

JIYU

Reimagining the Gen Z shopping experience

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YSDN 4004 Design Workshop

Research Book

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Table of contents

Abstract	1
Area of interest: Background / literature review	2
Research questions / hypothesis	15
Methodology / visual approaches	18
Results	36
Discussion	66
Summary and concluding remarks	69
References	70

Abstract

For YSDN4004 Design Workshop, I researched new ways to provide a virtual fitting room experience for online shopping. Data was obtained by conducting secondary research to identify a problem space and assess product-market fit, fleshing out core features and flows, designing variations of screen layouts, 3D modelling the avatar, concept testing with real users, and iterating designs using the provided feedback. I learned brick-and-mortar shoppers find physical fitting room experiences to be underwhelming and online shoppers desire to physically feel and experience products shown on-screen to determine if it is the right product for them. The implications of this research suggest that people want new ways to express themselves online, bridge the gap between the physical and digital, and means to engage in brand-agnostic shopping.

AREA OF INTEREST

Background / literature review

EXPLORING MENTAL HEALTH

I began this course with an initial interest in the topic of mental health and wellbeing. This interest was prompted largely by the long-term impact of the COVID-19 pandemic, from mask mandates, multiple lockdowns, and remote work. Early research into mental health during the pandemic revealed an overall sentiment of ‘languishing’ that most were suffering from. Languishing is defined as a feeling of “stagnation and emptiness” (Grant, 2021) sitting between the spectrums of depression and flourishing. It stems from being constantly in fight-or-flight mode from behaviour like masking and maintaining hygiene—as time has passed since the start of the pandemic, this acute anguish has morphed into chronic languishing (Grant, 2021).

Embarking on this research led me to ask: How can we prevent mental burnout and alleviate mental distress using digital technology? To understand how emotions are influenced and healed, I researched models of psychotherapy. One framework which stood out to me was CBT, cognitive behavioural therapy. CBT revolves around the notion that thought patterns impact emotions, which ultimately influence behaviour (Pietrangelo, 2019)— seeking to cultivate a healthy cycle of positive thinking in patients. Using CBT, I spotted an opportunity to create a new media installation paired with a smart hat that assesses brain patterns to deliver soothing visuals and sounds that nurture positive sentiment.

However, after some thought, I came to realise the lack of novelty and nuance in this project concept. Analysing competitors like Headspace revealed just how hypercompetitive the mental wellness product space truly was, and my solution no longer seemed so effective. Thus, I soon became disinterested in the topic of mental health, and soon began exploring new dimensions in the retail shopping experience—another area of personal passion.

INTERNET HISTORY

Before deep diving into research about the shopping problem space, I sought to develop a foundational understanding of the current landscape of the Web and where it was heading. This was done with the intention to arm myself with the latest knowledge on digital technology and Web trends so I could create a project relevant to the needs of both today and tomorrow. Furthermore, I had always possessed a natural curiosity about Web 3 technologies, being a popular term thrown around the Internet these days by those in the tech industry—this was the perfect opportunity to humble myself and learn something new that could add to my personal product design arsenal and provide professional long-term value to my career.

To understand Web 3 properly, I first dug into research about Web history to identify what came before. I learned about previous iterations of the Web like Web 1 and Web 2. Web 1 occurred in the late 1990s and was an era of the Internet largely defined by links and homepages (Stevens, 2021). These sites were not very interactive and mostly involved reading things, and publishing things for others to consume. An example is the online service AOL, where users could essentially access a curated collection of written content, much like a newspaper or magazine with the only key difference being that this experience occurred in front of a screen (Stevens, 2021).

Web 2 was the next iteration of the Web. This was nicknamed the read/write era of the Internet, where files can be opened and edited (Stevens, 2021). In doing so, people could not only consume content but create content of their own as well. As such, Web 2 spawned the growth of social media platforms like Facebook, Tumblr, and Instagram, and other services like Uber and Venmo, which form the backbone of all that exists online presently (Howley, 2021).

However, the current zeitgeist is despite Web 2 services being free to use, people are upset at the walled gardens of large tech companies offering free service in exchange for personal data (Stevens, 2021). Users now desire greater control over their data and privacy.

WEB 3, NFTS, AND THE METAVERSE

This leads us to Web 3 circa 2021/2022, which many are calling the next generation of the Internet. Touted as the read/write/own era, Web 3 focuses on shifting power from big tech companies to individual users—the idea is to create a decentralised web, where users transport their data from service to service without corporate companies stopping them (Howley, 2021). Rather than simply being users of a product, people can take part in governing and operating Web 3 services, thereby becoming shareholders. To become a shareholder on a Web 3 product, one must own enough tokens or cryptocurrencies, which denote ownership of decentralised networks called blockchains (Stevens, 2021). For instance, one can hypothetically spend their tokens to participate in a vote that determines the future trajectory and feature offerings in the Web 3 open-source browser Brave.

Diving a bit into the technical aspects of Web 3, blockchains are essentially made of smart contracts which form the basis of Web 3 functionality. Smart contracts are self-executing programs that run when all predetermined conditions are met (Arora, 2022). For instance, a common use case for blockchains is transaction fulfilment, where the conditions for a buyer-seller agreement are written directly into lines of code; this makes “transactions traceable, transparent, and irreversible” (Arora, 2022).

As I dived deeper into the world of Web 3, it became apparent that an underlying motif of the Web 3 discourse was to take back power from the monopoly and return it to man. From this realisation, three key values emerged. These are censorship resistance, trustless transparency, and community ownership. Censorship resistance entails the idea that speech or any other activity cannot be altered by an external entity (Dale, 2021). Trustless transparency describes clarity of information, where all information is online so users are made aware (Stimolo, 2018). For instance, peer-to-peer transactions without intermediaries like banks distribute trust to the individual instead of the monopoly. Lastly, community ownership supports the notion that companies and communities are built from the ground up, in which ownership can be generated and assigned to people via tokens (Dabit, 2021). By the same token (pun intended), this breeds fairer distribution of ownership than in traditional companies because both creators (developers, designers, etc.) and users are granted the opportunity to build communities, apps, and protocols in exchange for ownership.

Within the discourse of Web 3, the concept of NFTs has also been proliferated. NFT is short for non-fungible token. While an NFT is made with the same technology as cryptocurrency like Ethereum or Bitcoin, cryptocurrencies are fungible meaning they can be traded between one another (Clark, 2021). NFTs carry their own digital signature though which makes each NFT unique; it is impossible for one NFT to be the same or equal to another. Being a part of the Ethereum blockchain, the hype surrounding NFTs is on using it to sell digital art.

In this way, NFTs offer a pathway to decentralised wealth. Since people retain ownership of digital assets like physical assets, these items can maintain, increase, or decrease in value (Dabit, 2021). NFTs thus usher in a new age of digital scarcity in a sustainable, scalable fashion within a world where online scarcity was previously non-existent.

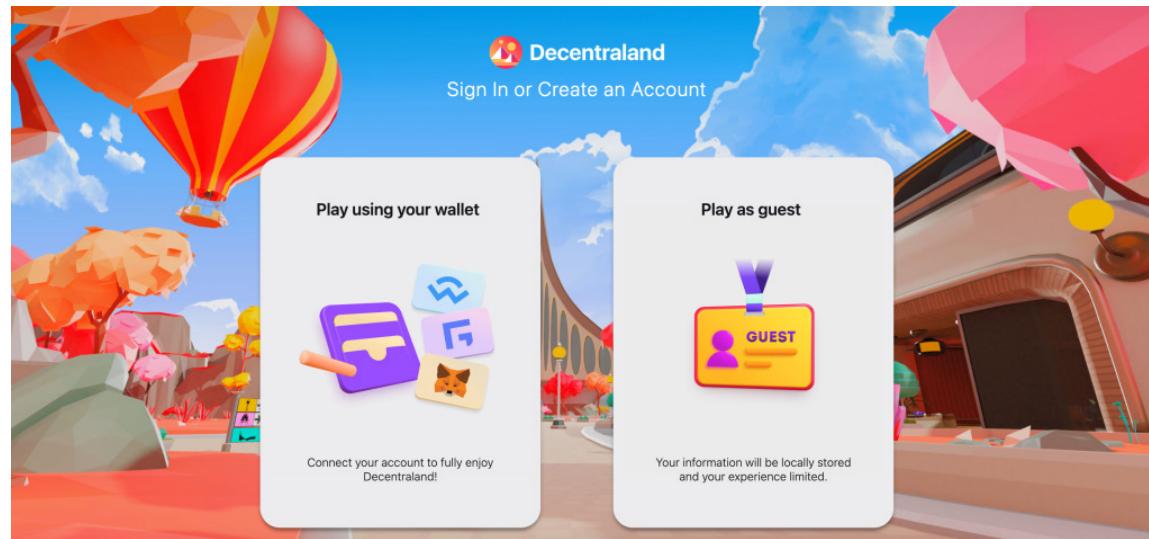


Figure 1: Decentraland opening screen.
FORTUNE

EXAMINING WEB 3 PRODUCTS AND AVATAR CREATORS

A major theme entering into this Web 3 era of the 2020s is the notion of immersive digital experiences replacing the IRL (Editor X, 2021). This has given rise to an obsession with the face as the stars of the screen, spawning innovation and interest in avatars, Memojis, and filters.

Decentraland is one example of a blockchain-based 3D virtual world where people can create, explore, and trade virtual plots of land using the MANA cryptocurrency (Figure 1). Fittingly, it has a Builder tool that lets people create and customise their own avatar from a range of preset assets across tops, bottoms, shoes, and accessories (Figure 2).

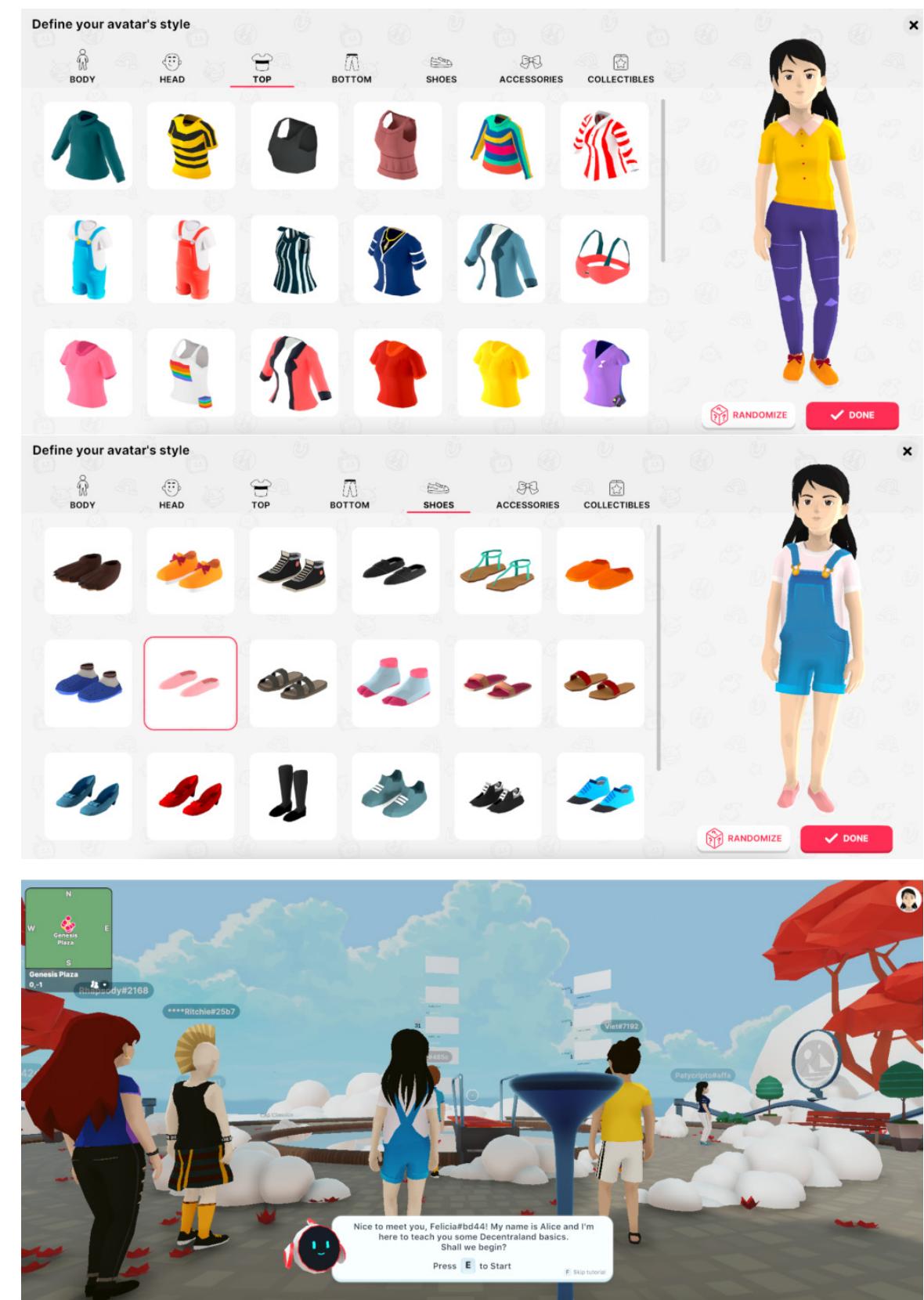


Figure 2: Decentraland avatar creation UI and in-game screens.
FORTUNE

NFT marketplaces are another type of popular Web 3 product. For instance, OpenSea is an NFT marketplace that lets individuals explore, collect, and sell NFTs much like how someone would shop for products on Amazon (Figure 3).

Fractal by Twitch co-founder Justin Kan is an NFT marketplace catered to the gaming use case, where designated in-game items can accrue and retain value and game companies can conduct NFT drops for in-game assets and sell to players (Figure 4).

PSYCHOLOGICAL PROFILING: UNDERSTANDING GEN Z ... IN GENERAL

To understand the target user, I broke down my research into two dimensions. One dimension was an investigation into understanding how Gen Z used digital technology at large, to work in broad strokes and acquire a preliminary mental model of what made and broke their digital experience. I chose Gen Z as the target demographic because they embody the users of today and tomorrow; about 30% of the global workforce is expected to be Gen Z by 2030 and being digital natives, 98% of Gen Z own a smartphone (Georgiev, 2022).

In fact, Gen Z can be regarded as the first generation of truly authentic digital natives because growing up in an always-on technological climate has moulded them into a hypercognitive cohort comfortable with collecting and cross-referencing many informational sources and implementing both virtual and offline experiences (Cristea, 2021).

Gen Z has an identity tied to being online, drawing no separation between the physical and digital realms. This is because Gen Z is largely web or die, with 58% feeling uncomfortable if they have to experience over 4 hours without Internet (Selig, 2020). Fittingly, 56% of Gen Z is friends with someone they only know online whom they have never met physically (Selig, 2020). For brands, attracting Gen Z successfully means being fun, authentic, and morally upright. Brands should strive to be fun because 65% of Gen Z use the Internet for entertainment (Silverstein, 2019). Brand authenticity is also paramount because 82% of Gen Z trust a company more if ad images used contain real customers (Silverstein, 2019). Furthermore, brand reputation matters because 72% of Gen Z is more likely to purchase from a company which contributes to social causes (Silverstein, 2019).

