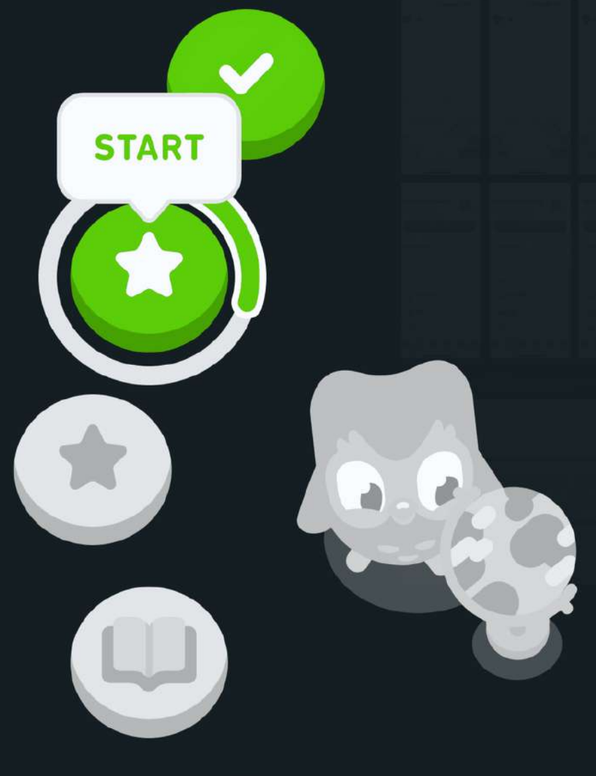
- non-text contrast ratio is lower than minimum requirement. (input box outline : background)
- important help information displayed in placeholder text is unfriendly to users with poor memory.
- the absence of icons to indicate states is unfriendly to color-blind users.

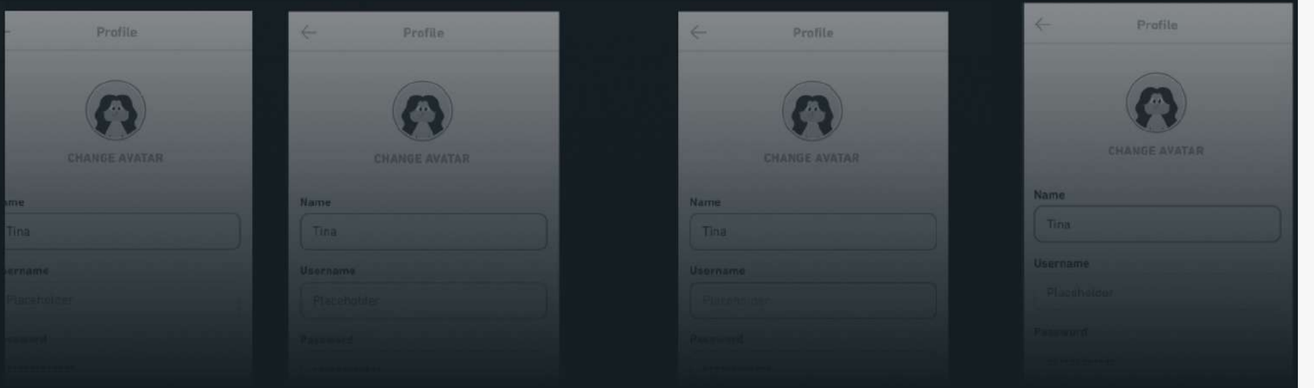
2 How might we design to provide sufficiently strong visual indications on states?

- the current active state looks like the disabled states in other products.
- inconsistency on indicating focused and error states.
- inconsistent usage on icons.

experiments

- Does it adhere to our existing visual language?
- Does it work in all of use cases we need it for?
- Does it work for people who use accessibility tools, or people who use our products in other languages?
- How well does the design meet the main goals of this project?
- Is it delightful?
- Which design works best to propose at this time, and how could it be improved in the future?



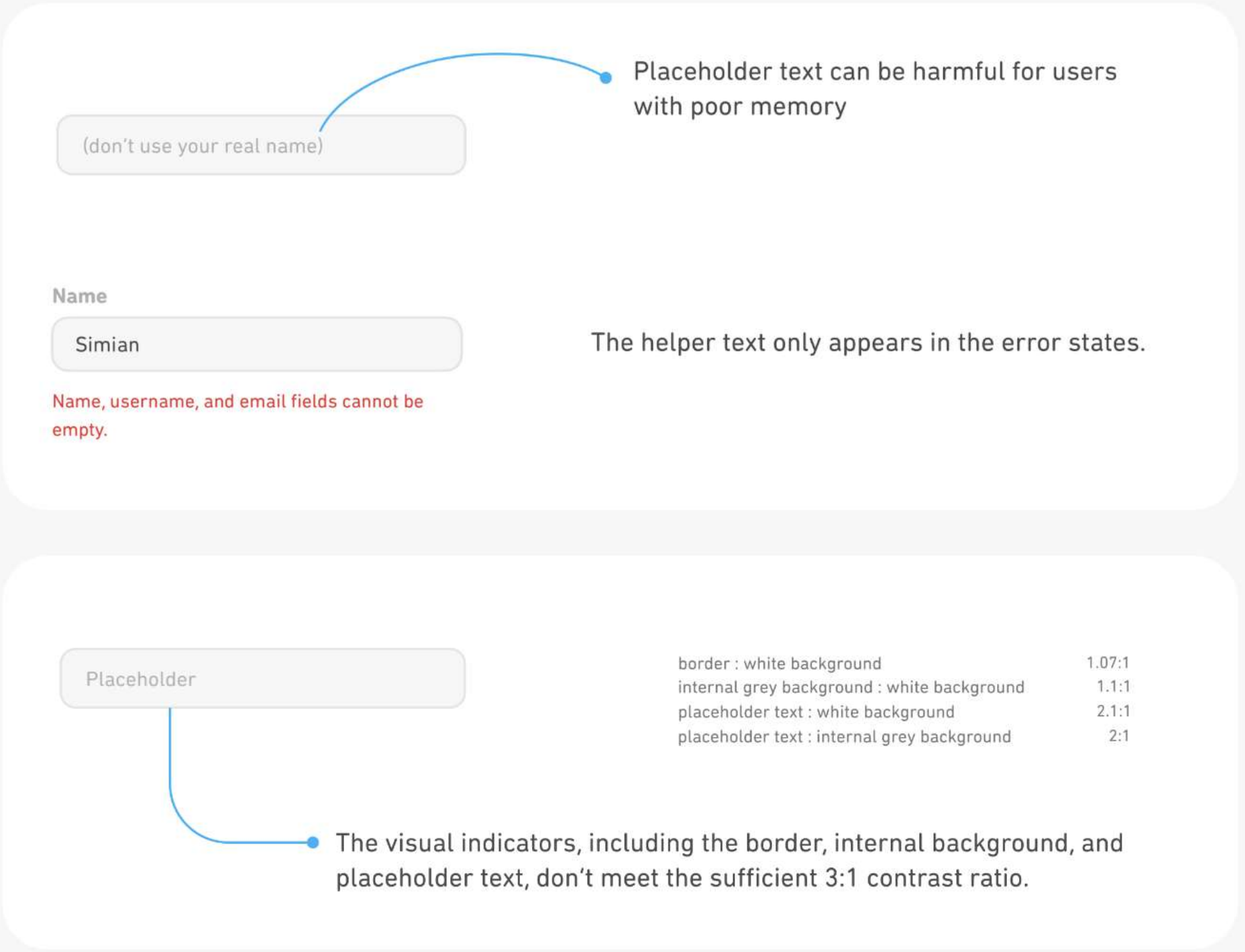


accessibility

- Insufficient display of important help information.

- Low non-text contrast ratio.