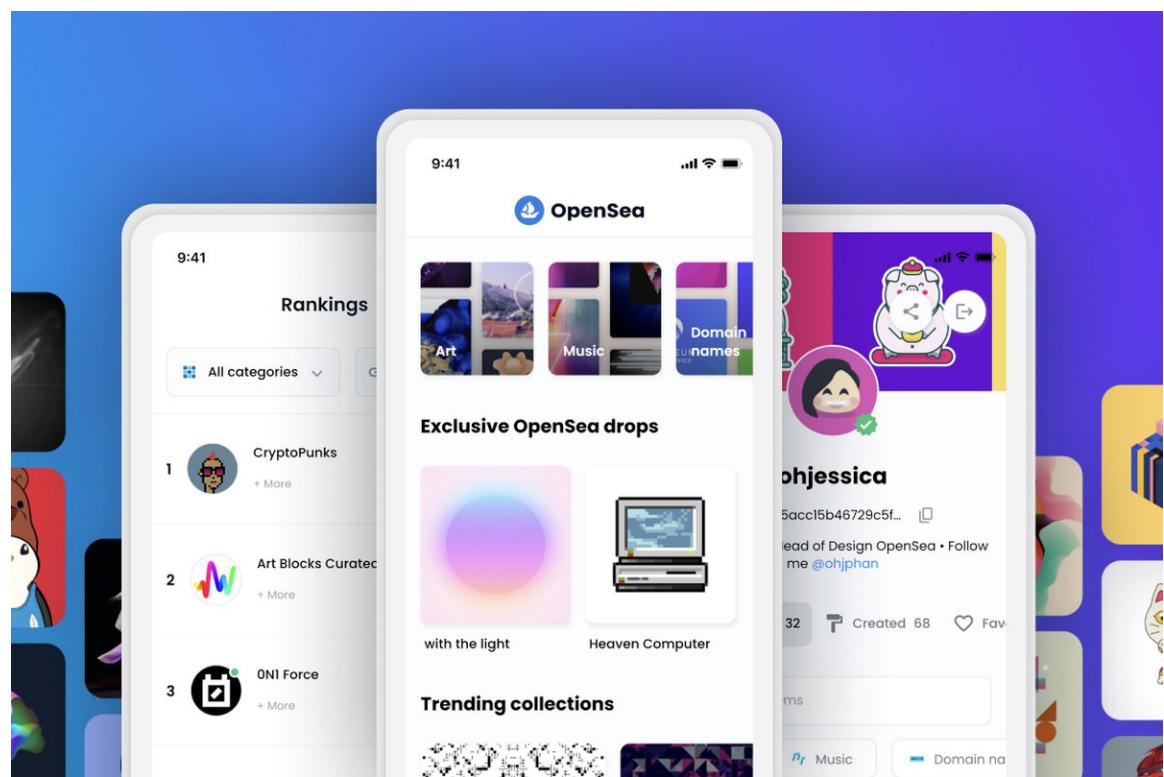


Figure 3: OpenSea mobile app.
THE VERGE

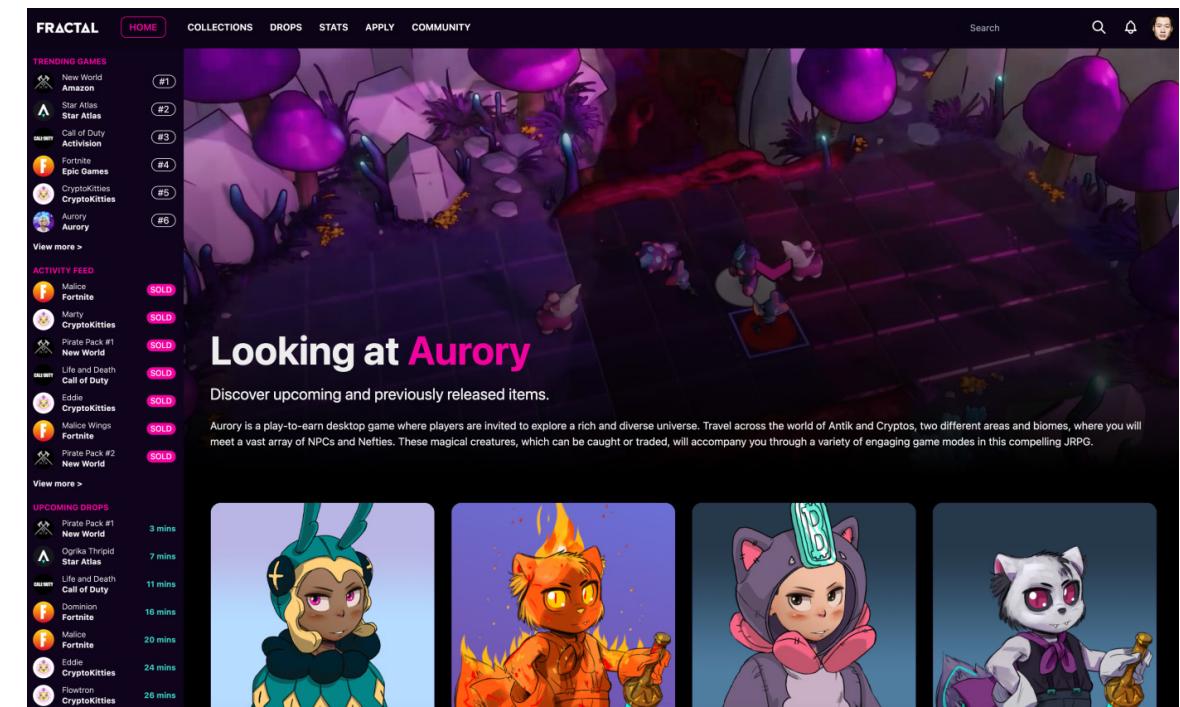


Figure 4: Fractal by Justin Kan; NFT marketplace for in-game items.
TECHCRUNCH

Having grown up with smartphones in their hands, Gen Z learned early on not to blindly trust the Internet, and have an innate desire for greater privacy and control over their personal information as a result. They are largely sceptical about brands' data privacy practices. Only 39% of Gen Z internet users in the US said they trust brands to keep their data safe—the lowest confidence rate of any generation (Lebow, 2021). As such, Gen Z largely dislike targeted ads but can make exceptions to accept them only if they are relevant and valuable to them (Herman, 2019). They can appreciate scenarios where data adds value to their lives but dislike it when large companies take advantage of this information to engage in predatory practices. This is because a vast majority of Gen Z are suspicious that large companies will actually operate wholeheartedly under good faith; a Harris Poll discovered 3 in 4 young adults dislike targeted ads on their social media and 57% will either decrease usage or stop using services due to targeted ads (Genzup, 2021). Housing personal information under a walled garden is also dangerous because platforms like TikTok are bound to have vulnerabilities according to cybersecurity experts; private content and information can be leaked publicly if cybercriminals gain access to individual accounts (Genzup, 2021).

With an identity interlinked between the digital and physical worlds, Gen Z possesses an innate desire for expression. The proliferation of virtual worlds popularised from games like Fortnite and Roblox are key drivers of Gen Z social lives and self-identity because online is where friends are met, new friends are made, and personalities are expressed. For this reason, Gen Z finds it important to show their beliefs and what they stand for; an example is teens on TikTok flipping their profile pictures to reflect a certain trend (Vatere, 2021). Since Gen Z perceive digital identities as an extension of themselves, they embrace individuality and enjoy using products that allow for personalization (Vatere, 2021). In this way, the virtual world becomes a blank canvas with endless opportunities for Gen Z to become the kind of person they truly desire to be; this is critical because social media has facilitated an ecosystem where there is a lot of peer pressure to appear a certain way to achieve validation from likes and comments. Feeling like current platforms are lacking in this aspect, “73% of Gen Z also feel they need more self-expression to live a happy, healthy life” (Vatere, 2021). In fact, 33% of Gen Z feel their online identity is their most authentic self, with 55% finding the Internet to be a more creative environment than their physical experiences (Vatere, 2021).

PSYCHOLOGICAL PROFILING: UNDERSTANDING THE GEN Z SHOPPER

The other dimension I investigated was the Gen Z shopper, given my interest in exploring new avenues in the retail shopping experience.

In line with the desire for digital self-expression, Gen Z expects digital services like online shopping to contain personalization and customization offerings just like social media—an interesting aspect of Gen Z compared to other generations is 75% of Gen Z is more likely to purchase a product if they can customise it (Silverstein, 2019). This sentiment is evident in how Gen Z is willing to spend money purchasing non-physical assets to customise avatars; 65% of Gen Z have bought virtual items in-game (Vatere, 2021). In fact, in 2020 alone, Roblox users spent \$1.9 billion on the game's virtual currency which was a 171% increase from 2019; furthermore, \$700 million was spent in the first half of 2020 by Roblox's 36.2 million users—54% of which are under 13 years old (Vatere, 2021).

Being a socially connected cohort, Gen Z's shopping tastes are both influenced by trending products and their ability to offer novelty and diversity (Ko, 2020). They are willing to regularly research to identify what is hot and how they can own a certain style, with 43% of Gen Z visiting shopping sites daily (Ko, 2020). Gen Z supports the idea of finding a lewk, “a personal style signature so individual it's almost indivisible from you” (Hyland, 2015).

A lewk cannot be something like wearing jeans daily; it must be visibly apparent and distinct, like a Schiaparelli lobster hat, and may or may not be worn daily.

Another unique aspect to Gen Z is their unwillingness to waste time and leave anything to chance (Ko, 2020). Gen Z enjoy knowing what to expect before committing to an experience or purchase and prefer to research and buy on mobile for optimal convenience. This helps give Gen Z confidence that they are making the right purchase decision. As such, the pragmatic preference to make informed purchase decisions leads Gen Z to frequently explore and evaluate a range of options first (Casey, 2021). This is typically done in an omnichannel fashion, where product knowledge is gathered from multiple channels digitally and physically; “customers want to be able to order online but return in store, or look at a product in a showroom and buy it online” (Rivera, 2022).

For most Gen Z shoppers (60%), price is the paramount factor behind a purchase decision and choosing where to shop (Hanbury, 2019). For this reason, a unique shopping trait to Gen Z is a dual priority to be unique and save money. Fiscal pragmatism is achieved through shopping for low cost items and buying more expensive clothes which last longer (Hanbury, 2019). Because Gen Z do most of their shopping online from their phones, they rarely go to physical stores to try clothes on and simply resell it online if a piece is not to their liking.

The hesitance to pay full price for clothes also leads to another behaviour unique to Gen Z, which is brand agnosticism (Hanbury, 2019). Gen Z are not married to a single brand and emphasise transparency and authenticity, preferring it when brands reflect them as accurately as possible; for instance, American Eagle saw sales increase 14% when they prohibited photo retouching for their ads (Hanbury, 2019).

A final point here is that Gen Z are attracted to shopping for sustainable products and brands, being willing to pay more for them (Casey, 2021).

PAIN POINTS: PHYSICAL SHOPPING

I then looked at pain points in the physical shopping experience to set the groundwork to identify opportunities where digital solutions could address physical problems.

One of the biggest annoyances and causes of dread from customers who shop at brick and mortar stores is long lines at checkout, with 66% of consumers claiming this as a key retail pain point (Robinson, 2021). It only takes 6 minutes before customers leave a store without purchasing anything due to long checkout lines (Robinson, 2021). Lengthy queues occur mostly due to price checking inquiries, inefficiency when replenishing cash in tills, and a shortage of available cashiers to hop on other tills.

Another pain point is difficulty finding a sales associate or finding one who is well-informed about product knowledge. 64% of consumers claim a top frustration is when store staff are unable to offer adequate context when asked, which diminishes the consumer experience and hurts sales (Robinson, 2021).

Finding the correct product is a challenge for many brick and mortar shoppers, with 65% citing this as a major challenge (Robinson, 2021). This is problematic because customers of today expect to be able to locate what they are looking for efficiently, with 67.3% of consumers usually leaving a store empty-handed because they could not find their desired item (Robinson, 2021). This issue is exacerbated by messy sales floor shelves and hanger rails, where items can often be placed in the wrong area resulting in a price mismatch. For instance, during the COVID-19 pandemic, Zara shoppers complained of hour-long lines, poor customer service, and a messy sales floor from labour shortages (Hanbury, 2021). Few employees worked in the store and there was only one cashier.

PAIN POINTS: ONLINE SHOPPING

While ecommerce lets people browse and purchase products in a few clicks, one aspect of the online shopping experience known for being mediocre and sometimes agonising is shipping. Shipping can take forever so it can be a long wait for a product to arrive, which is especially inconvenient during critical moments like birthdays, Christmas, or Valentines Day.

Due to the inconveniences and complexity of shipping, the return experience is either super easy or difficult. This is an issue because roughly a quarter to a third of all e-commerce purchases are returned due to two main reasons (Dilworth, 2021). One is that newer online shoppers are not as savvy, so there becomes a mismatch in expectations to reality in their purchases; “22% of online returns happen because customers felt a product looked different in real life” (Dopson, 2021). The other is that many online shoppers resort to buying multiples of an item in different colours or sizes to compensate for being unable to physically try-on items in-store, or if they are buying from a brand they are unfamiliar with (Dilworth, 2021). Not surprisingly, “return rates for ecommerce retailers are 11% higher than for retail stores” (Dopson, 2021).

Being unable to see and use products in the flesh is in fact a severe downside to the online shopping experience.

This has prompted shoppers to use a mix of channels from clicks to bricks, where many begin their journeys online and compare numerous options virtually across several retailers (Dopson, 2021). Before making a purchase decision, shoppers then prefer to see the product in the flesh at a brick-and-mortar store; this is typically regarded as brick-and-mortar’s most significant advantage over ecommerce-only competitors (Dopson, 2021). Because of the lack of interaction with the product, ecommerce shoppers that can’t feel, try on, or inspect a product may cause buying hesitation (Shopivo, 2019).

Other pain points common to the ecommerce experience are a slow website and checkout process. A one-second delay can generate 11% fewer page views, a 7% drop in conversions, and a 16% decrease in customer satisfaction. 79% of customers also will not return to an online store with poor loading speeds (Žiaukė, 2021). A lot of ecommerce sites also lack solid customer support, with 86% of shoppers being willing to pay more for responsive and informative customer service (Žiaukė, 2021). This is sometimes a result of poor product descriptions which lack adequate context for a shopper to understand what the item is, who it is for, and how it can benefit them. Furthermore, a common frustration of online shopping is hidden fees. Customers hate paying extra shipping fees, especially when the extra costs are not clearly communicated. Shoppers expect full transparency on every applicable cost (Žiaukė, 2021).

ZOOMING IN: EXAMINING THE CURRENT FITTING ROOM EXPERIENCE

Armed with a foundational understanding of Web 3 technologies, Gen Z behaviour, and flaws across physical and online shopping, it occurred to me there was an opportunity to address gaps in the current retail shopping experience using the latest digital concepts from the lens of shopping for fashion.

Keeping this in mind, a touchpoint of the shopper journey I ended up researching deeply about was the fitting room. Fitting rooms represent a critical moment in the shopping process, with over 50% of consumers preferring to purchase clothes in-store over online because of fitting room availability (eMarketer, 2019). This is because being the final step before a purchase is potentially made or abandoned, shoppers make key buying decisions in the fitting room. Furthermore, fitting rooms are “routinely mentioned in customer surveys as the most influential factor in determining overall satisfaction and have a significant impact on the reputation or perception of a brand” (Engage, 2021). Shoppers who use a fitting room are 71% more likely to purchase than those who only browse (Retail Customer Experience, 2009).

Yet, only 1 in 10 shoppers are satisfied with the current fitting room experience (Engage, 2021). Long fitting room lines like in checkout are an issue, as 19% of shoppers will walk away if they see 10+ individuals queuing (Omeragic, 2019).

This can be chalked up to the innate inefficiency of the fitting room process, where many stores limit the number of items allowed to be tried on in one instance, for the sake of loss prevention (Alert Tech, 2018). As such, the try-on process is prolonged when customers have to try on pieces in batches. Another major issue with fitting rooms is they are “often messy, fitted with poor lighting, cramped and lack any digital touch points” (Mangtani, 2018). This ultimately turns away shoppers and harms brand image, with many shoppers who try something on failing to return a second time and simply giving up on searching for something ideal. A dingy, unorganised and crowded fitting room also fails to let individuals feel comfortably vulnerable; the act of trying on new clothes means people are examining their bodies, partially naked in a public space. Current fitting rooms attempt to solve this issue by using bright lights and flattering mirrors to generate the illusion of an outfit which looks good in front of the mirror, but this charm is lost post-fitting room and only disappoints the customer later (Omeragic, 2019).

RESEARCH QUESTIONS

Hypothesis formation

I began by synthesising my learnings into a succinct, people problem statement:

Shoppers often face a subpar and inefficient fitting room experience, which hinders their creative output and distracts them from their primary focus—making a buying decision.

With my compass established, several design opportunities could now be mapped out from the various pain points and insights I discovered during research. It became evident that new retail shopping initiatives needed to be created to remove the friction in the current fitting room experience, provide one for the online shopping experience, and satisfy the needs of the shoppers of today and tomorrow.

Physical shoppers are stuck in long checkout and fitting room lines.