Current design

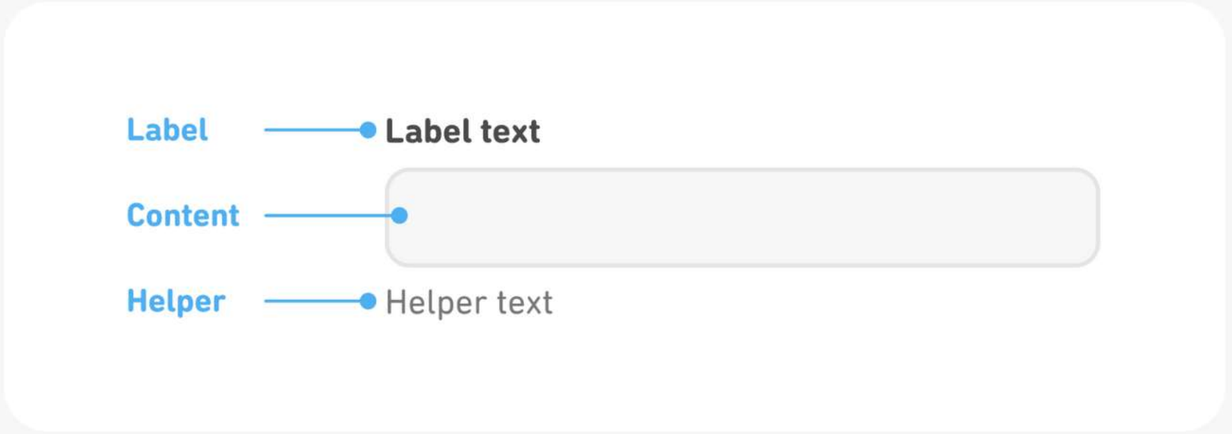


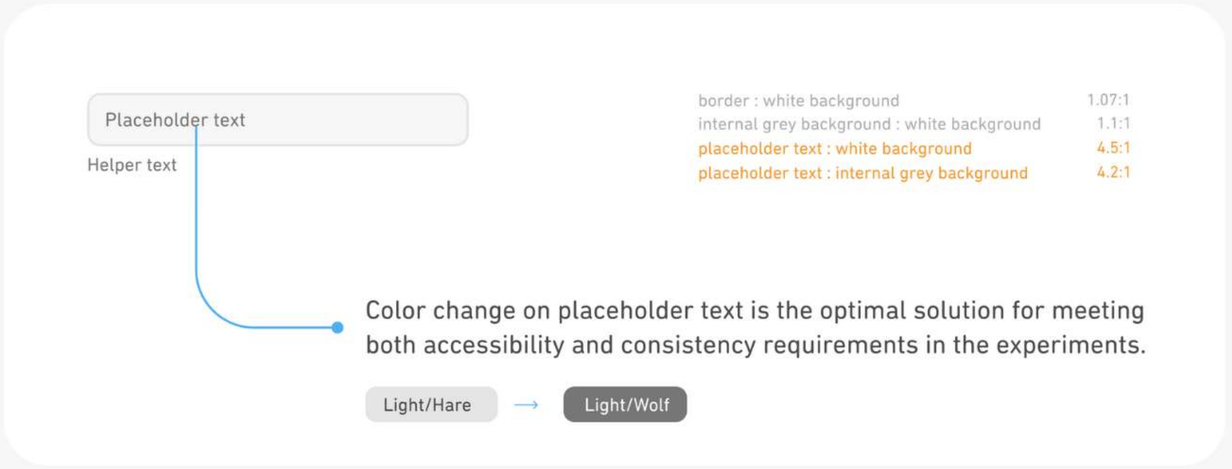
accessibility

- In design system, the new text inputs don't show the placeholder text. Because we want to encourage our designers to consider using helper text to display important assistive information.

- Improve the contrast ratio for both the placeholder and helper text.

Iterated design





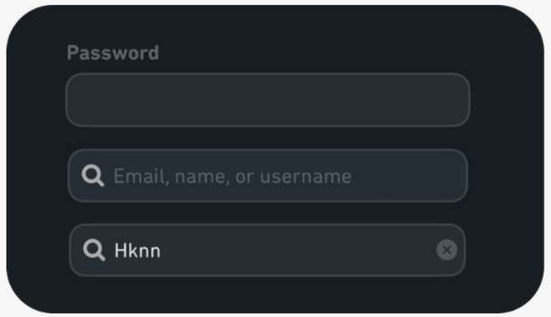
dark mode

Prioritize quick identification of information hierarchy.

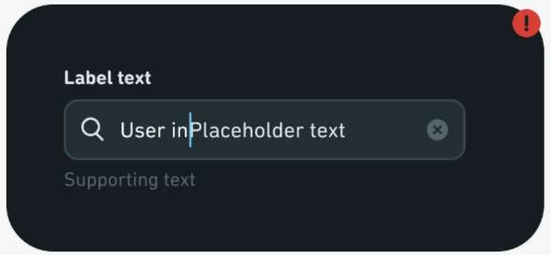
In addition to the light mode, we also want to focus on the accessibility of dark mode.

Dark mode design adheres to light mode principles. Initially, Dark/Wolf was considered for placeholder text, reflecting Light/Wolf in light mode. However, its low contrast with the stronger input text color can hinder users' ability to differentiate between input text and placeholder text. Thus, I suggest using Dark/Hare, a lower tier color, for placeholder text and recommend expanding our color palette for future contrast needs.

Current design

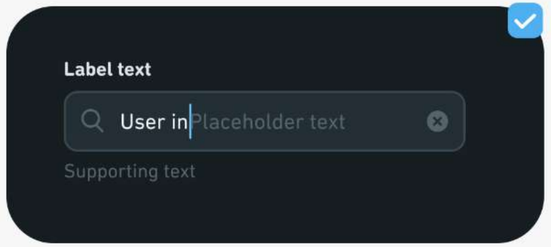


Experiment

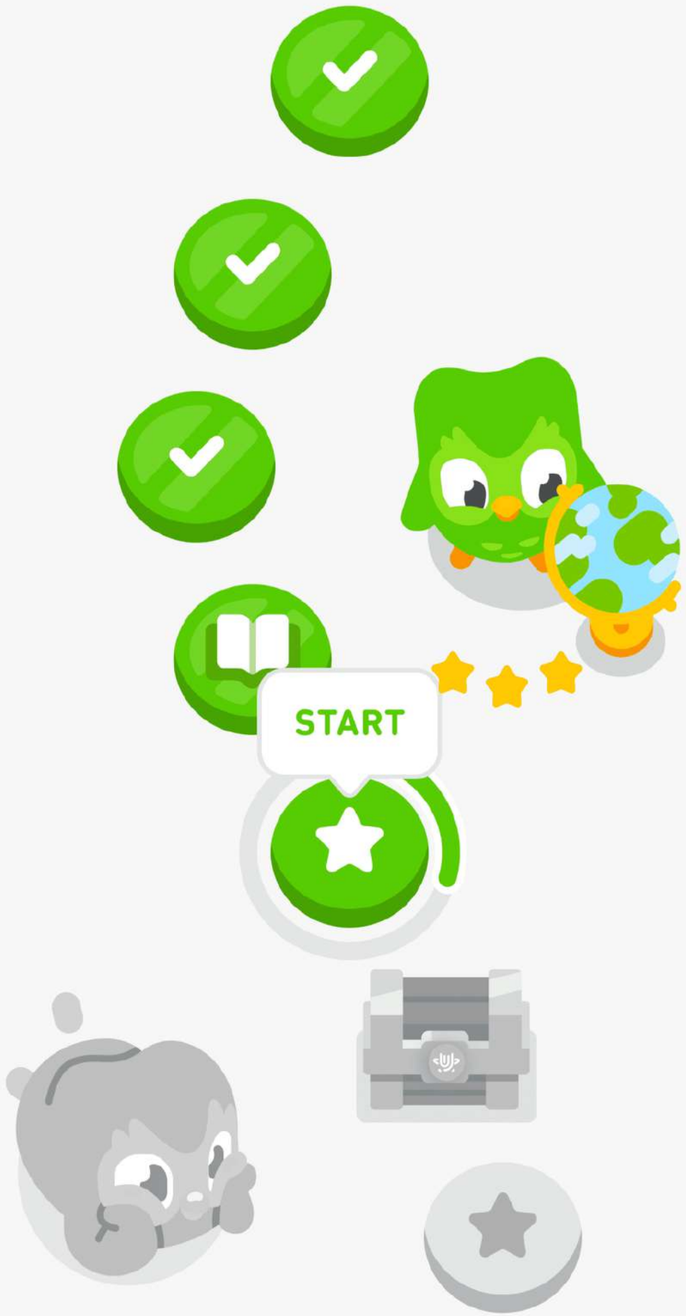


Dark/Wolf	
border : dark background	1.7:1
internal grey background : dark background	1.2:1
placeholder text : white background	13.4:1
placeholder text : internal background	10.9:1
placeholder text : input text	1:1

Iterated design

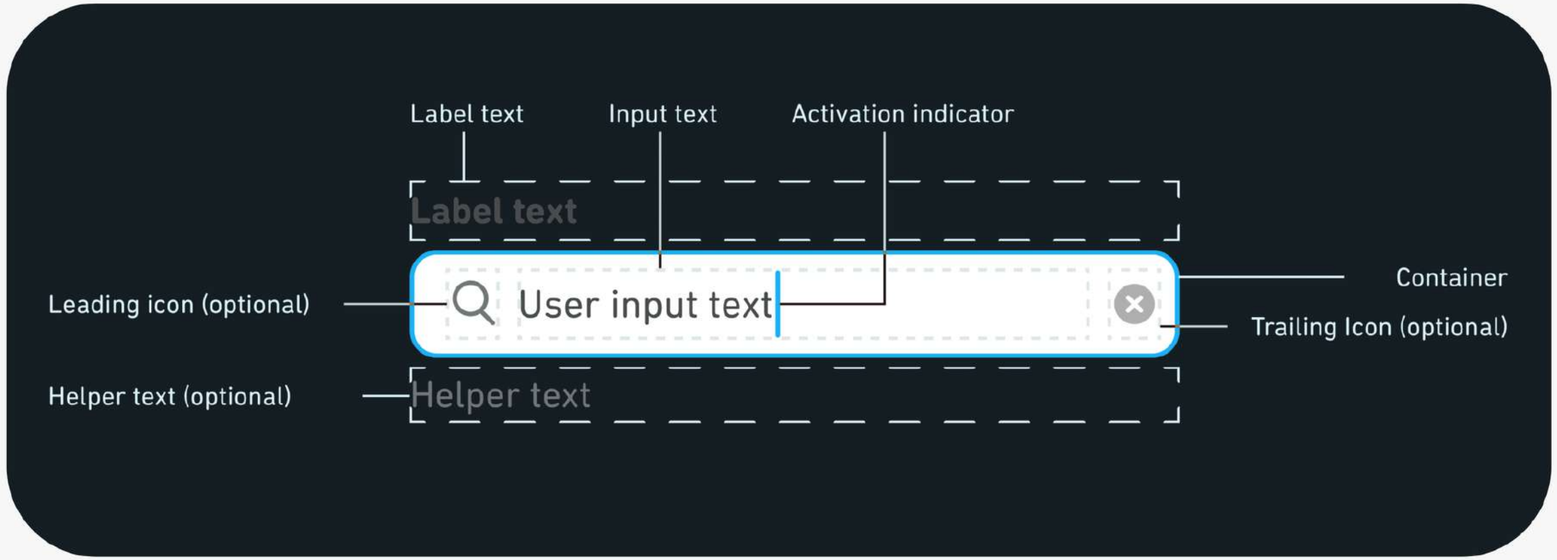


Dark/Hare	
border : dark background	1.7:1
internal grey background : dark background	1.2:1
placeholder text : dark background	2.8:1
placeholder text : internal grey background	2.3:1
placeholder text : input text	4.8:1