Physical shoppers waste more time by having to try on clothes in batches due to fitting room item limits.

How might we streamline the try-on process so fashion shoppers can make informed purchase decisions easier?

Physical and online shoppers are limited by the types of items and styles available in a particular store.

Messy, cramped, and poorly lit fitting rooms fail to let customers be comfortably vulnerable and result in the fitting room being an experience most dread.

Gen Z are voracious researchers and avid experimenters always keen to find new looks at the best price point, without being married to a certain brand.

How might we foster limitless expression and empower shoppers to reach their creative potential?

Online shoppers can't hold or touch an item physically in their hands, which leads to a mismatch in expectations once they receive a shipped purchase.

How might we allow shoppers to feel the texture of fabric using the latest tech?

Online shoppers can't physically try on clothes they develop an interest in.

Online shoppers are forced to buy multiples of an item to find the ideal one, and go through the hassle of returning those that do not work.

How might we enable shoppers to accurately create a visual reconstruction of their body digitally?

How might we enable shoppers to efficiently see how they look in different styles and sizes?

Gen Z desires more self-expression digitally to feel happy and healthy.

How might we enable shoppers to share different looks with each other across different platforms?

Fitting rooms have not changed or improved since the 1940s (Garcia, 2016), and commerce is increasingly moving towards a future with omnichannel shoppers.

How might we create the shopping experience of tomorrow?

VISUAL APPROACHES

Methodology

PRODUCT DESIGN PROCESS

My approach to conceiving the mobile app consisted of a stepwise process. From the initial research, I defined feature scope for a MVP and worked on the interaction design, mapping out key steps in the user flows so I could develop an early understanding of what screens I needed to design. Core features include: Avatar creation, searching for items, dressing up the avatar, feeling fabric, purchasing items, saving outfits and individual items, and exporting the avatar to other platforms (Figure 5).

Before I started designing the screens, I established a preliminary design system containing various type styles and button styles (Figure 6). This was done to ensure I was designing with some level of visual cohesion early on. To let myself work fast and jump straight into mid-fidelity, these elements were componentized in Figma so I could efficiently update them later when I transitioned the screens into high-fidelity.

An 8-point grid was also set up prior to pixel pushing so that all elements are positioned with a visual hierarchy and can scale more consistently, removing the guesswork while maintaining a visual rhythm. This means the space between elements horizontally and vertically will always be a number divisible by 8. A 6-column grid was used with 16pt margins and 8pt gutters on an iPhone 13 Mini (Figure 7).

Next, I created mid-fidelity screens using the early design system, working through the flows I created and exploring different layouts and variations (Figure 8). More on this later.

Once I had a solid foundation for the mobile app and all core features accounted for, I dived into 3D modelling the avatar (Figure 9). This involved teaching myself Blender. More on this later too.

Next steps are for me to further establish the Jiyu brand, evolve the design system and move screens into high-fidelity, and prototype the core flows. After brainstorming a name list, I am currently leaning towards naming the app Jiyu, which is Japanese for freedom (Figure 10). It is short and memorable, and speaks to the ethos of the app—empowering people with the freedom and ability to find themselves, and express who they want to be online and offline.

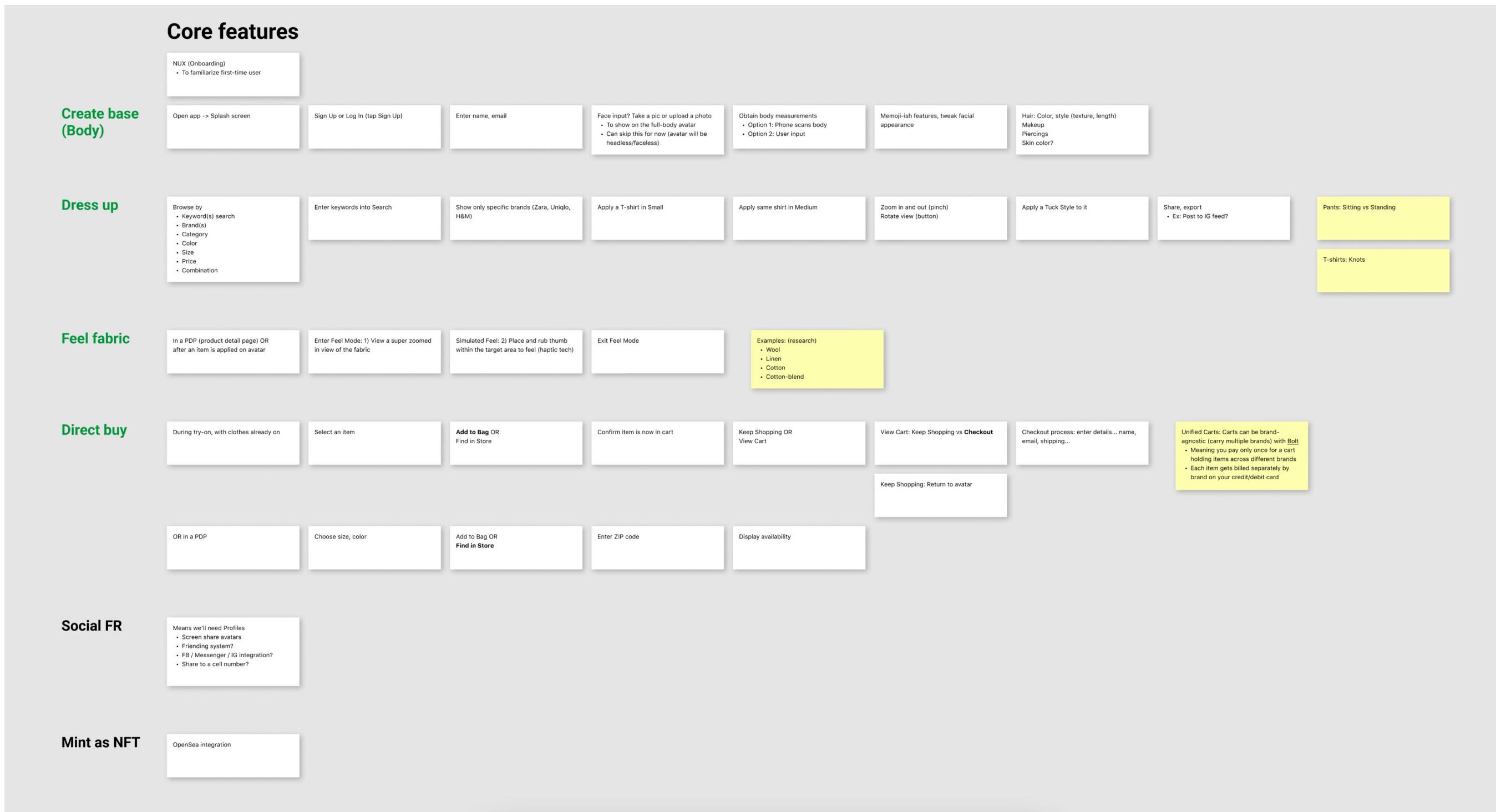


Figure 5: Fleshing out core features and user flows in Figma.
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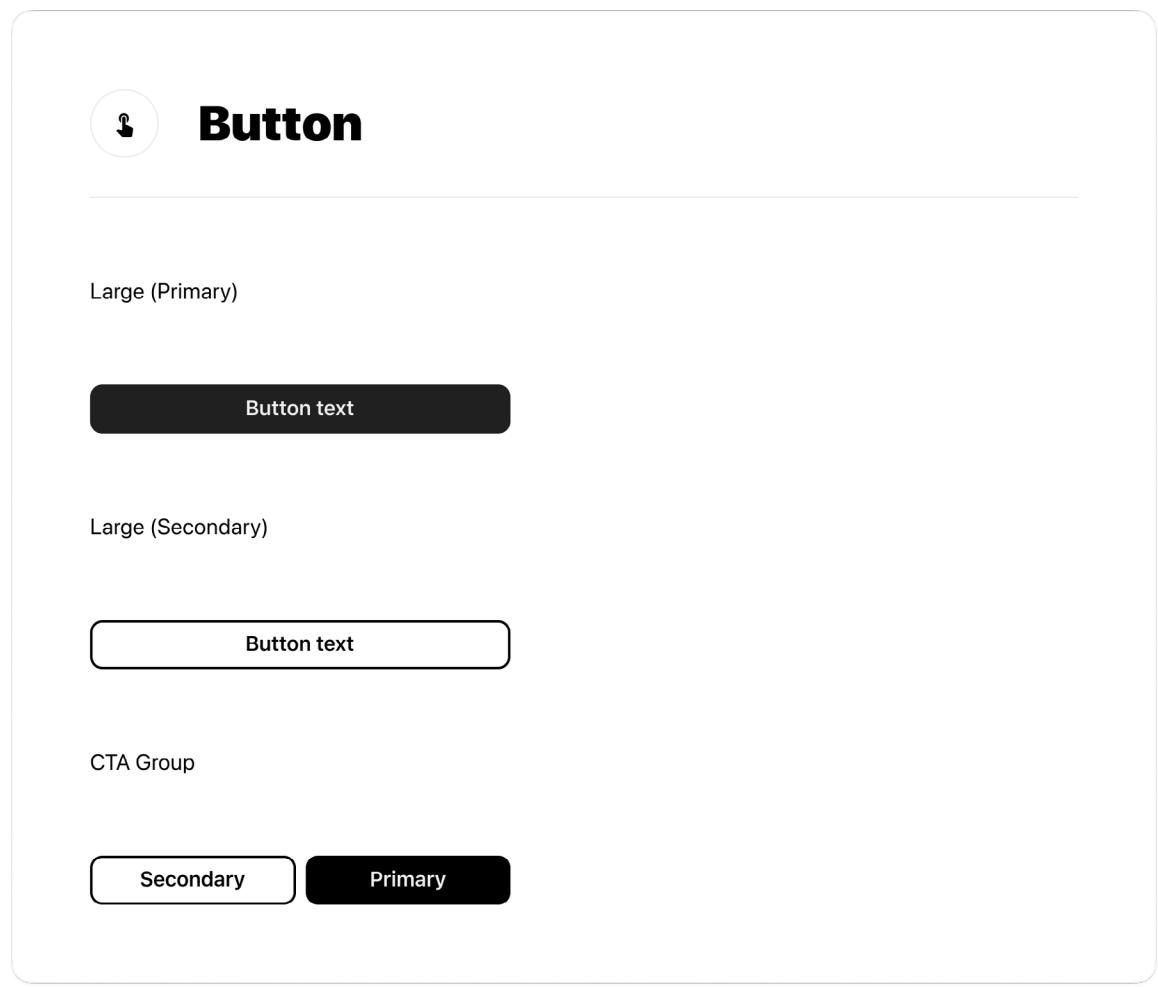
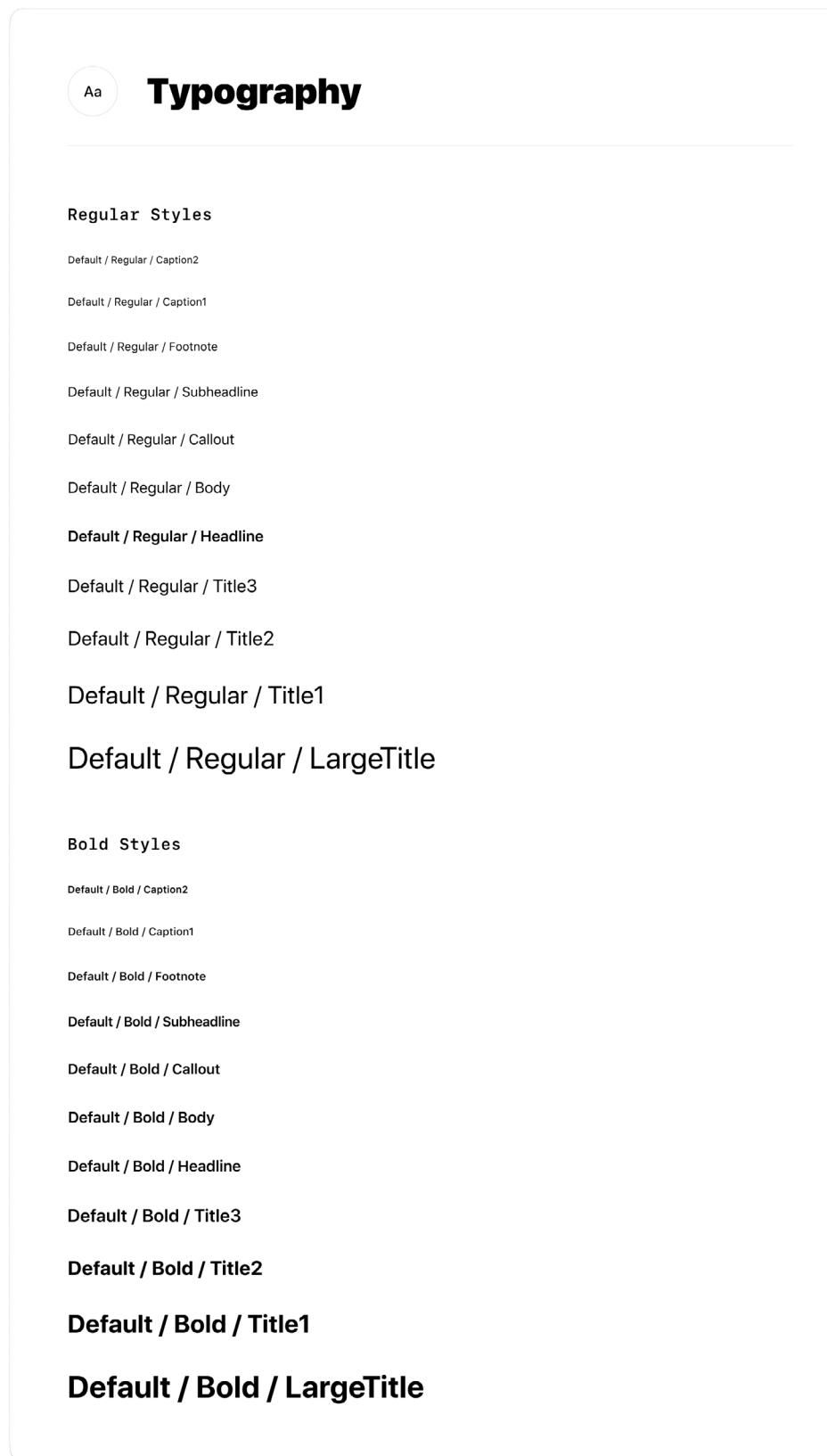


Figure 6: Early type and button system in Figma for mid-fi designs.
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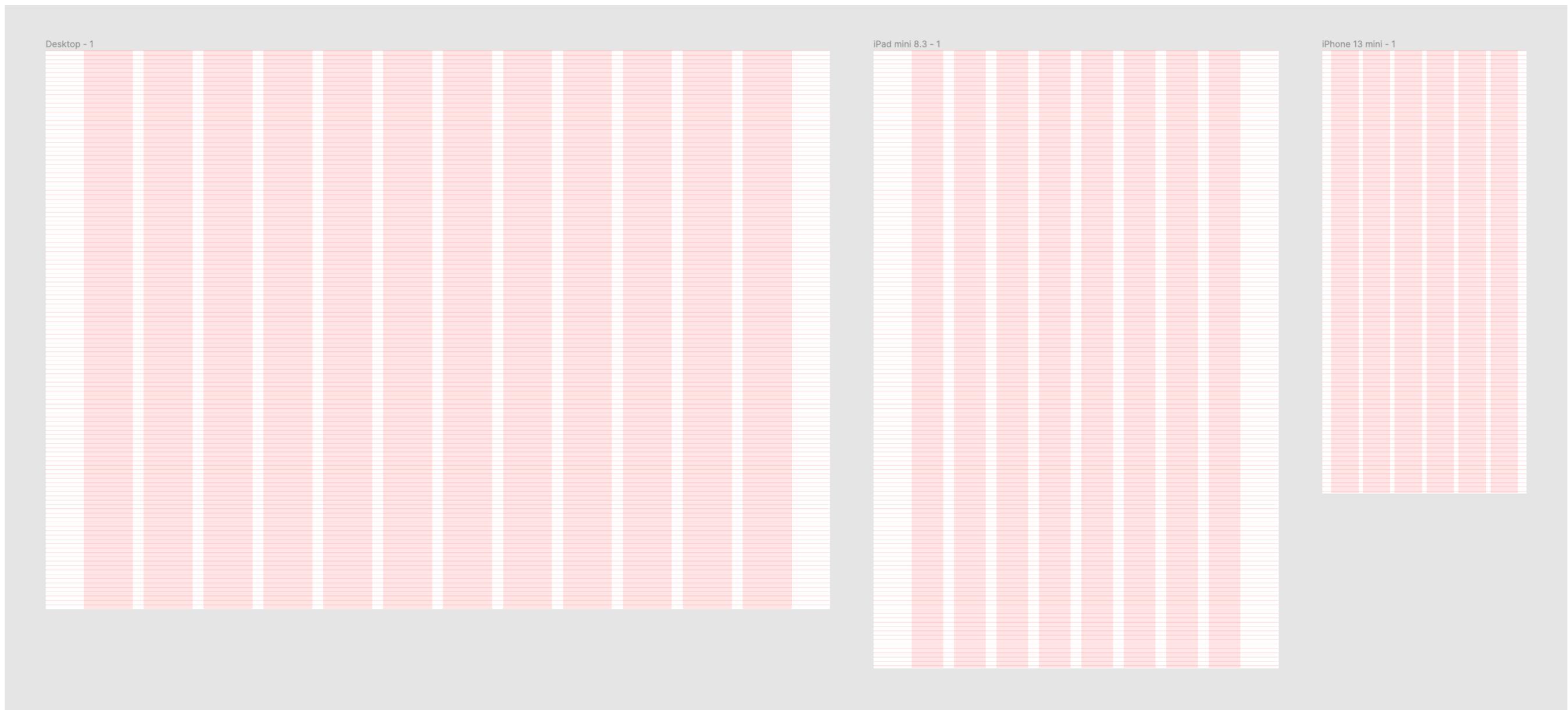


Figure 7: Vertical and horizontal grid system following the 8-point grid, for desktop, tablet, and mobile for safe measure.