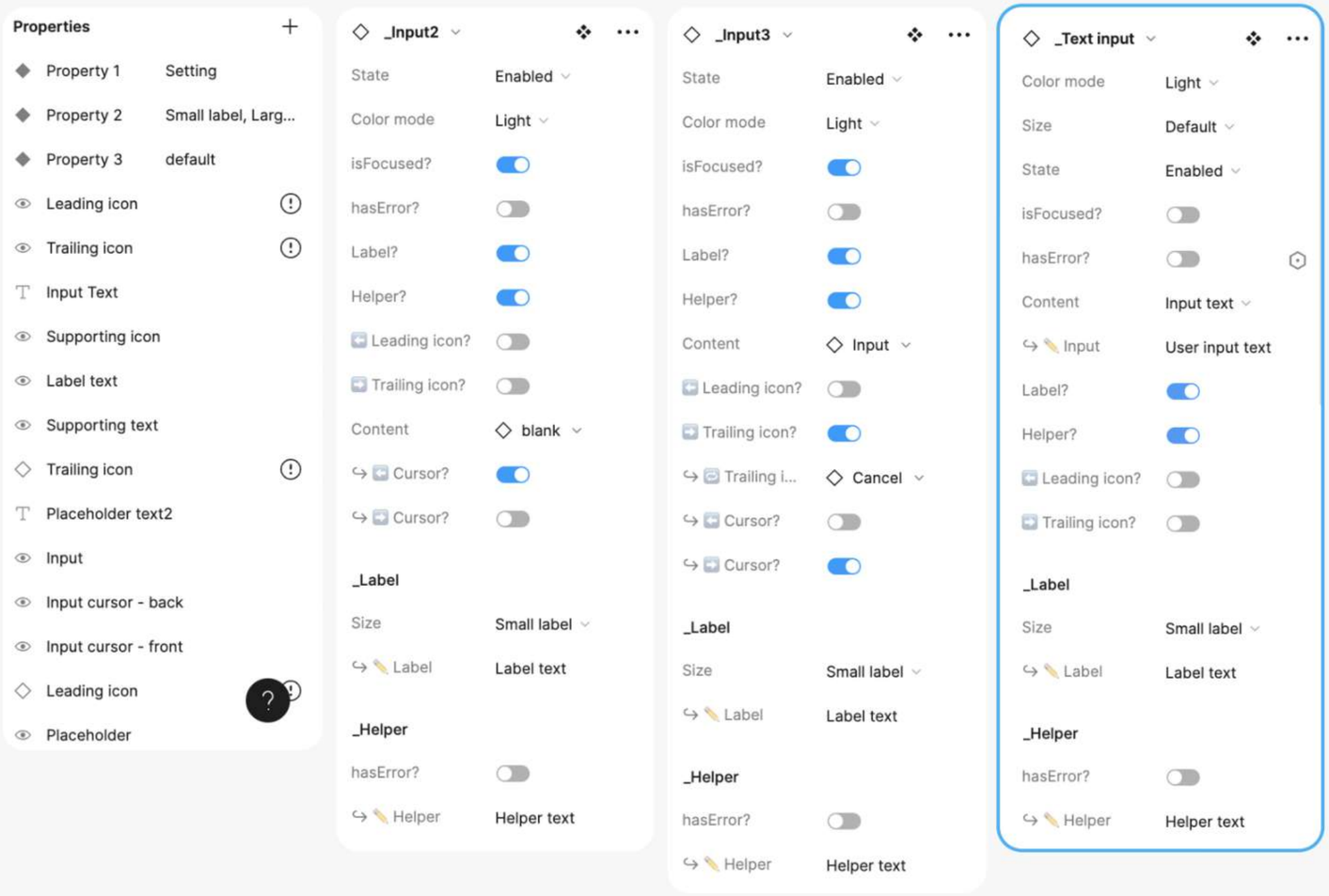


api design

Use prior definitions to develop an easy-to-use component's structure and properties.



Final API design



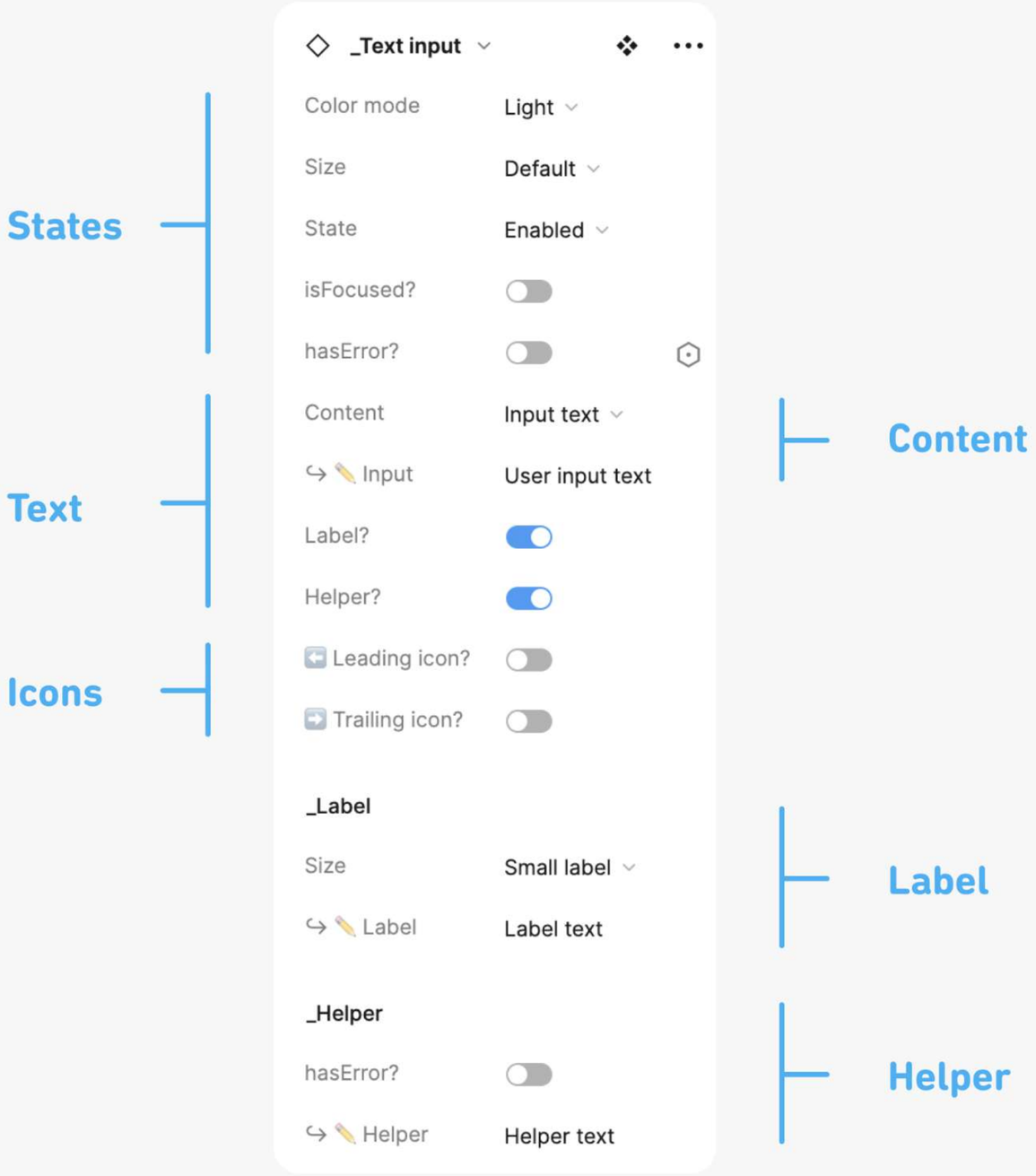
design

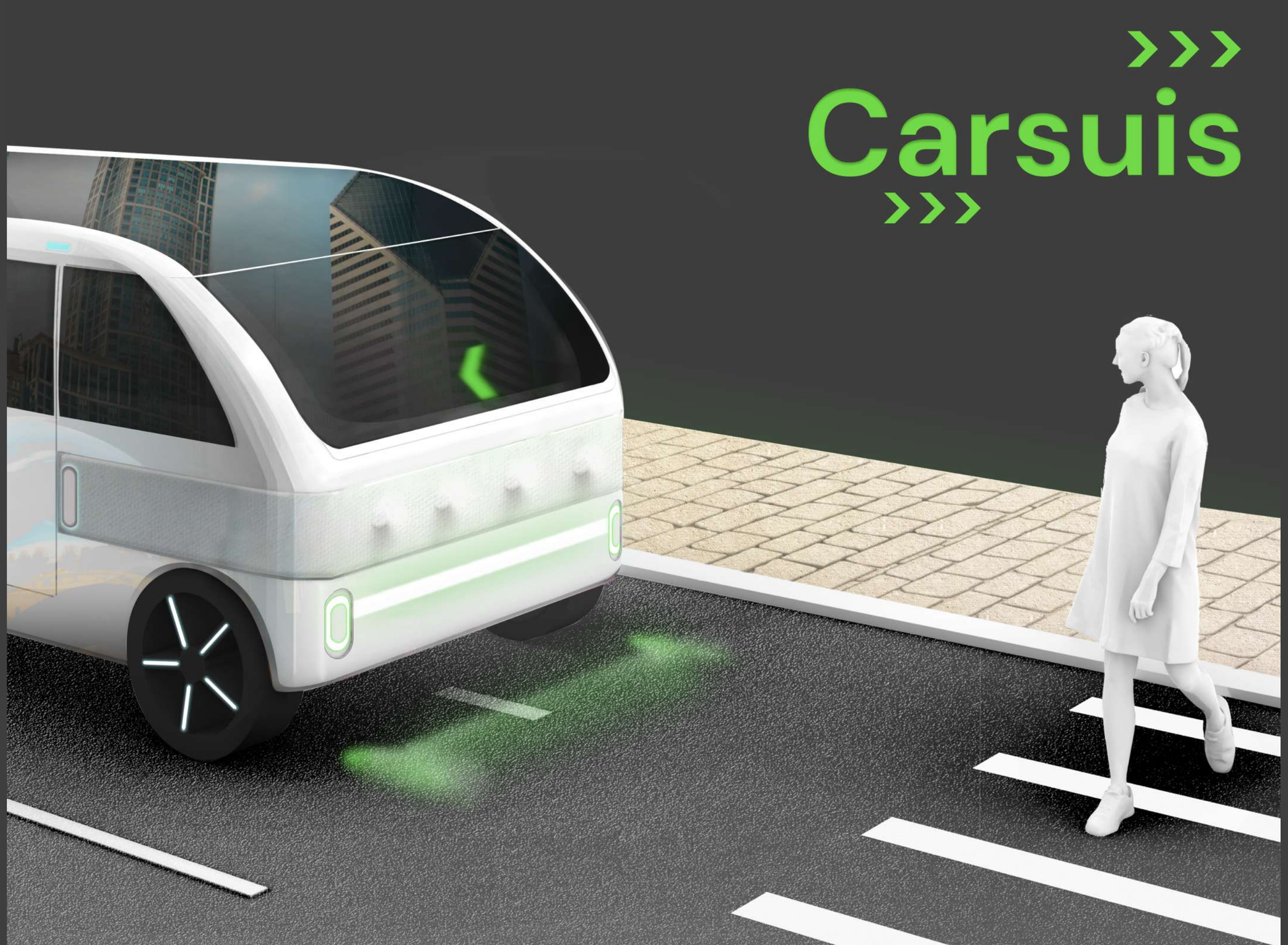
Use prior definitions to develop an easy-to-use component's structure and properties.

Following multiple usability tests and iterations, I successfully crafted the most streamlined and effective API design. This enables designers and developers to swiftly select the needed text input design.

design

According to the usability test results, organize the information structure from top to bottom.




Carsuis

Carsuis

››› "car see us"

Carsuis is a speculative design project that aims to explore the future of non-verbal pedestrian interaction with autonomous vehicles. ›››

››› Our Team

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Fall 2022

Technology Design Foundations

Berkeley Master of Design - MDes

College of Engineering
College of Environmental Design

››› Instructors

Purin Phanichphant

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Georgios Grigoriadis

E: ggrigoriadis@berkeley.edu

››› Desk Resaerch

Present

"American cities are designed for cars—which makes life worse for everyone. Only 3% of Americans walk to work." -QUARTZ

Future

* The Future Of Autonomous Vehicles: Product Or Service? -Forbes

In the concept image of the autonomous car, you can see future buildings, freeways, and driverless autos, but you hardly notice any pedestrians. **What should the human-car connection look like in the future?**

Summary

Carsius offers an opportunity to enhance the pedestrian's sense of control over the autonomous vehicle, give greater equality in communication between the pedestrian and the vehicle

Urban American road environments are centered around automobiles, rather than people. Vehicles also privilege the safety of drivers, not other road users. This has led to cars occupying the dominant position on the roads, in a world that is becoming increasingly automated. The repercussions of this are that pedestrians may no longer be able to move freely on roads, forever in fear of machines that rule the roads.

Carsius aims to empower pedestrians' by allowing for clear communication of intent between pedestrians and vehicles, and other road users. We believe that this will reduce technophobia by encouraging greater participation from humans inn ways that actionable and interpretable.

Key Words

- Accelerate the development of driverless autos
- Technophobia
- Car-centric Urban Design
- Equal Human-car communication
- Enhance public acceptance of autonomous vehicles

>>> Semantic communication between pedestrians and the built environment:

Most of the communication between humans and cars are based on body gestures and eye contact.

In a future of self-driving cars.
How can we maintain this semantic consistency?
How can we face the potential conversion?

>>> Field Research: User Interviews

Looking at the self-driving car market from multiple perspectives. Listen to what people with different perspectives are looking for and what are the limitations? Where are our opportunities?

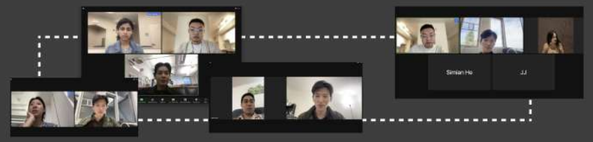
· Stakeholders / Users ·

> Citizen doesn't have a car
> Government
> Employees in the car industry

· Contexts / Situations ·

> When the movement routes of vehicles and pedestrians cross, and there're no traffic lights for clear indication
> When the pedestrians need to cross the road

Interviews



> Lee Chaeyeol
Research Engineer, Hyundai

> JaeYu Ko
Research Engineer, Hyundai

> Denise Heredia
Previously worked at an autonomous vehicle company

> Carmela Wilkins
Student, Pedestrian

> Yani Mai
Car owner who haven't driven in a while

Main Takeaways

"Automobile company don't care about the communication between the car and driver"

"I think the universal design aspect should be considered. For pedestrians and drivers, I think children, the elderly, and the disabled should all be considered"

"Forms of car to car communication exists for cars built by the same company. But across manufactures, not much effort has been made in the are of pedestrian and car interaction."

"Self driving cars will need a system that recognizes not only human gestures and eye contact, but also human existence itself"

"It was a social thing - you go, no, you go"

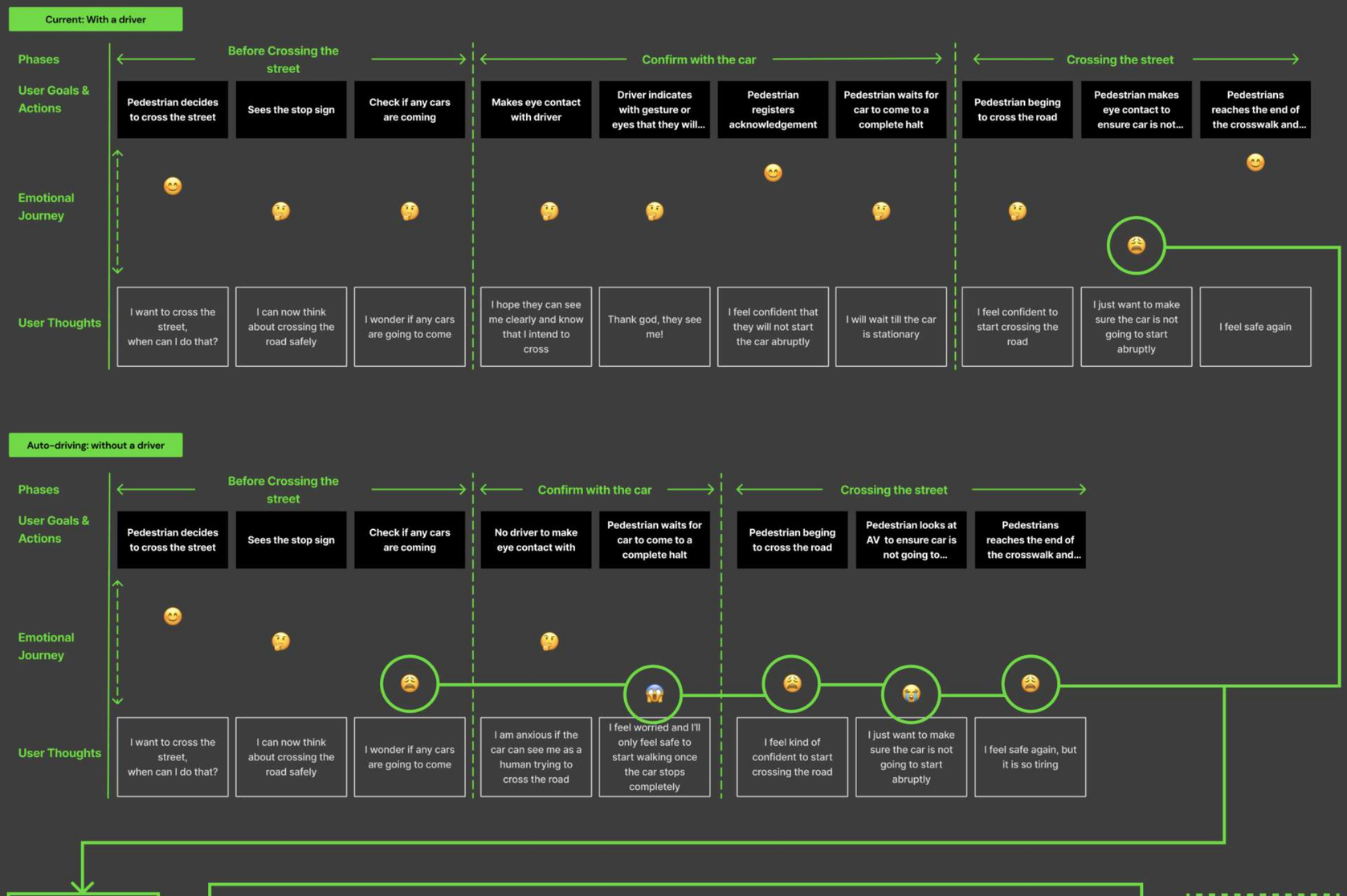
"Tries to make eye contact, after that there is a transferring of hand signals. Feels clear and good for crossing streets"

"Less safe, Would not cross if there are cars around. But at the same time, I would trust light signals a lot more because that is the language robots speak."