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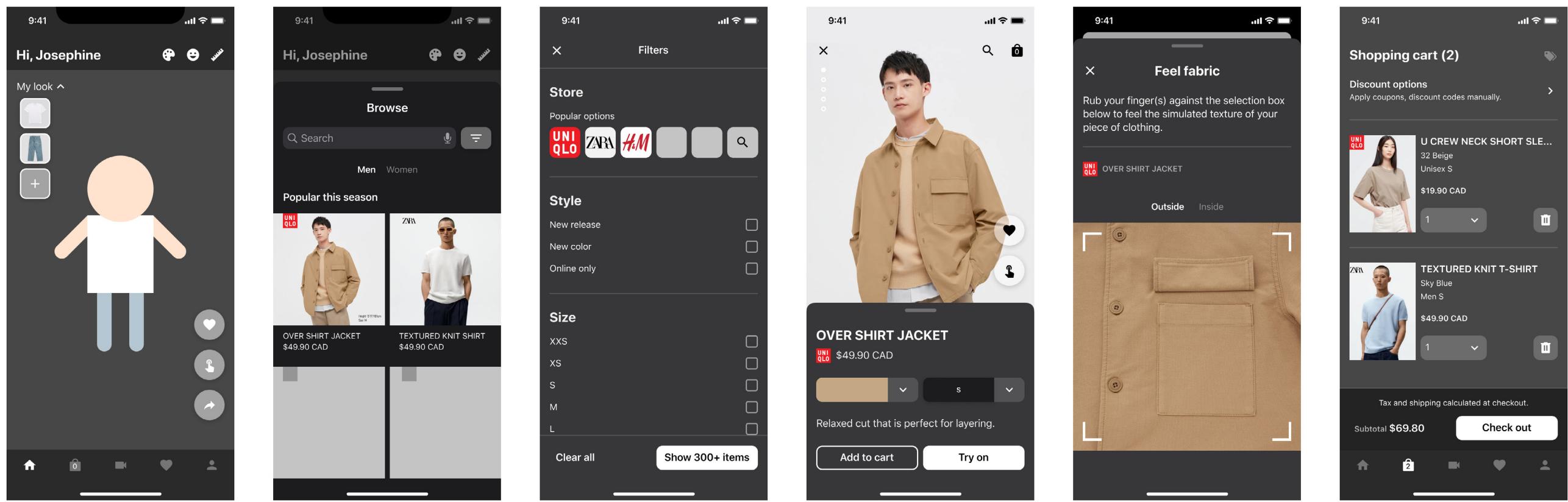


Figure 8: Random assortment of mid-fi screens.

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Figure 9: 3D modelling the avatar in Blender.
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Name ideas:

- Showroom? // Slogan: Do it your way.
- Stylebend? Stylebender?
- Jiyu // Slogan: Be who you want to be. Express. Wherever you are. // The idea that you're free or have the freedom to be as you wish, both online and physically. 'Jiyuu' is Japanese for freedom. // Can use Wings as a motif.
- Quin (from Mannequin)
- [x] Portal // The idea that shopping and dressing up from different stores is like entering portals to different worlds. Also fits well into the notion of decentralized fashion and online shopping. // Can use the "O" as a logomark + motif for a portal.
 - Omni? Shortened from "omni-channel shopping".

Figure 10: Brainstorming name ideas in Notion.

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USER TEST PLAN

Another aspect of my primary research was user testing. This was done with the intent to get some fresh eyes on this project to catch possible blind spots and acquire new perspectives to elevate product quality and gauge product-market fit. For this reason, the two participants used in the test were both designers in the industry with product design experience—Man Wai Wong who is VP and Group Creative Director of Design at Leo Burnett, and Jane Speed who is President and Creative Director of Carte Blanche Creative. The test occurred in the last week of February because by then, I had fleshed out most of the mid-fi screens containing the core features.

For the test session, I conducted concept testing by using a slide deck to walk through mid-fi screens depicting key features, where I explained functions and design decisions. I felt a concept test was the ideal type of test to perform because it entails producing insights about whether users understand how to use a product/feature, and whether they would want to use a product/feature. This was critical to inform if I was approaching a problem with the right mindset, or if I needed to strategically pivot, since I can gain early insight on all levers of product design—product thinking, interaction design, and visual design.

In terms of feedback I was looking for, I wanted to know if they had any general thoughts or callouts to my designs and technological approach. I also wanted to A/B test some variations for the PDP and Search Filter screens to determine the most effective approach for the context of fashion shopping (Figures 11, 12).

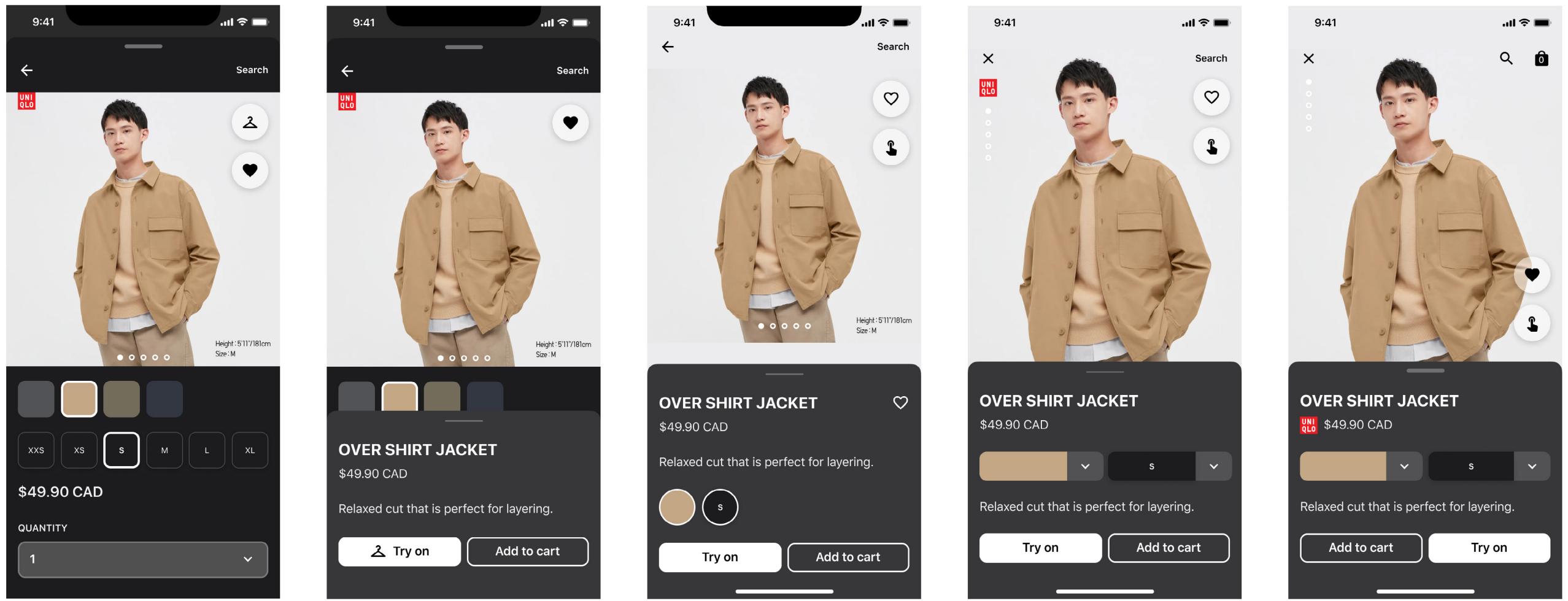


Figure 11: Layout variations for PDP in Figma, used for A/B testing.
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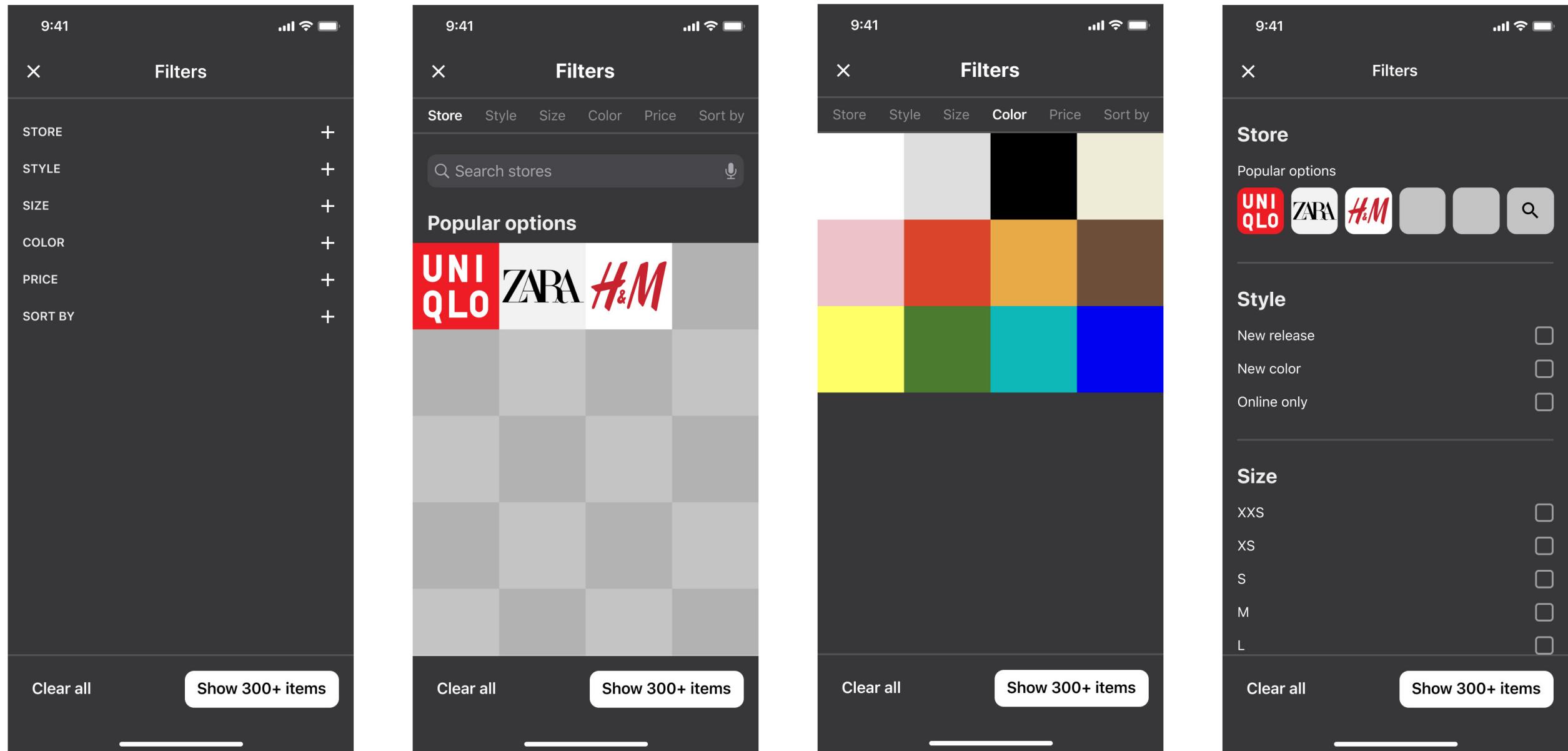


Figure 12: Layout variations for the Search Filter in Figma, used for A/B testing.
Tried accordions, tabs, and a stacked layout.

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RESULTS

EARLY AVATAR CONCEPT

Before I had settled on the current avatar concept for shopping, my initial plan for the avatar concept was quite different. I had wanted to fuse the idea of a standard avatar creator with a built-in NFT marketplace. An integrated NFT marketplace could provide real value to users by offering an accessible platform to buy and sell avatars and avatar assets, further fostering a digital community. Moreover, the avatar creator could extend beyond selecting from a preset range of options and implement basic creation features, like custom mesh geometry, scaling, and extrusion to name a few (Figure 13).

However, I soon ran into two major roadblocks. One challenge was in custom creation and geometry. From examining existing 3D modelling services like Blender and Maya, I realised with every custom creation offering, there was always incentive to include more functionality. Where exactly does the rabbit hole stop? Conversely, would I be harming the UX by including a feature but not expanding on its capabilities?

This made it clear the concept of an avatar creator can really only go one of two ways with no in-between—either simple with limited creation capabilities while maximising ease of use, or complex with a plethora of creation options and higher learning curve. Therein existed another issue in lack of conceptual novelty. Skew towards being basic and the end result would look like Memoji. Skew towards complexity and it would resemble Maya or Blender too closely.