Insights

1. The AV is acting in an environment that is loaded with expectations and habits
2. Future AVs become part of a complex sociotechnical system and have to interact with all these participants on the road in a socially accepted manner
3. What makes people feel safe and what scares them?
4. How do we communicate:
   - The vehicle recognizes ?
   - The vehicle invites ppls to do something?

>>> Pain Point Analysis: User Journey Map



Pain Point

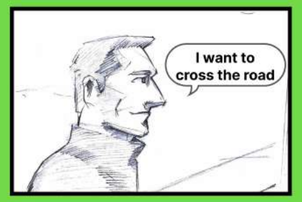
The problem of pedestrians' mistrust of self-driving vehicles

- How might we: Create a safer pedestrain experience for an autonomous vehicle future?
- How might we: Create better semantic communication between humans and machine driven transportation?

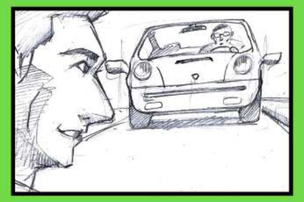
MVP Features

››› Story Broad

Recent - Majority of cars are still driven by drivers

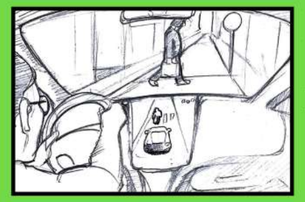


Andy decides to cross the street.


Check if any cars is coming, & if it will stop for him.

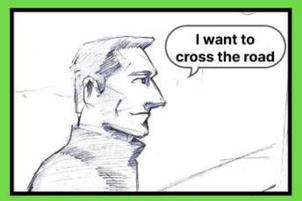

Driver indicates with Andy by body language like eye contact and gesture.


Driver telling Andy they will stop for them by making some body language.

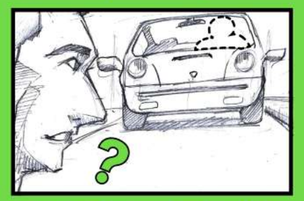

Andy crosses the street confidently and safely.

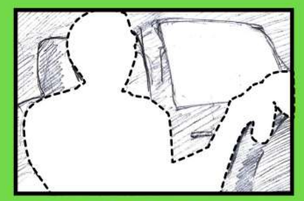
The resent scenario describes the current interaction between pedestrians and drivers - easily interpretable communication between two human beings that leaves room for non verbal interactions

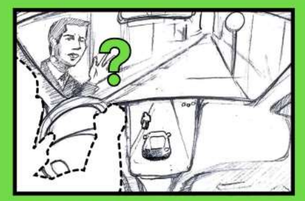
Future - Autonomous vehicles are gradually becoming mainstream



Andy decides to cross the street.


Check if any cars are coming, and noticed there is no driver in that car.


Without a way to confirm his safety with a self-driving car, Andy is very confused.


There is no driver for Andy to communicate with. He didn't know if the car would stop completely, and if it would suddenly run into him.


Andy was confused and frightened, and felt he couldn't trust this self-driving car in front of him.

The future scenario reveals a more ambiguous reality - with no human in the driver seat, how might we redesign this interaction to leave room for alternative, pluralistic futures?

Pain Point Analysis

1. Asymmetric information feedback from self-driving vehicles to pedestrians and drivers:

We found that the scene obstacle detection and road recognition results of the self-driving vehicles are only returned to the vehicle owner. While pedestrians do not know whether they are correctly detected and evaluated by the self-driving vehicles.

2. Potential pedestrian-driver communication form transformation

In traditional off-road light control scenarios, pedestrians will communicate with drivers to some degree when they need to cross the road. The signals that will be transmitted are: (1)vehicle owner: hand signal, horn, flashing lights, eye gesture, and fully stopped car; (2)pedestrian: hand signal, eye gesture, and nod. Most of these are human-to-human communication and deliberation. And all of these forms of communication can be problematic when the person in the cab is no longer present.

››› Problem Statement

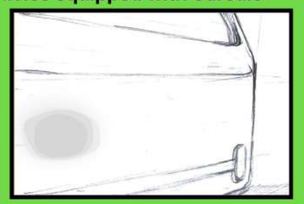
How might we reimagine the future of non-verbal pedestrian interactions with autonomous vehicles?

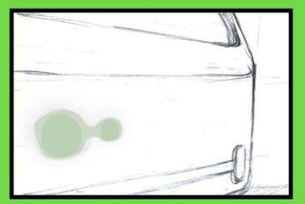
How might we communicate intent and use non-verbal communication cues that are actionable and interpretable by the interacting pedestrian?

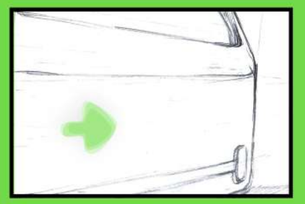
With Carsuis:

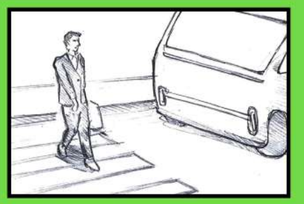
Future - When autonomous vehicles equipped with Carsuis

Andy decides to cross the street, and ran into an autonomous vehicle.

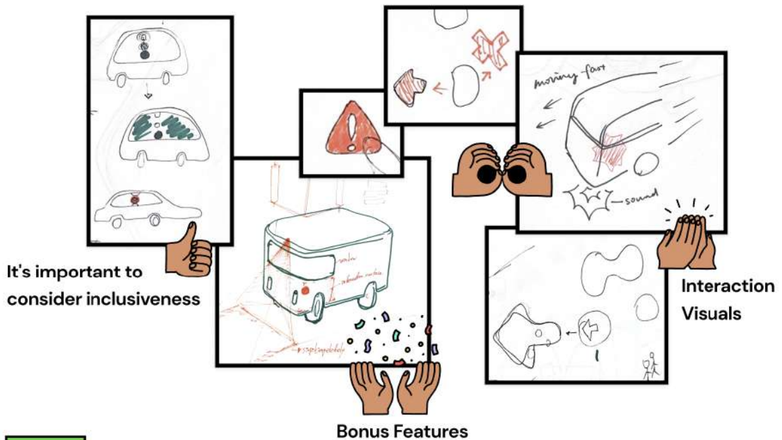

Saw an emblem mirroring himself on the vehicle surface. He knew the car recognized his presence.


After waving to the car to indicate that he wants to cross the road, the emblem of him turns green.

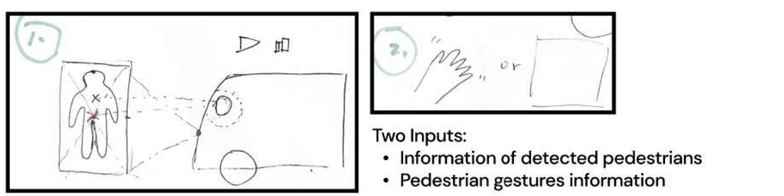

And it turned into an green arrow, giving Andy a firmer feedback that the car is waiting for him to cross.


In the company of the emblem that mirrors him, Andy crossed the road with confidence and pease.

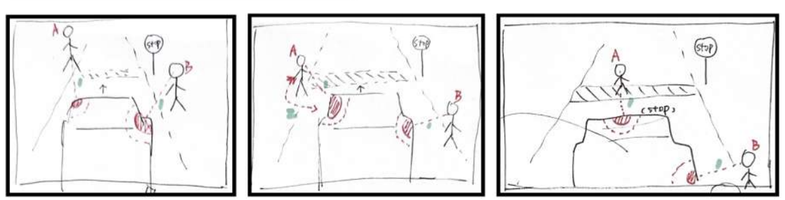
>>> Interaction Design



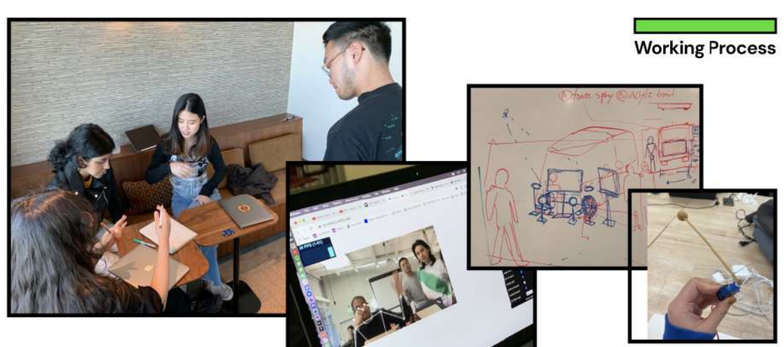
Sketches



Two Inputs:
- Information of detected pedestrians
- Pedestrian gestures information

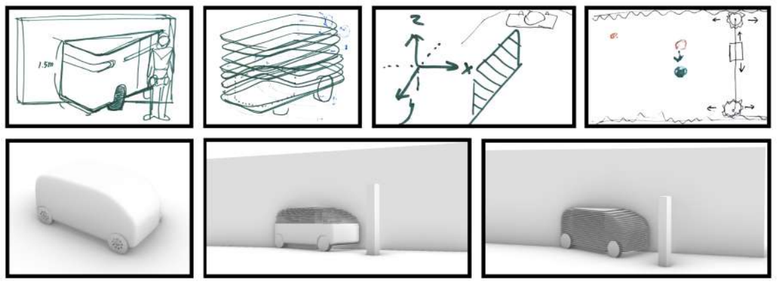


Working Process



>>> Installation Design

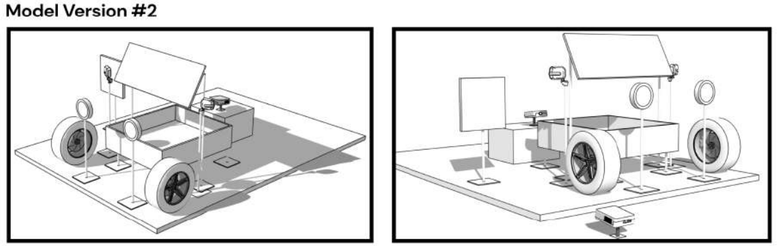
Model Version #1



Pros:
- The shape is similar to the real car
- A sense of futuristic

Cons:
- Cost a lot of materials
- The rounded corners make it difficult for mechanical design

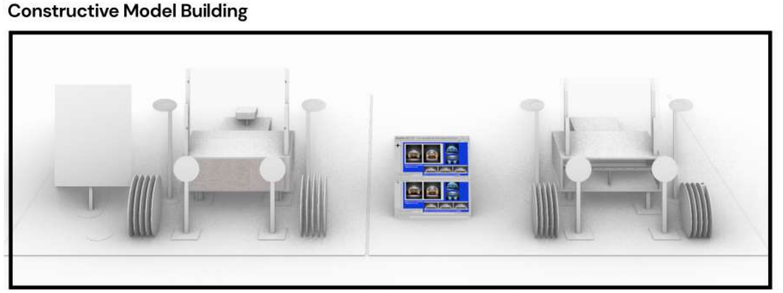
Model Version #2



Pros:
- Less stereotypical of driverless vehicles
- Simplify less crucial components while highlighting the design's central part

Cons:
- The abstract shape may confuse the audience
- The process of building will be complicated

Constructive Model Building



1.
Abstract parts with basic geometry

2.
Change dimensions and details according to component standard dimensions

IKEA Assemble

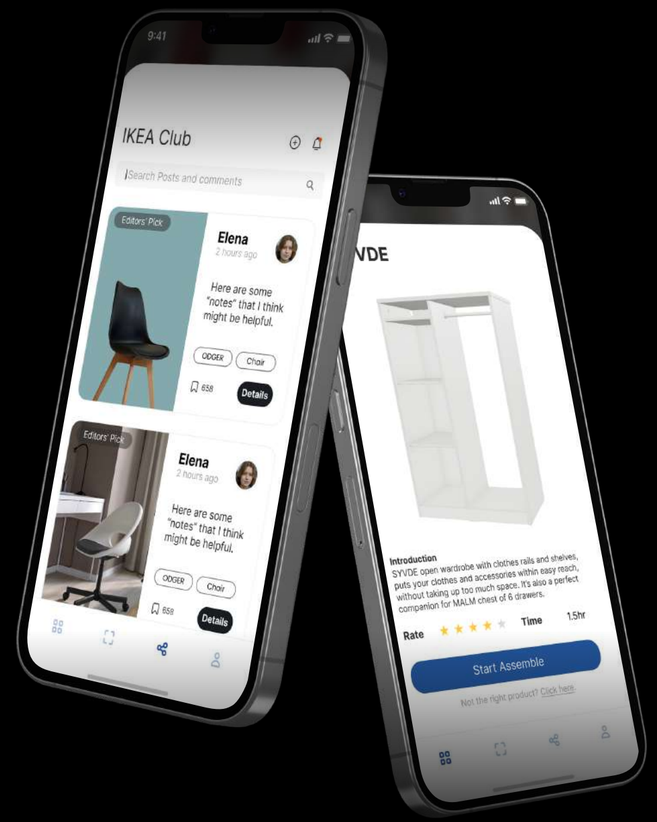
Aug-Dec 2022

Product design, product management

A mobile app with technology-assisted guide tools to help IKEA customers efficiently build safe furniture.

IKEA's mission is to create a better everyday life for the many people. Customers spend way too much time trying to build their furniture using ineffective manuals and are concerned about the safety of self-building products, worsening the furniture assembly customer experience.IKEA Assemble is a great extension of the company's mission that makes accessible instructions, a helpful IKEA community, the easy and reliable self-build process, enhances the company's sustainable value, and reduces the turnover rate and product damage.

Deliverables	Mobile App
Design Tool	Product management, research, UX/UI design, usability testing
Team	2 engineers, 2 business professionals, and 2 designers
Responsibility	Marketing research, UX/UI design, business plan

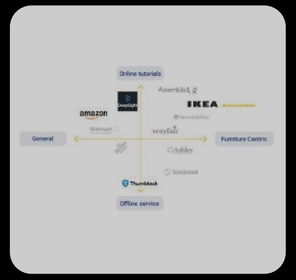


How did we approach our response?

The Influential Product Manager: How to Lead and Launch Successful Technology Products is the instruction book of this class. We practiced throughout the book to develop and iterate on the ideas.

The overview and catalog of this book are here.

Competitor analysis



Differentiators

Step-by-step real-time walkthrough experience

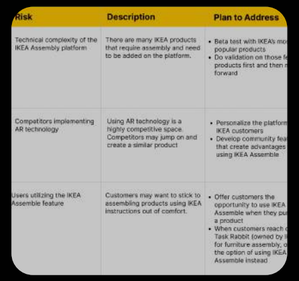
Existing large and loyal customer base

Community features

Scanning functionality

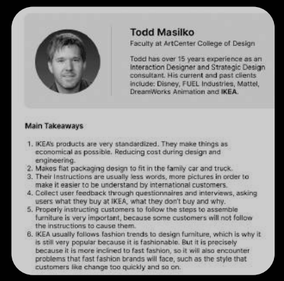
IKEA-limited furniture selection

External risks



Risk	Description	Plan to Address
Technical complexity of the IKEA Assembly platform	There are many IKEA products that require assembly and need to be added on the platform.	• Beta test with IKEA's most popular products • Do validation on those key products first and then move forward
Competitors implementing AR technology	Using AR technology is a highly competitive space. Competitors may jump on and create a similar product	• Personalize the platform for IKEA customers • Develop community features that create advantages for using IKEA Assemble
Users utilizing the IKEA Assemble feature	Customers may want to stick to assembling products using IKEA instructions out of comfort.	• Offer customers the opportunity to use IKEA Assemble when they purchase a product • When customers reach out to Task Rabbit (owned by IKEA) for furniture assembly, offer the option of using IKEA Assemble instead

Expert Interview



Todd Masilko
Faculty at ArtCenter College of Design

Todd has over 15 years experience as an Interaction Designer and Strategic Design consultant. His current and past clients include: Disney, FUEL Industries, Mattel, DreamWorks Animation and **IKEA**.

Main Takeaways

1. IKEA's products are very standardized. They make things as economical as possible. Reducing cost during design and engineering.
2. Makes flat packaging design to fit in the family car and truck.
3. Their instructions are usually less words, more pictures in order to make it easier to be understand by international customers.
4. Collect user feedback through questionnaires and interviews, asking users what they buy at IKEA, what they don't buy and why.
5. Properly instructing customers to follow the steps to assemble furniture is very important, because some customers will not follow the instructions to cause them.
6. IKEA usually follows fashion trends to design furniture, which is why it is still very popular because it is fashionable. But it is precisely because it is more inclined to fast fashion, so it will also encounter problems that fast fashion brands will face, such as the style that customers like change too quickly and so on.

User Interview

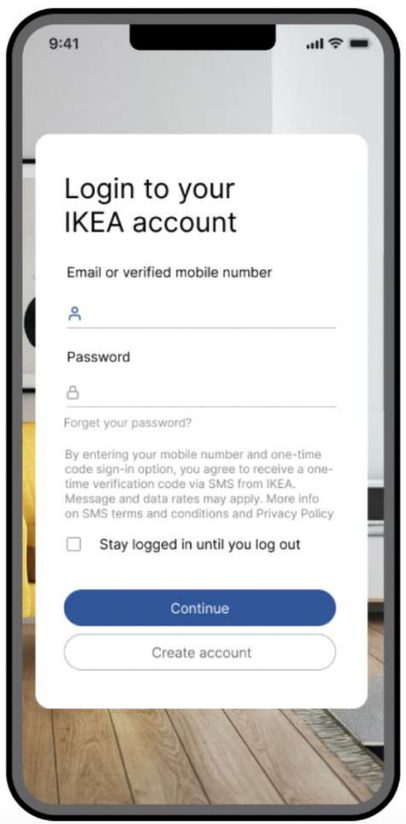
Zeke is a 41-year-old software engineer at a startup in Berkeley, California. He is a single father of two children and juggles his schedule around them when he has the kids over. When he is not working or taking care of his kids, Zeke enjoys practicing yoga, biking, and skateboarding. Zeke recently moved and has been getting getting new furniture for around the house.

Kevin is a 23 year old Berkeley graduate who is now working full time in San Diego. He spends a lot of his time commuting to and from work and visiting his family who lives nearby. This means he doesn't have much time to complete tasks such as assembling furniture. He just moved into his apartment in San Diego which meant he needed to buy lots of furniture for his home.

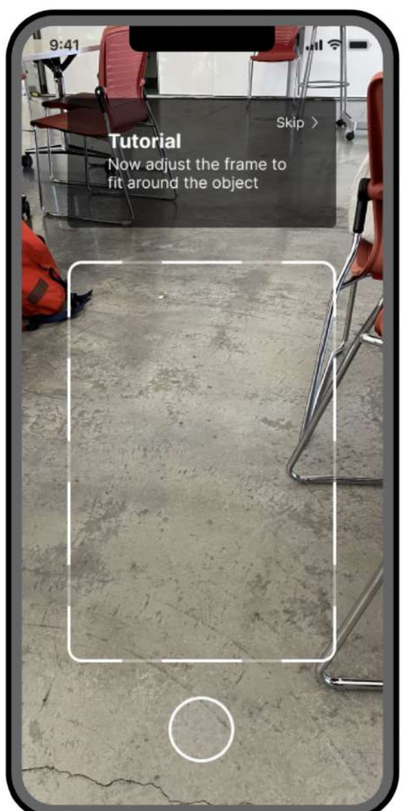
Max is a 25-year-old growth marketing manager working at a startup in San Francisco, California. He is a graduate from UC Berkeley and is extremely busy trying to build his career and also pursue his own personal interests. He is a frequent mover and often needs to assemble and disassemble furniture for his moves.