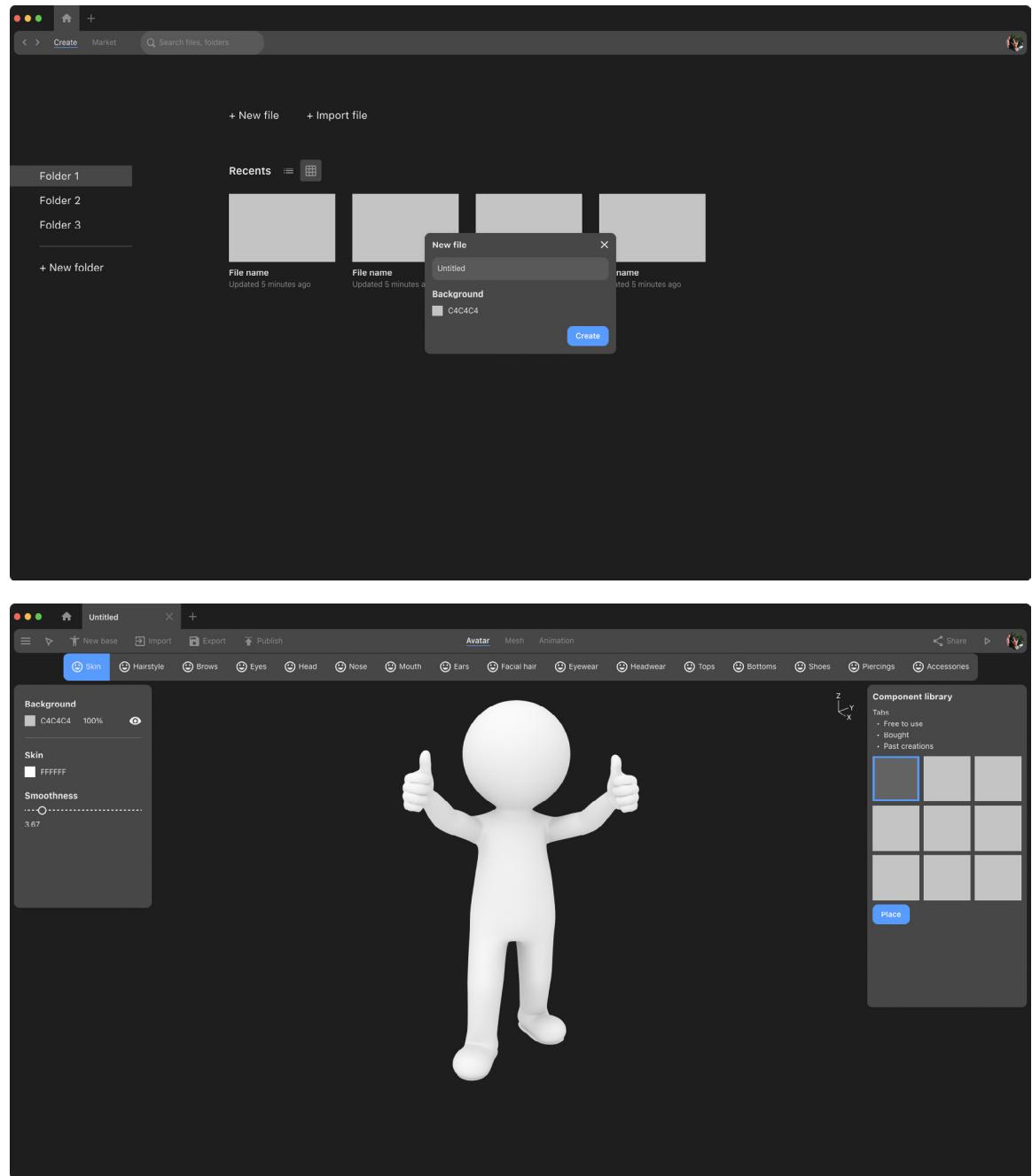


Figure 13: Explorations for the early avatar concept, in Home and Create mode.
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EXPLORING AN AI SHOPPING ASSISTANT

Befuddled, these realisations led me to drop the avatar concept briefly and pivot to exploring problems in the retail shopping experience to see if I could approach my project differently from new angles. I conducted competitor research on existing shopping services to better understand what problems they were solving for and what problems they were not addressing. One competitor examined was Karma, an all-in-one online shopping assistant (Figure 14). Karma lets shoppers save products and notifies them when coupons for said products become available, offering cashback for usage as well. While it focuses on simplifying decision-making and purchase planning, I realised it did not focus on bettering the brick-and-mortar shopping experience.

Another competitor examined was the LiVE by CF mobile app (Figure 15). This is a shopping assistant for CF shopping centres that lets shoppers find products in the mall, manage CF gift cards, navigate the mall, and create shopping lists. However, it fails to display smart recommendations if a desired product is unavailable and doesn't display product availability specific to a store or at all.

From assessing these competitors, I spotted an opportunity to better the physical shopping experience. Surprisingly, despite the COVID-19 pandemic spawning an explosion in ecommerce, research showed in-person shopping remains a strong preference for people, with 45% of consumers aged 18–34 still preferring to shop at physical locations (Marhamat, 2020). Furthermore, early online research showed a major pain point of brick-and-mortar shopping is out-of-stock scenarios when a shopper can't get their hands on their desired item. Another pain point related to the previous is shoppers being unable to search for a store's inventory themselves to gauge product availability, as opposed to having to wait for a sales associate (Figure 16).

What if there could be an AI shopping assistant for mobile or HoloLens that lets a physical shopper scan a product tag to display product information and stock? And what if the system could also provide smart recommendations for alternatives based on a shopper's preferences? These could be based on parameters like brand, geographic threshold, keywords, price range, reference images. My curiosity led me to explore the interaction design of such a concept and I mapped out preliminary user flows (Figure 17). However, after consultation, I dropped this concept too because it was probably not technologically viable for a user to have access to a store's inventory information for every store in existence.

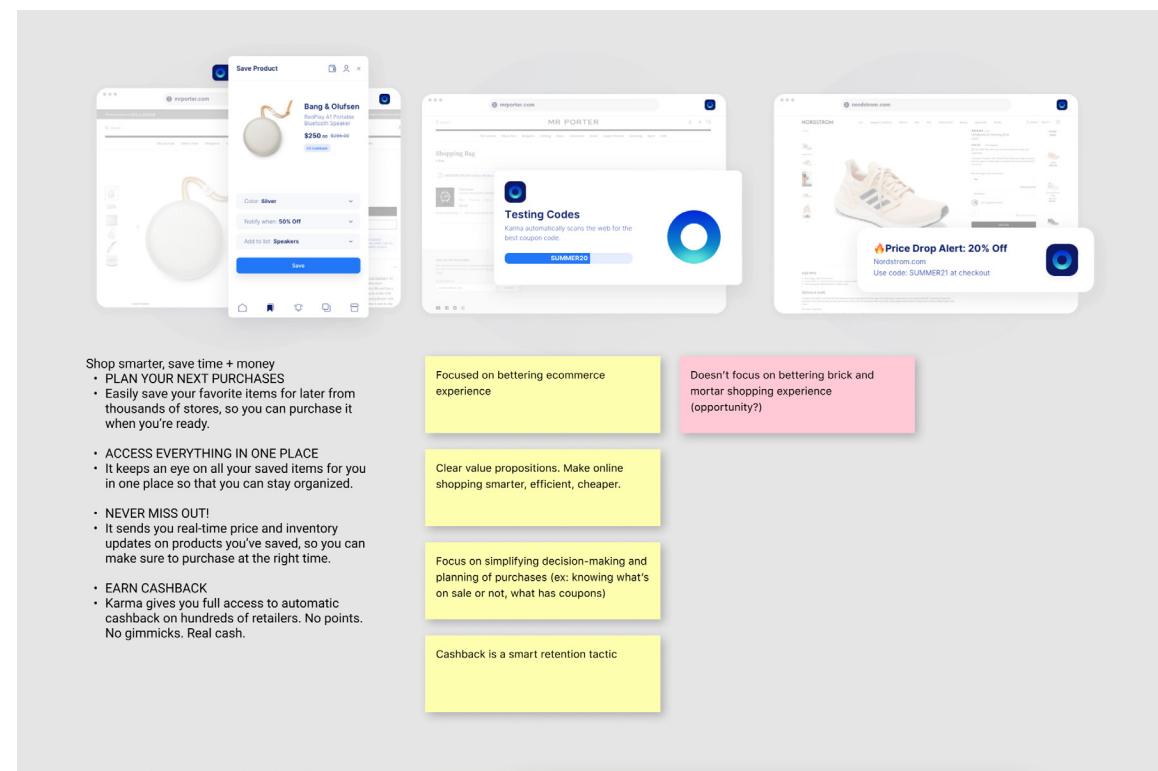


Figure 14: Analysing the Karma plugin in Figma.

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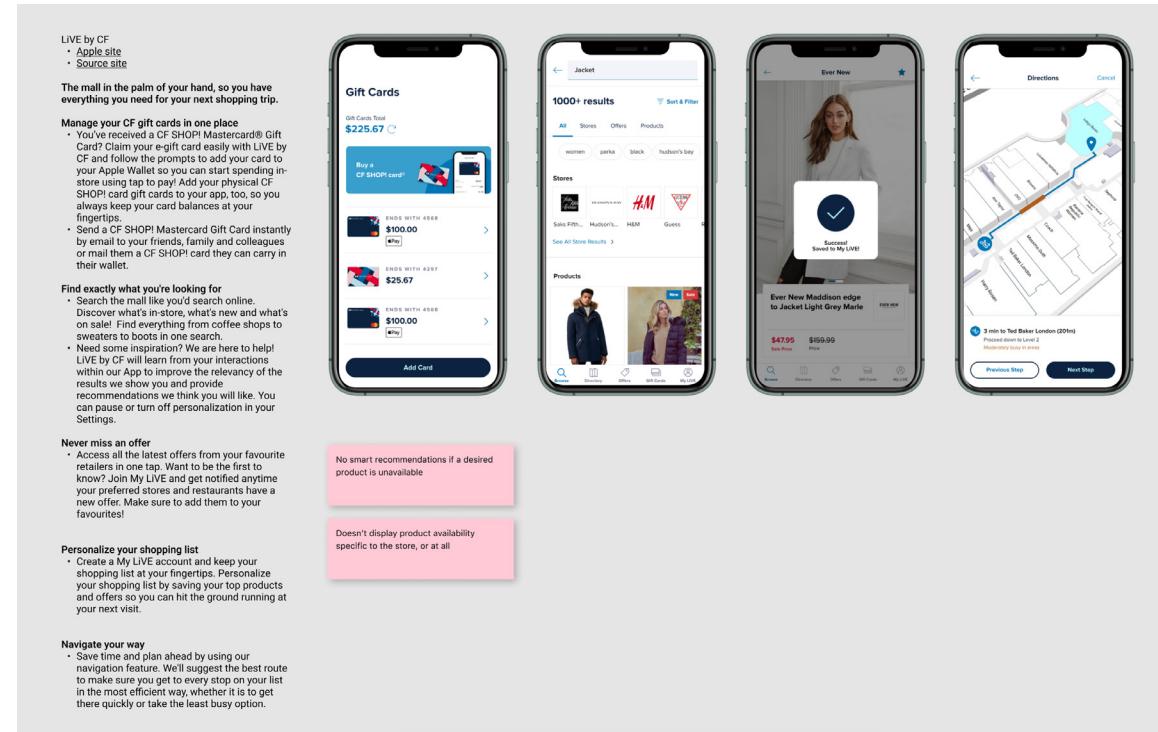


Figure 15: Analysing the LiVE by CF app in Figma.

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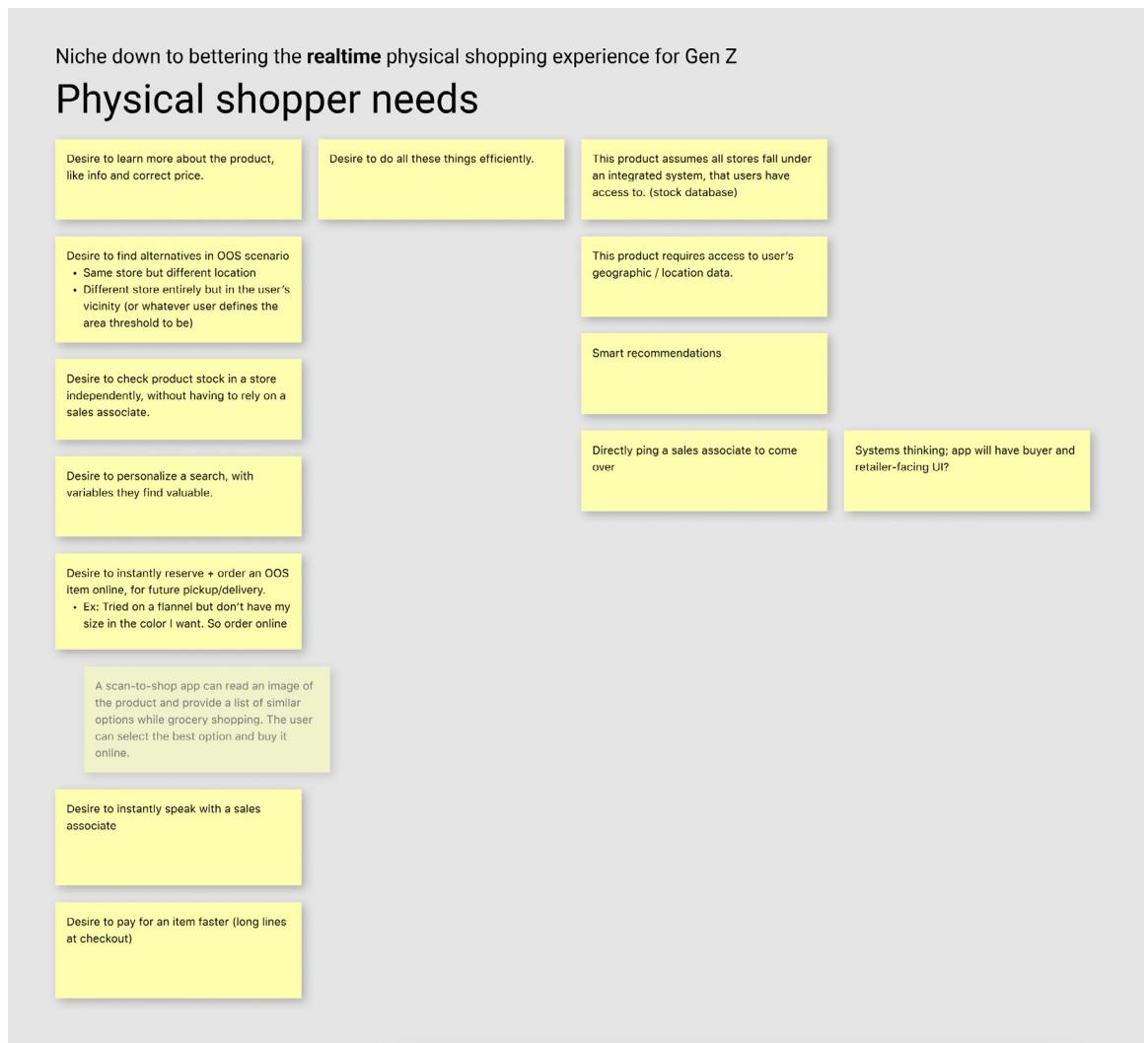


Figure 16: Physical shopper pain points and desires.
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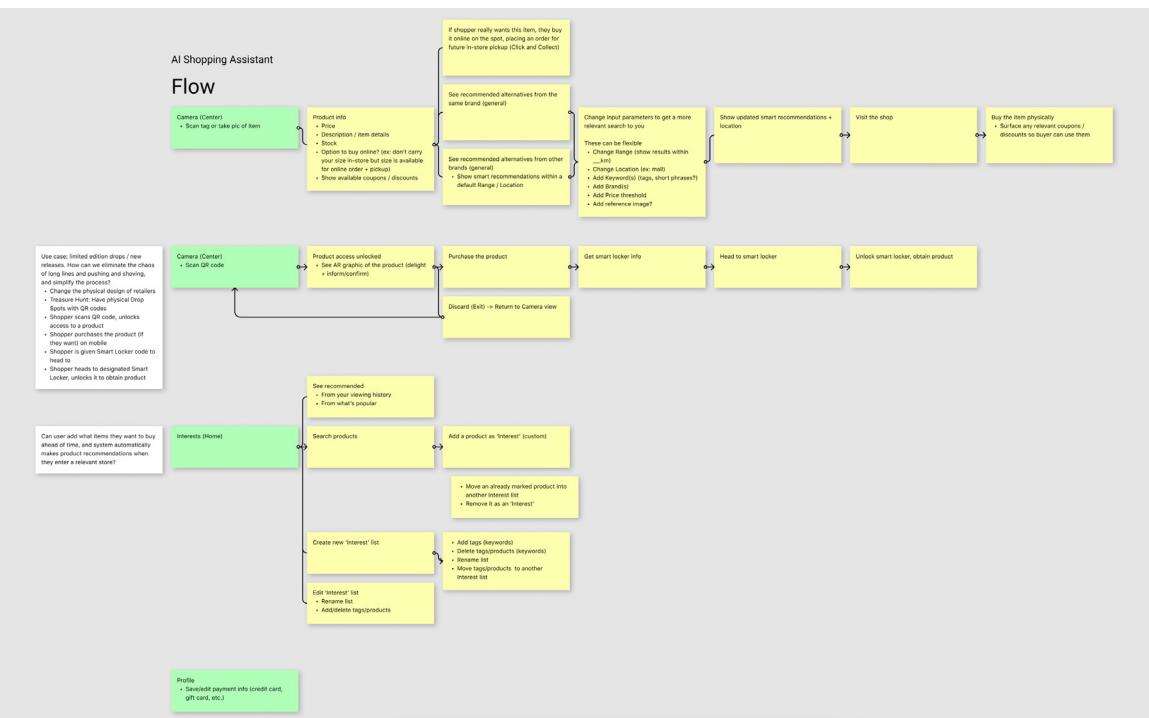


Figure 17: Flows for an AI shopping assistant app.
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While I ultimately ditched the AI shopping assistant concept as well, it provided a new avenue to reinterpret the avatars concept. Going in a new direction and researching about shopping opened a new door of problems in the retail shopping experience, setting the foundation for the research that was mentioned in the literature review. This eventually led me to merge the idea of an avatar creator with the fashion shopping use case, to discover and address new needs in the fitting room experience.