AR Assistant The design continued the visual language of IKEA Place.

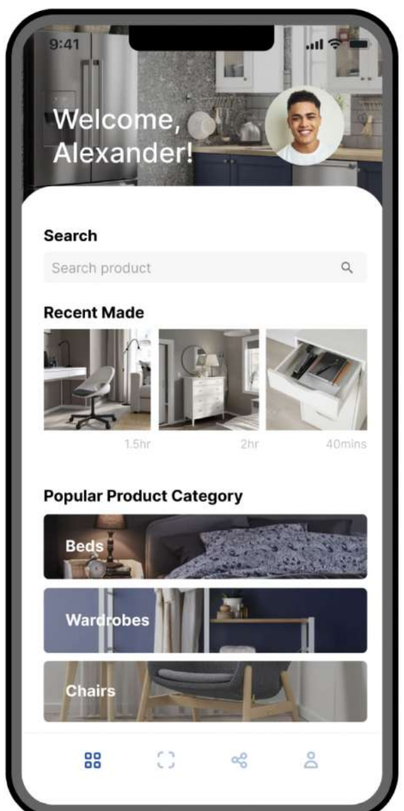
Landing



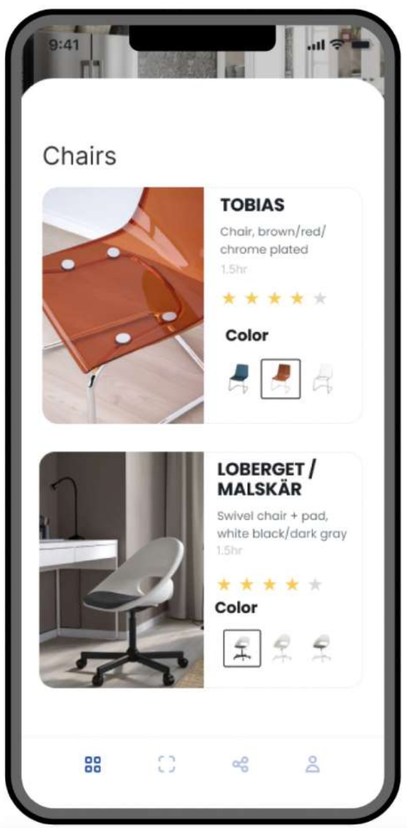
Login



App Tutorial



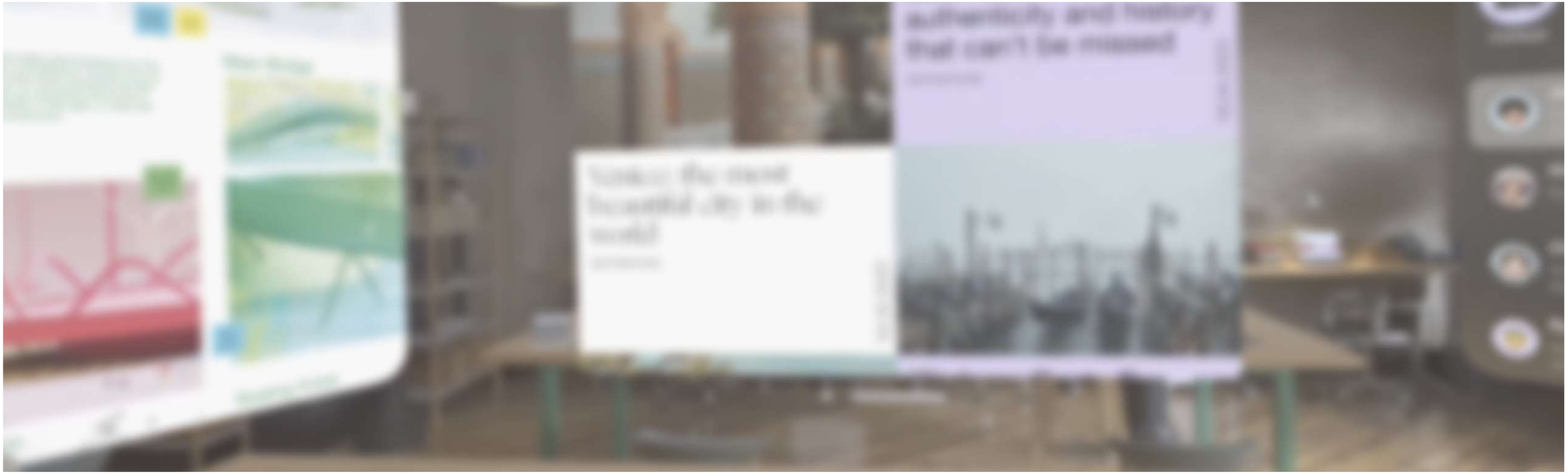
Homepage



Product List

TouchSpace

Optimizing Accessibility of Nonvisual Cues for Efficient and Inclusive Meetings in Extended Reality



Extended Reality (XR) technologies herald a new era of inclusivity, offering unparalleled opportunities for individuals, regardless of their abilities, to participate fully in diverse aspects of daily life, including education, work, entertainment, and fitness. As XR technology continues to evolve, there is a growing expectation among the public for its seamless integration into our everyday experiences. This surge in interest underscores the potential for XR to revolutionize assistive technologies, especially for those with poor vision. Nonetheless, the current landscape of spatial computing is heavily skewed towards visual interactions, presenting a barrier to those with limited sight. The predominant use of visual cues, especially in conveying depth, fails to accommodate the needs of poor-vision users, thus limiting the accessibility and benefits that XR can offer. Our research addresses this gap by exploring alternative methods to enhance depth perception within XR environments, aiming to forge a path towards truly inclusive technological solutions.

Early Foundations

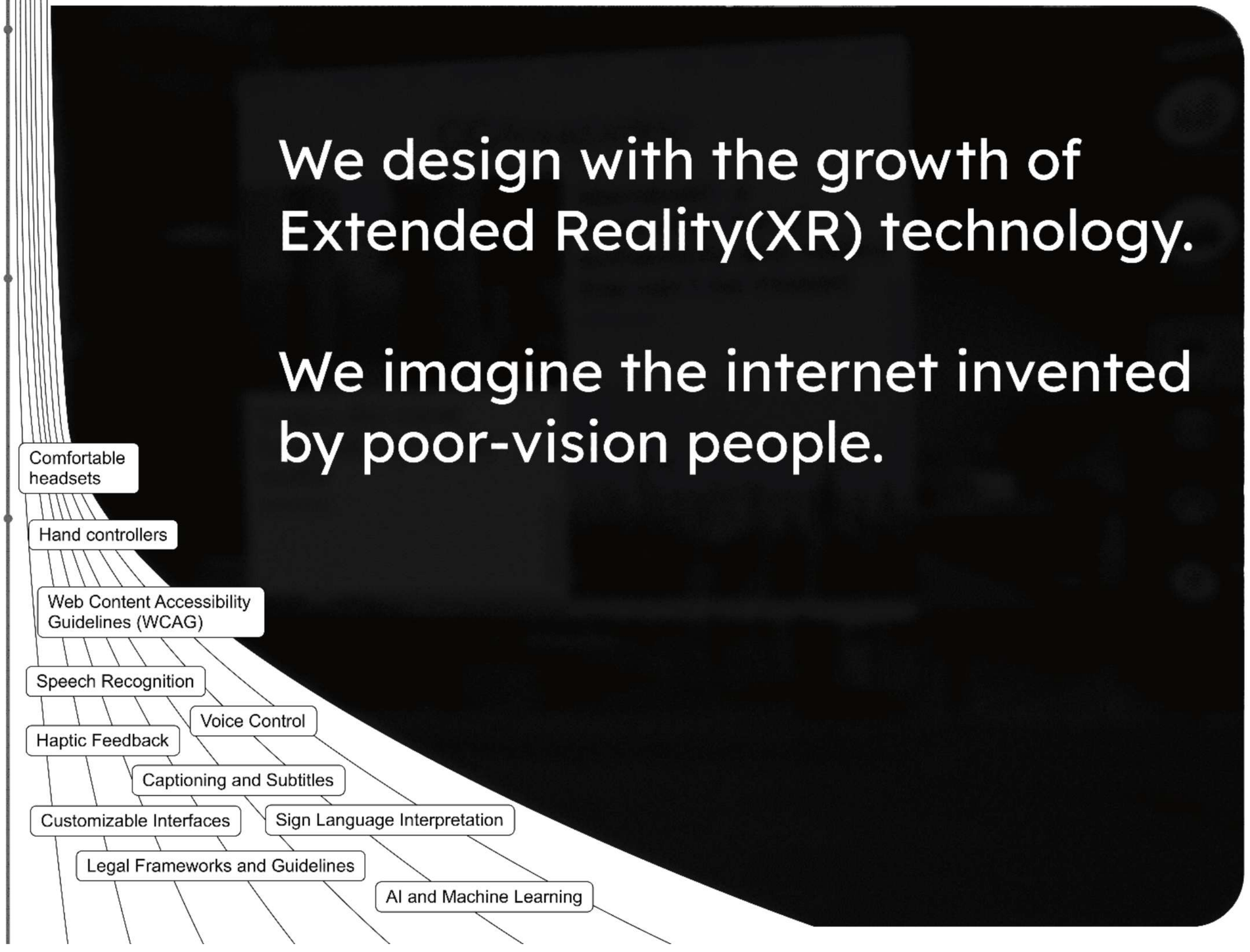
- Initial exploration of VR and AR technologies, but not much focus on accessibility.
- Focus mainly on gaming and specialized applications like military training.

Advancements in Hardware

- Development of lightweight, more comfortable headsets.
- Introduction of hand controllers and body tracking for more intuitive interaction.

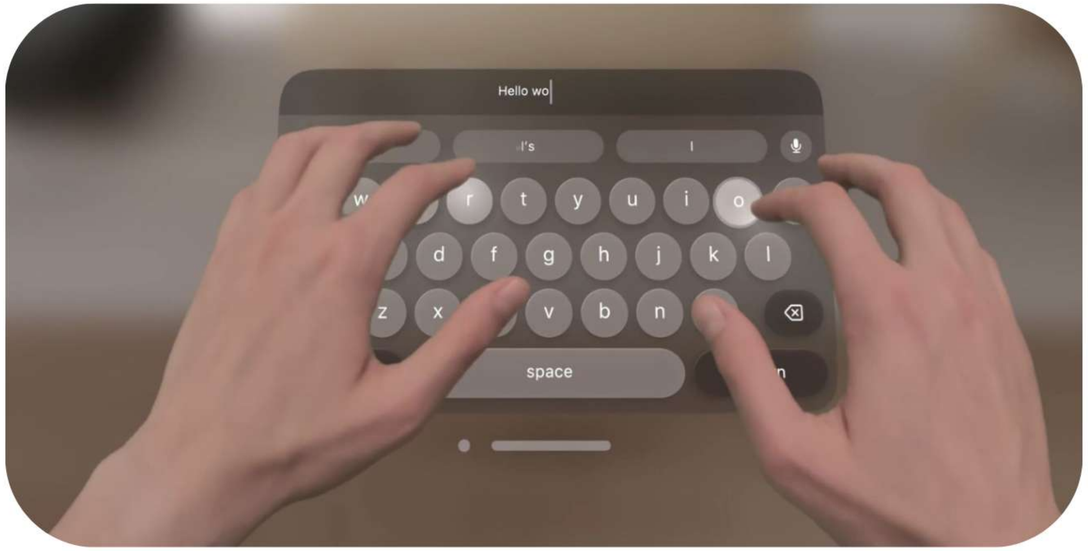
Software Innovations

- Development of platforms and environments that are more user-friendly.
- Initial explorations into making text, graphics, and interfaces more accessible to users with disabilities.



Virtual Hand

Having a representation of a virtual hand, instead of a controller, is more intuitive.



Proximity Grabbing and Selecting

Make the selection and grab close to the users so there's no need to use VR controllers.

“I put a great deal of time and effort into learning new technologies like the screen reader to assist me in the **work**. ”

“I can’t do many things, it takes me a long time to get ready in the morning, but the things that I can do are massively amplified by technology.”

“In **team collaboration at work**, I sometimes feel awkward due to my poor vision, especially when I struggle to fully grasp visual information or effectively interact with colleagues. I felt that the technology could give me more freedom to complete tasks I typically found cumbersome. ”

“Those examples sound exciting. But it’s unclear to me how those accessibility features work in my daily life within the XR world.”

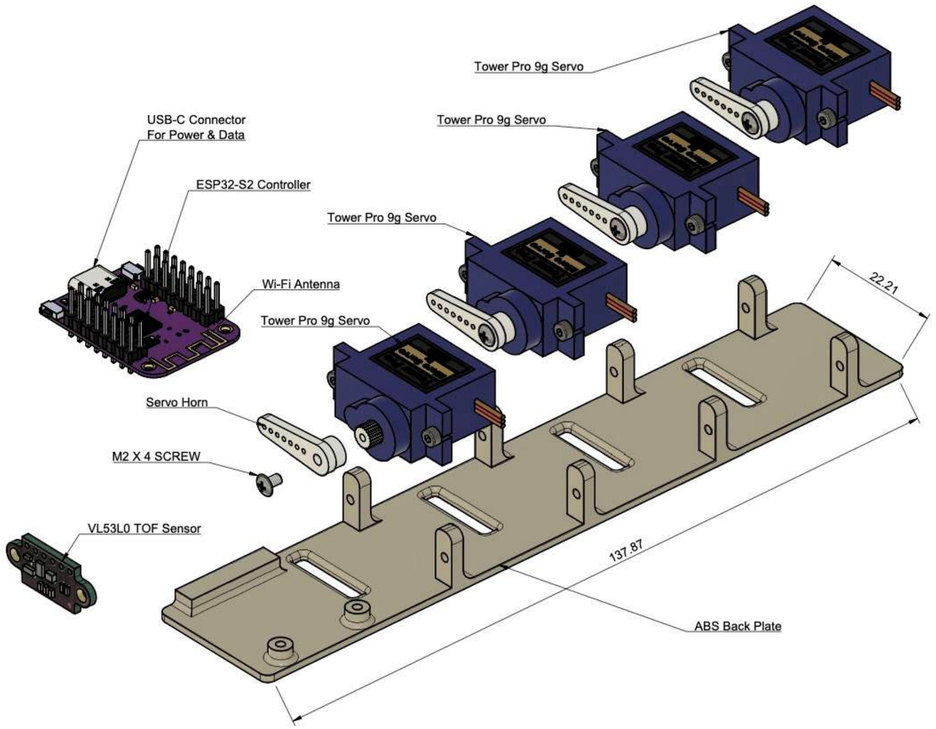
People with poor vision envision a more inclusive XR technology to help them do better at work.

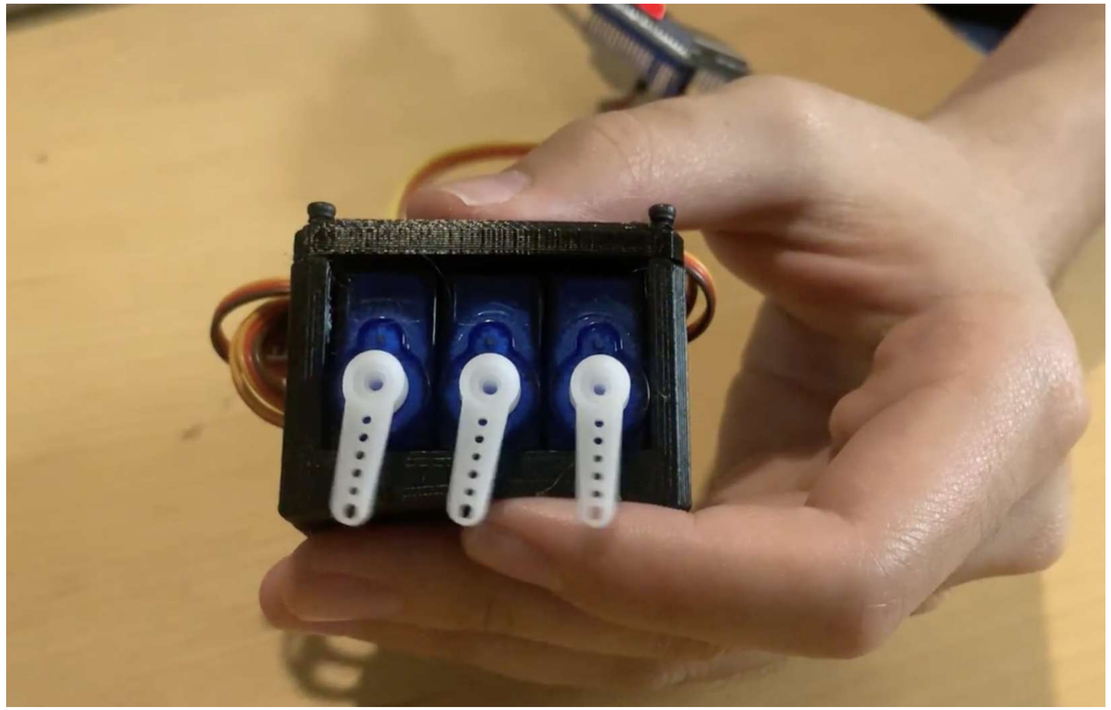
Data source: *The Value of Inclusively Designed XR Workplace Tools*

Over 2 million people are utilizing these technologies to work, and this number is fast growing.

Our project begins with workplace interpersonal interactions, as it has big potential for adoption and scalability across various use cases.

Data source: *Global VR Collaboration Platform for Enterprise Market Research Report 2022 – Market Size, Current Insights and Development Trends by Maia Research*
https://www.maiaresearch.com/market-report/1318454-VR-Collaboration-Platform-1318454.html





The project develops a prototype simulating a collaborative meeting scenario, focusing on two key aspects. The first is envisioning changes in human interaction with the virtual environment, particularly concerning depth perception. The second involves developing a tactile approach to enhance these interactions. The interaction design, based on prior research and our vision, is illustrated through animation, while a physical device conveys depth perception through tactile feedback.

Initially, we conceptualized an intelligent glove to provide tactile feedback and created a prototype to determine the suitable components for tactile sensations. However, usability testing revealed size constraints. We delved into HCI research to find a more viable design for the physical device. This led to the adoption of a sleeve as the medium for vibration feedback on the arms, an intuitive solution compared to our original concept. We continued using servo motors in the sleeves, and advanced the prototype’s development.

Our prototype demonstrates four tasks, encompassing broad-picture selection, individual element manipulation, and collaborative interactions. The project integrates feedback from three senses: visual responses in the interface, auditory communication through the VoiceOver accessibility tool, and tactile feedback from TouchSpace physical devices. Primarily focusing on hand gesture control, the project does not include voice input or eye tracking functionalities. Below are the task details and the operating principles of the feedback system.