ANALYSING CURRENT FITTING ROOM SERVICES

More competitive analysis was done to understand current solutions and possible opportunities that aligned with my literature review. Given the pain points in fitting rooms, there have been some endeavours to improve the experience. The Ralph Lauren interactive mirror uses RFID technology to identify the items a shopper is bringing into a room (Omeragic, 2019). From there, a shopper can see product information, inventory, and recommended pieces to pair with. Lighting can also be adjusted and there is a button to call for a sales associate for assistance. One flaw with this concept is that it still requires the user to occupy a physical space to try clothes on, despite attempting to offer more aid to the user during the process (Figure 18).

Another product I examined was the Gap Dressing Room app, which lets people try on clothes with AR technology (Liberatore, 2017). Here, shoppers select the Gap piece they want to try on and a preset body type, which projects a digital mannequin with the item worn. A flaw with this approach is inaccuracy of the shopper's body, since one can only select from five body types: extra small, small, medium, large and extra large. It can also be difficult to determine whether a particular outfit works for the specific person in question, since the projected mannequin is headless without face or hair (Figure 19).

The last service I investigated was Ray-Ban's virtual try-on tool on their website. This service uses face-mapping technology to generate a virtual model of the glasses onto the face, letting shoppers experiment with any pair of glasses before committing to a purchase decision. A flaw here is that the mapping technology is prone to jankiness; if one moves too far out of range or into weird angles, the 3D model of the glasses easily distorts and fails to deliver an accurate representation of the tangible product (Figure 20).

Keeping these services in mind and their various shortcomings, I spotted an opportunity to define a new virtual fitting room experience for online shopping using custom avatars that extended beyond a generic mannequin.

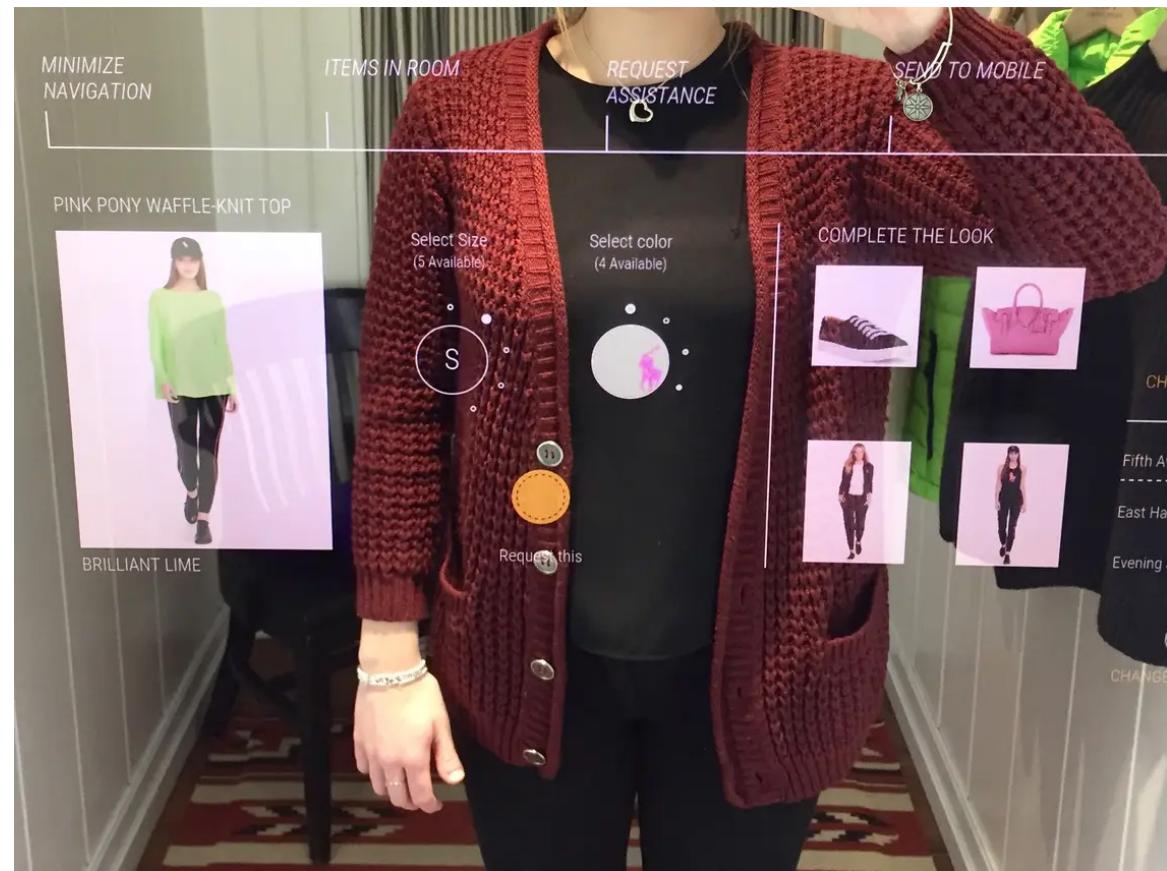


Figure 18: Ralph Lauren Interactive Mirror in action.
BUSINESS INSIDER

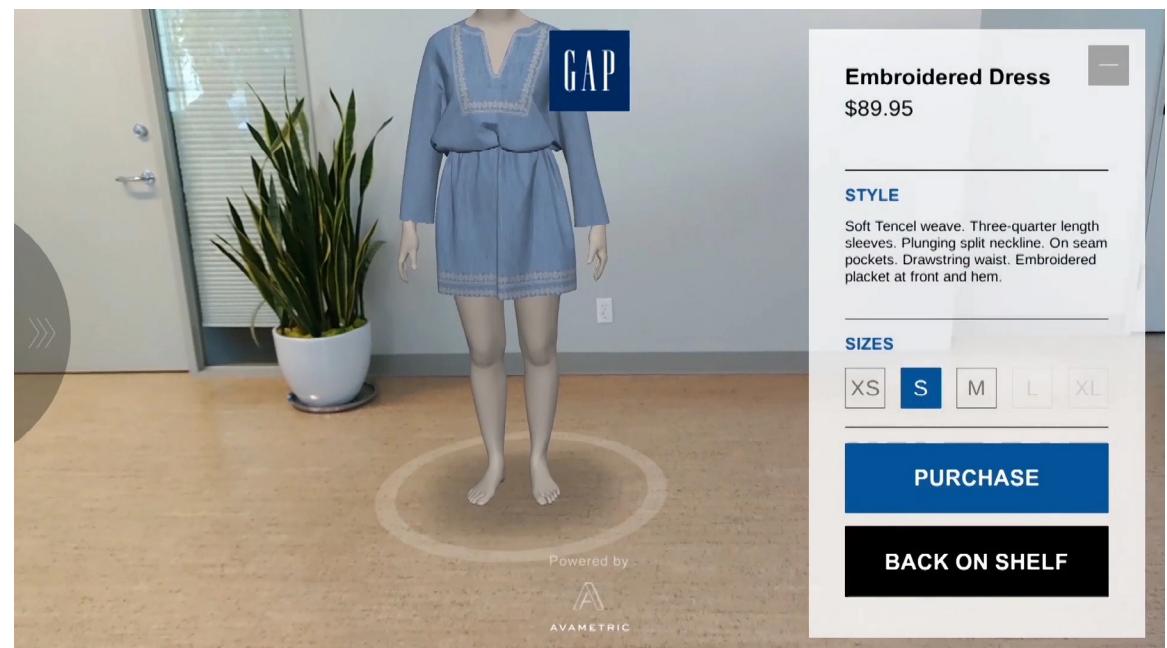


Figure 19: Gap Dressing Room app in action.
WWD

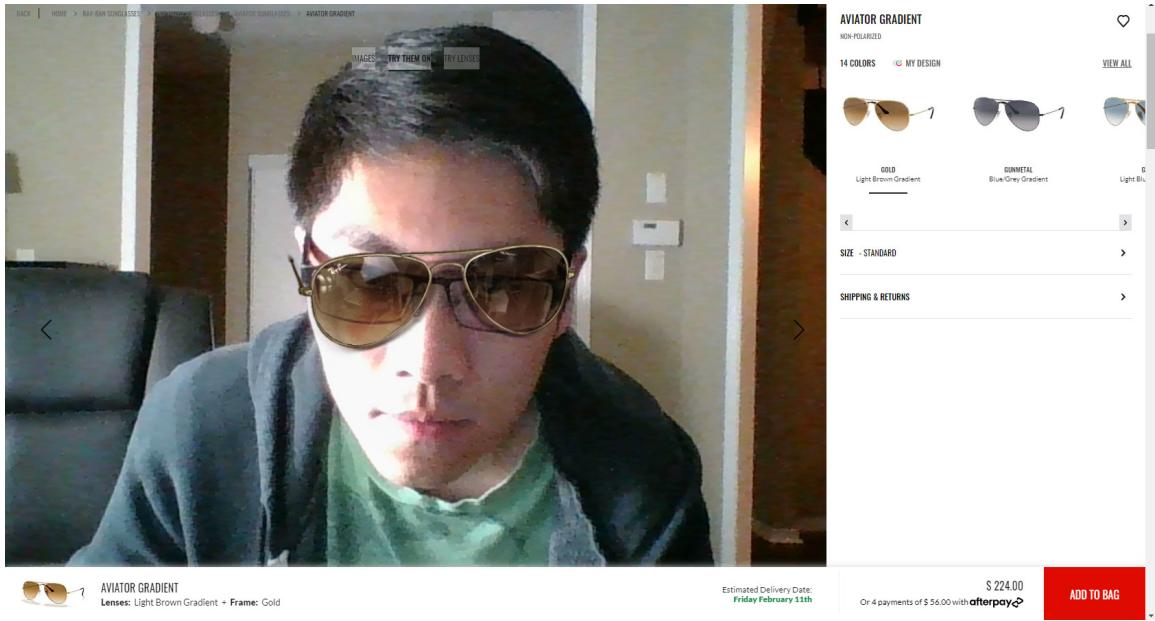


Figure 20: RayBan Virtual Try-on Tool for desktop.
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CORE FEATURES OF JIYU

Avatar creation is introduced to a first-time user at the sign-up step. To generate an avatar with the correct proportions accurate to the user's real life body, they are to input their body measurements and select their body type. The plan here is to expand on this feature by using illustrations to clearly show users how to measure their body, so they are not confused about what values to input and can obtain an accurate representation of their body easily. The avatar creation step is super critical because the value proposition of my app lies in its ability to generate an accurate representation of someone's real body (Figure 21).

The home screen features the avatar as the main point of focus. From here, the user can add or change pieces on the avatar, update basic appearance from the palette, update avatar body measurements, update avatar face, like an outfit to save it to their Lookbook for future reference, feel the texture of their clothes, and export/share the avatar elsewhere (Figure 22).

Using the pinch out gesture, users can zoom in to their avatar to view an outfit up close, and swiping left and right rotates the avatar so users can view an outfit from different angles.

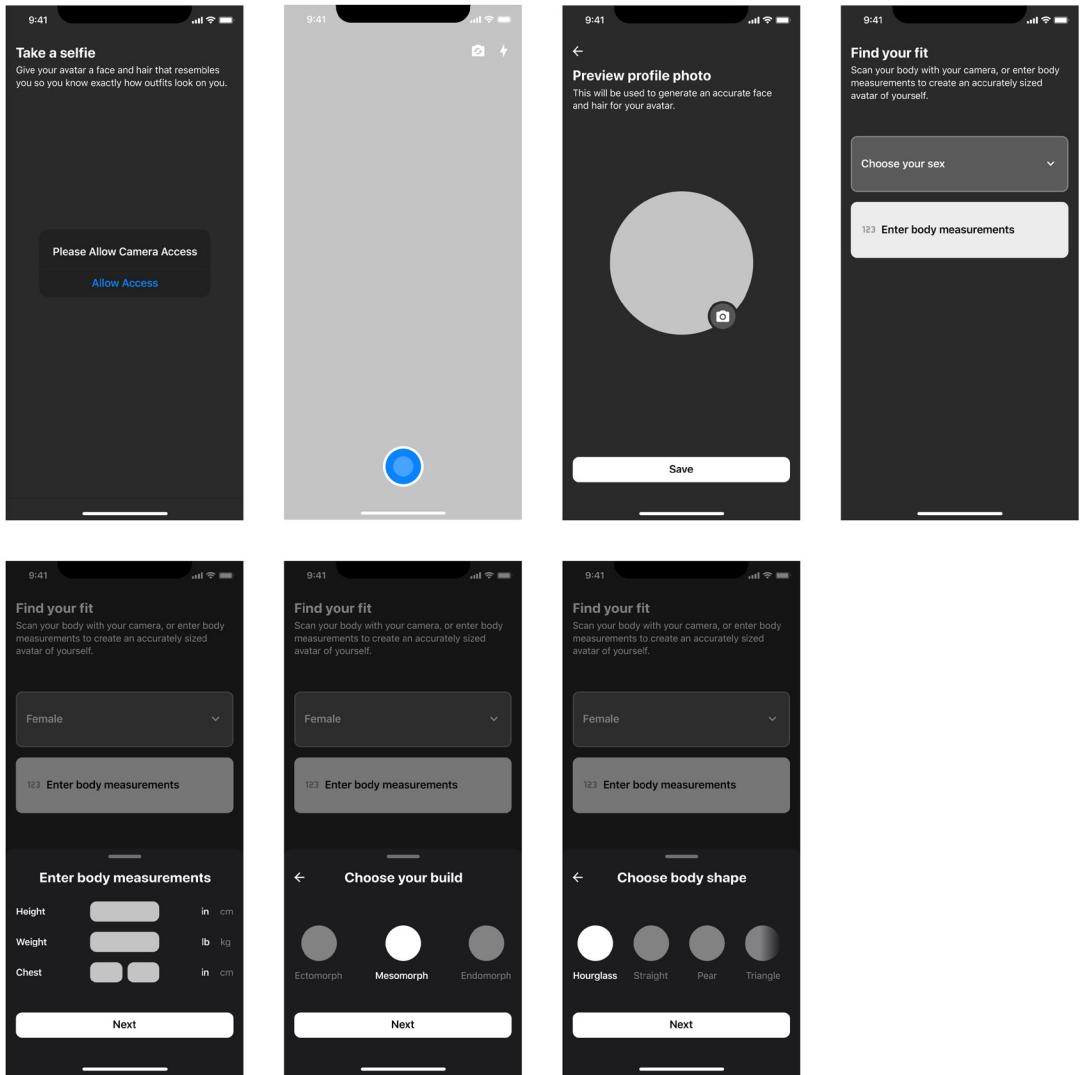


Figure 21: Body measurement input to generate avatar.
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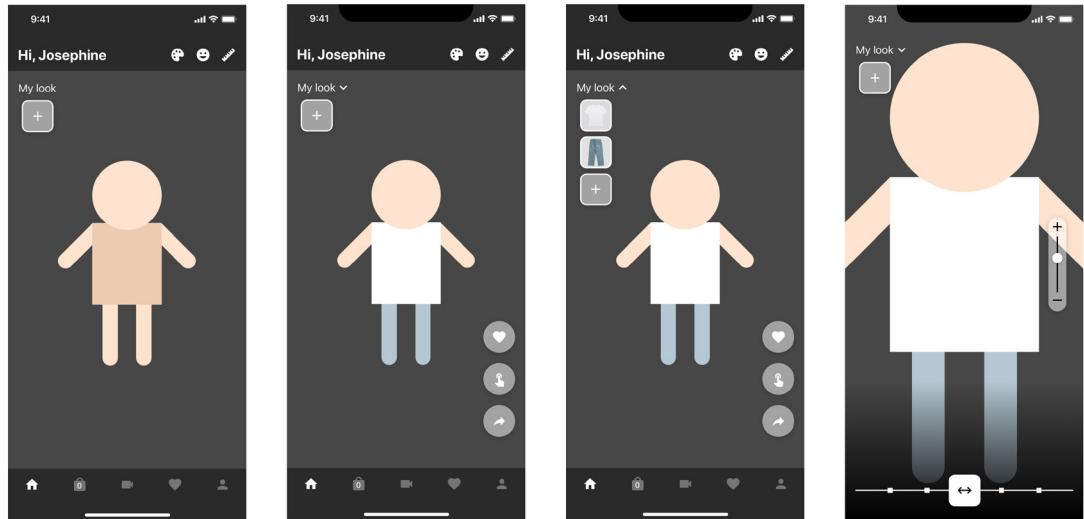


Figure 22: Home screen with naked avatar, dressed avatar, My Look expanded, and zoomed in view with rotation controls.

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To dress up, users tap the ‘+’ button to enter the search screen, find a piece of clothing they want to try on, select size and colour in the PDP, and tap on the ‘Try on’ button (Figure 23). A search filter is also available if users want to be more specific in their search parameters (Figure 24).

From within a PDP, the bottom sheet can be extended upwards to access more functions like style options, product details, and reviews. For instance, users may be interested in seeing how a shirt looks with a French tuck or full tuck on their avatar when styling outfits. Other features exist like liking an individual piece and feeling the fabric (Figure 25).

To feel fabric, there are multiple entry points for ease of access. Users can enter Feel Mode from within the PDP by tapping on the hand icon (Figure 26).

They can also enter Feel Mode from the Home screen by tapping on the same icon and selecting the piece on the avatar they want to feel (Figure 27). For a good UX, if more than one piece is being worn, users can simply use the dropdown to select another worn piece to feel—so they do not have to exit, re-select, and re-enter the ‘Feel fabric’ module.

This feature is important to simulating the physical fitting room where users can feel the texture of their fabrics. Here, I spotted an opportunity to leverage haptic technology to simulate cloth texture. I discovered this was a technologically viable approach because the trackpads on post-2016 MacBooks actually don’t move downwards when pressed; in fact, haptic technology in the trackpad simulates the sensation of pressing down.

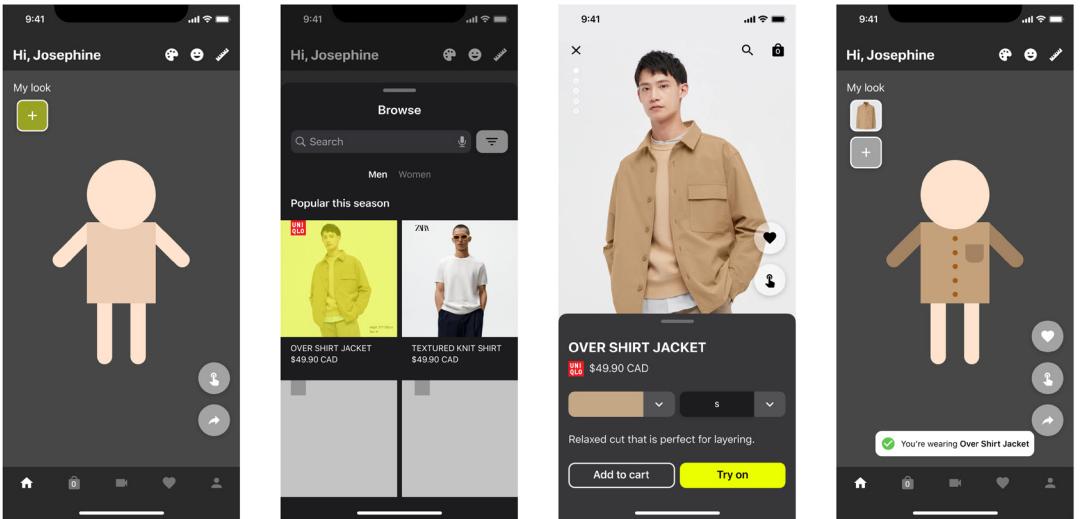


Figure 23: Basic search and wear flow for first-time user (naked avatar).

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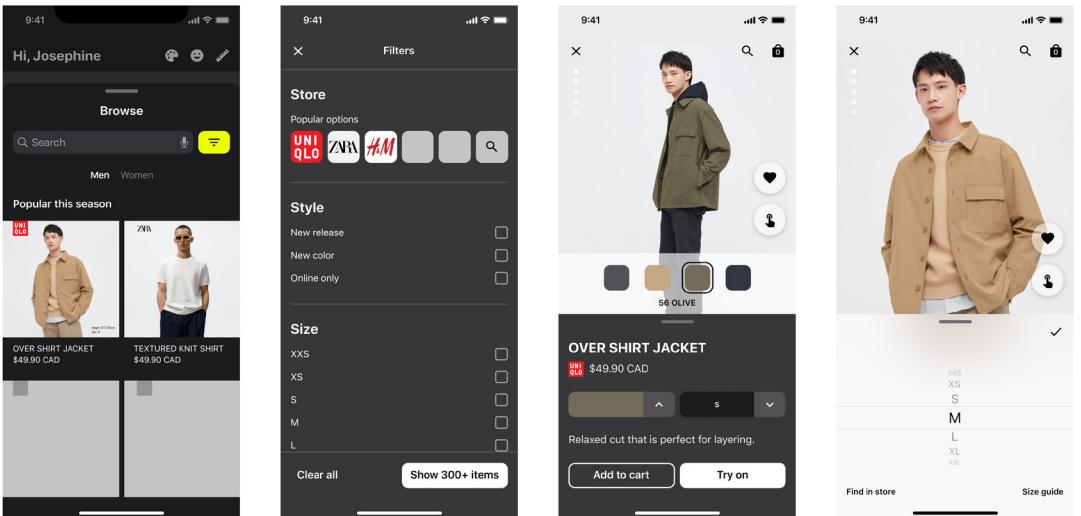


Figure 24: Search Filter and selection of color and size in PDP.

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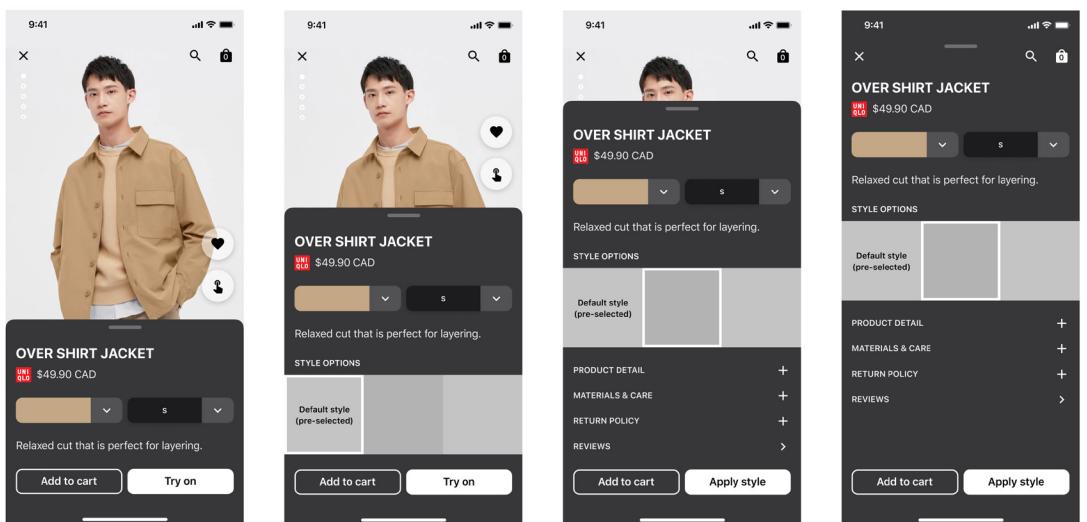


Figure 25: PDP expanding the bottom sheet to reveal more functions like Style options.
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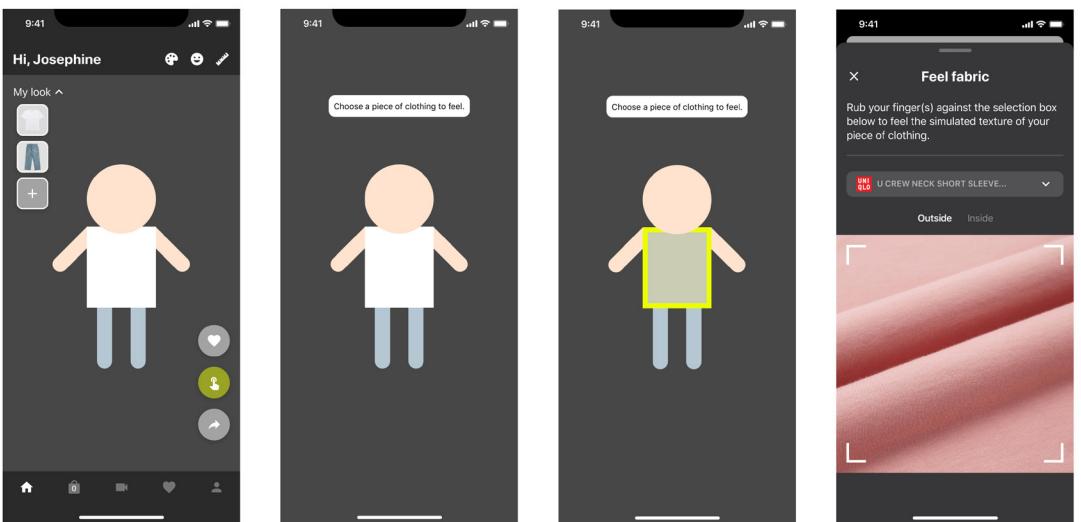


Figure 27: Entering Feel Mode from the Home screen and choosing a worn piece to feel.
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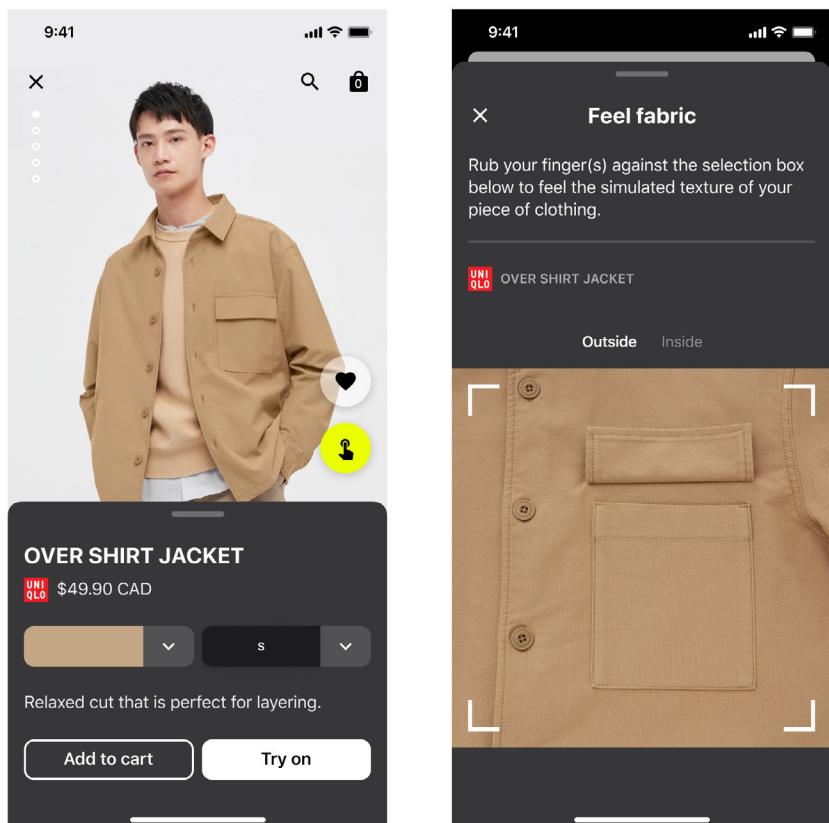


Figure 26: Entering Feel Mode from within the PDP.
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Tapping on the palette icon brings up options to modify basic appearance, like hair, skin tone, facial hair, eyewear, piercings. This is so the user can play with different looks to see how they complement different outfits (Figure 28).

If the user has grown a liking to a certain outfit or piece, they can like it which saves it to their Lookbook (heart icon). The Lookbook functions as a collection or repository where the user can easily re-access their favourite looks and pieces from past shopping sessions, and potentially purchase them (Figure 29). The Lookbook shows saved items in reverse chronological order by default (newest to oldest liked), but can also be viewed chronologically (oldest to newest liked). Liking from the home screen saves a whole outfit to the ‘Outfits’ tab, while liking from the PDP saves standalone pieces to the ‘Garment’ tab.

Previously saved outfits can be edited and updated again (Figure 30). If an avatar is wearing a top already and the user tries on a new top, they are presented with the option to either replace the currently worn top or layer over the currently worn top. This flexibility helps expand styling possibilities by letting the user test the versatility of a certain piece. This system behaviour where the user can select a ‘Dress action’ applies to both avatars on the Home screen and Lookbook. It also extends to bottoms.

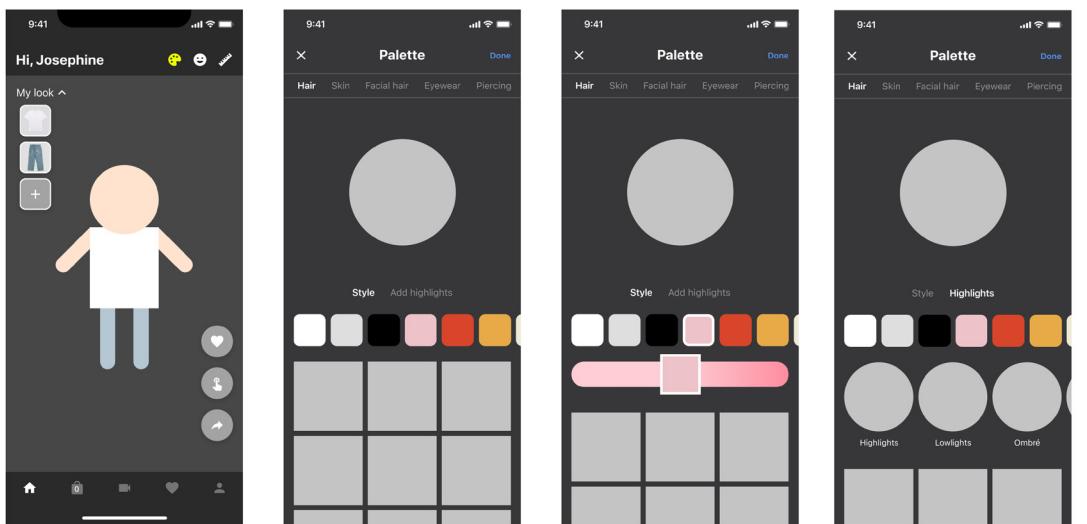


Figure 28: Entering the Palette to customize basic avatar appearance like hair.

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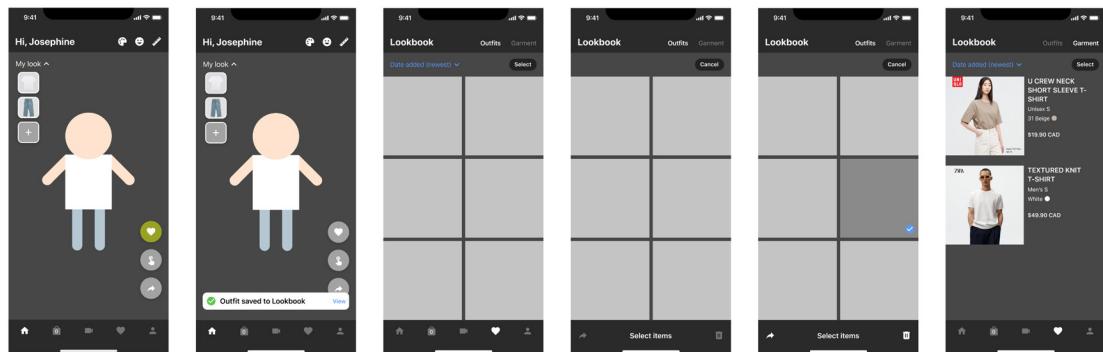


Figure 29: Lookbook feature. Outfits liked from avatar screen save into Outfits tab. Individual pieces liked from PDP save into Garment tab.

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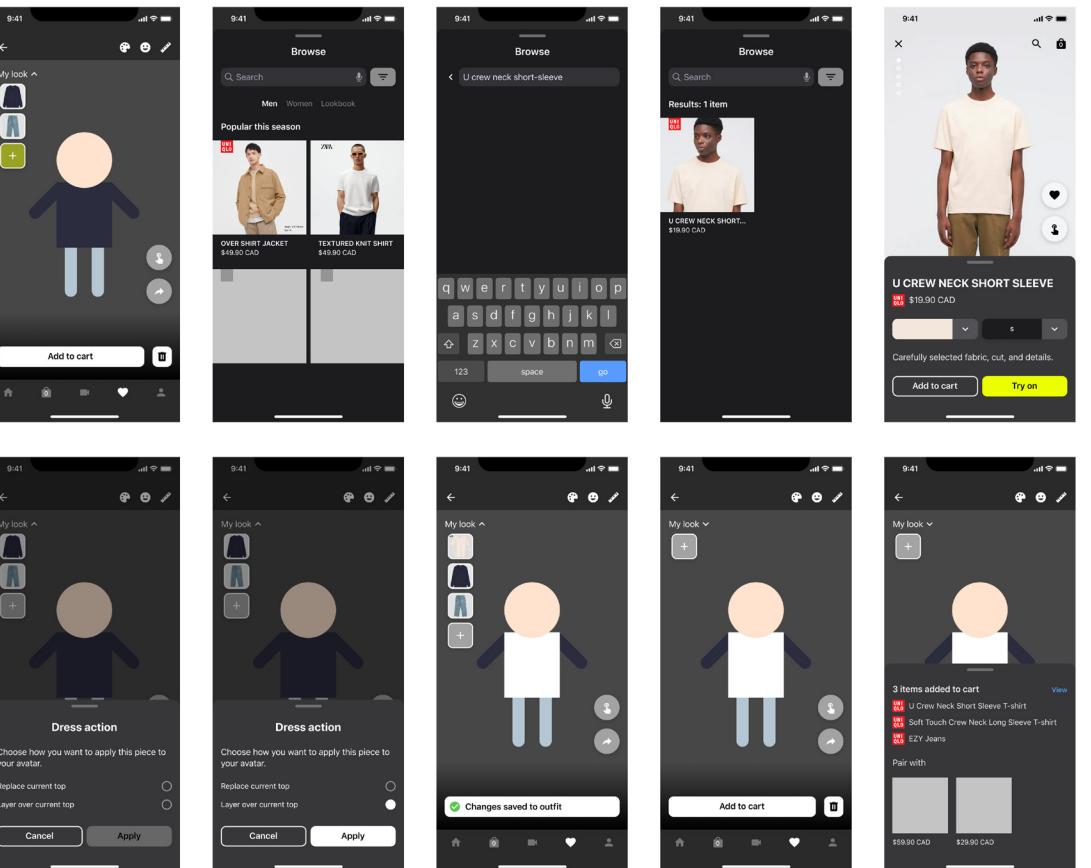


Figure 30: Flow for updating a saved outfit, showing the Dress Action feature in use when layering over or replacing a top piece.

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Jiyu presents more unique features and experiences in the purchase phase. Carts can be multi-brand, meaning a user can add a Uniqlo shirt and an H&M shirt to the same cart and pay in one instance (Figure 31). This caters to the Gen Z tendency to be brand agnostic shoppers, where the hope is that Jiyu can stand as a landmark for the future of ecommerce.

Another unique layer to the purchase experience is a mechanism which auto-detects and applies available coupons. This feature panders to the Gen Z desire to save money when shopping.

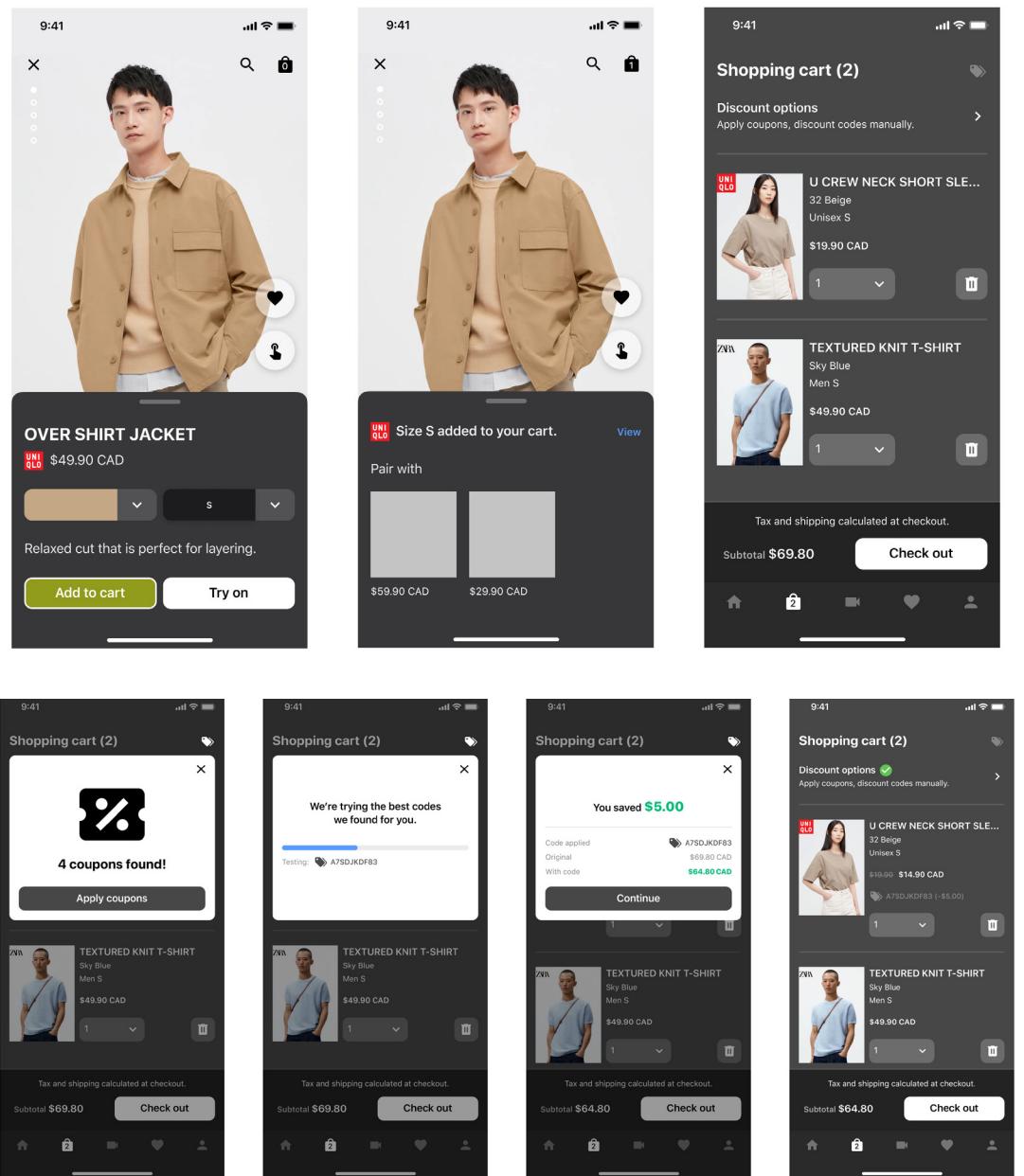


Figure 31: Purchase flow, cart screen, and auto-application of coupons.
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USER TEST RESULTS: GENERAL CALLOUTS, THOUGHTS

In terms of general comments, both participants noted Jiyu was a very robust concept with a clear value proposition backed by extensive research. However, there were callouts and points for improvement.

One callout was in the initial version of the Cart screen, I had included Gift Options which would enable users with the ability to include gift wrapping with their purchase for a small additional cost. However, it was brought to my attention that because the avatar depicts the sole user, this app would truly only support shopping for the self, thereby eliminating the need for gift wrapping. Thus, a change I made was scrapping the Gift options feature entirely (Figure 32).

Another key feedback point pertained to the way the avatar was created. Initially, I wanted to include two ways for the user to generate an avatar. One would be the standard input of body measurements. The other was conducting a body scan with the phone camera, which I thought could be a simple alternative if someone wasn't entirely sure of their measurements. While this design decision was well-intentioned, it was brought to my attention that the body scan with the camera might not be technologically feasible. This is because one of the participants, Man Wai, had previously worked on the design of a now defunct smart wrist band called Amazon Halo.

This wrist band had a similar function to Jiyu where it could conduct body scans of the user to generate an avatar accurate to real body proportions. However, to conduct this scan, it required the user to take off their clothes and be in their underwear. This makes sense because the system cannot acquire an accurate read if the user has clothes on. However, if I mandated the user to strip to achieve this body scan, I do not believe it makes for a positive UX. For this reason, I decided to scrap the body scan method and stick with the conventional method of manual input for body measurements (Figure 33).

To wrap up the general comments received, pointers and ideas for future directions Jiyu could go were discussed. It was mentioned that some sort of reward system or gamification would benefit the business strategy of this product to drive a shopper engagement loop and long-term retention. For instance, this could look like earning points or coupons for trying more items or making more purchases on the platform. I was also advised to keep the visual design of the app minimal, to keep the attention on the avatar and clothes. Since the avatar needs to be very accurate to real life proportions to be valuable to the user, it is also a good idea to teach them how to measure their body properly.

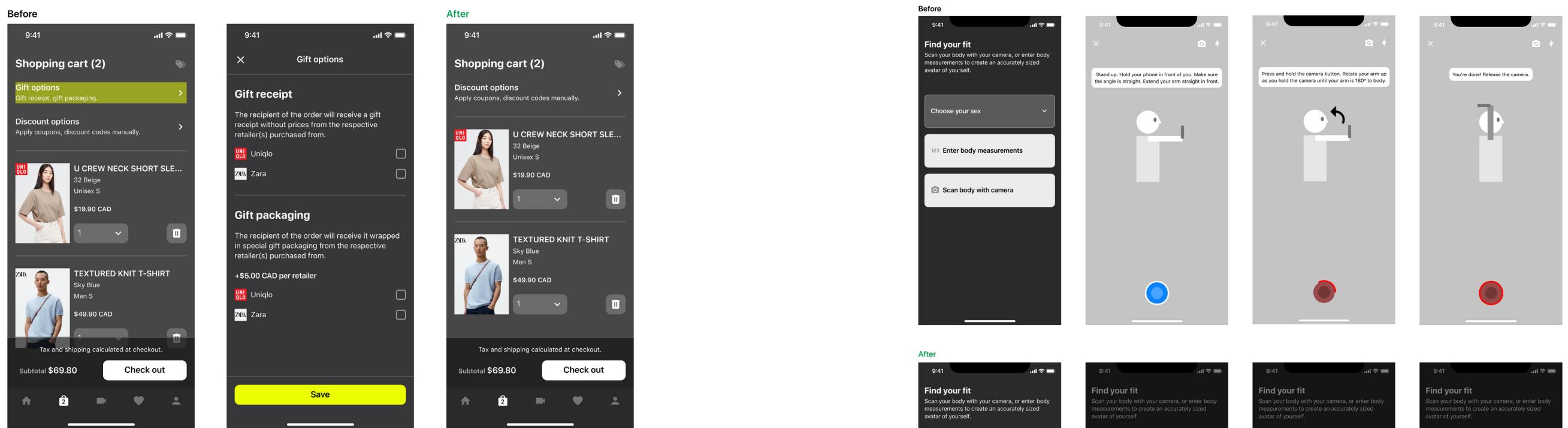


Figure 32: Before—Cart screen with Gift Options. After—Cart screen without Gift Options.

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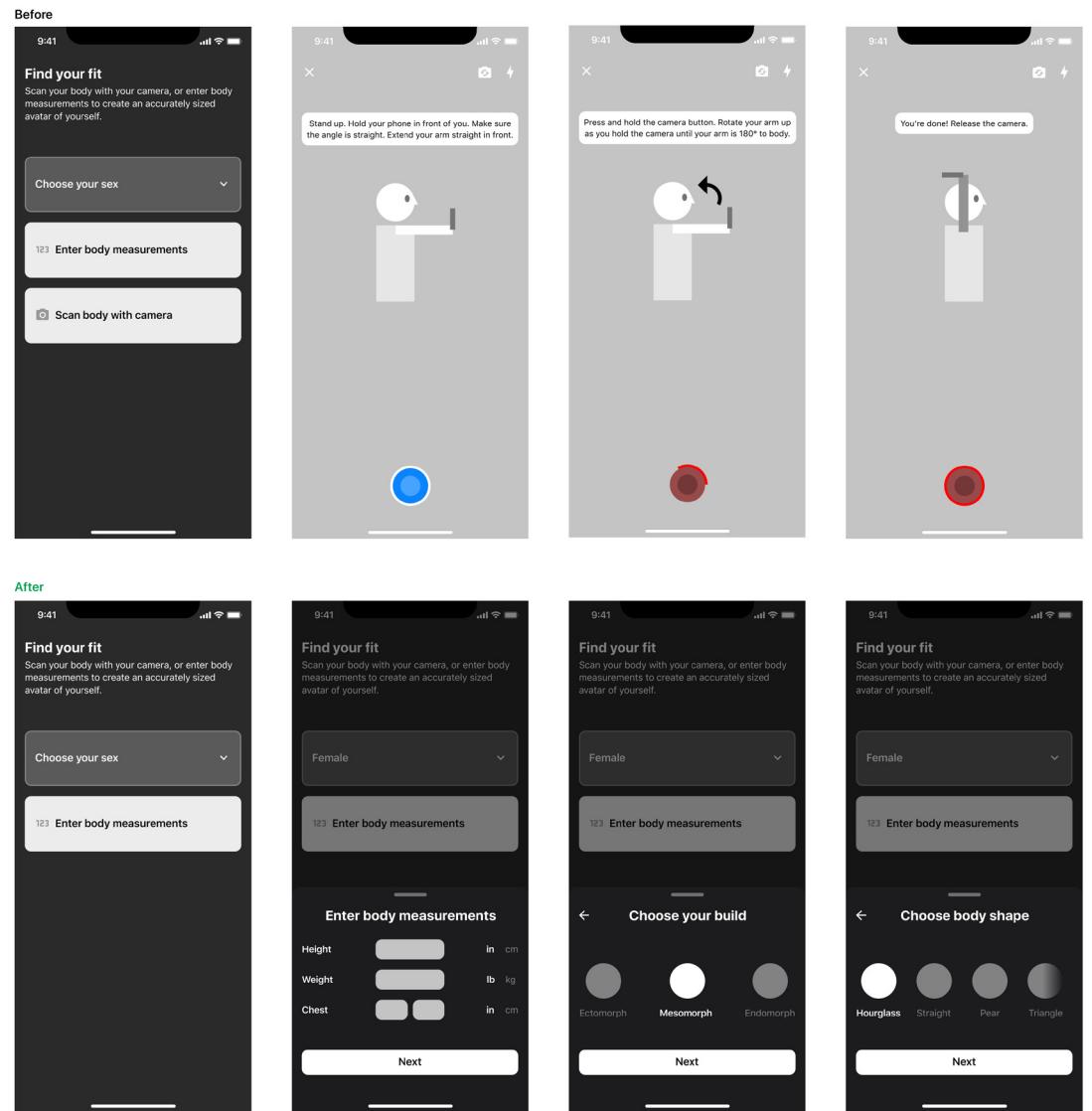


Figure 33: Before—Avatar creation option using body scan with camera + instructions.
After—Avatar creation using manual input of body measurements only.

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USER TEST RESULTS: A/B TESTING

For the PDP, there was an overall preference for the sticky bottom sheet concept (Figure 34). Progressive disclosure groups and prioritises the most important information (brand, size + colour selection, price, etc.), while presenting the opportunity to access other information and functions by sliding the bottom sheet up to extend it (style selection, reviews, etc.). The dropdowns for colour and size connote a clear visual affordance for selection to the user.

This layout also makes it more obvious to the user how they can try on a piece of clothing, as there is a clear CTA with writing. Another consideration was users' reading rhythms. A common design layout is Z-Pattern which caters to how Western readers read left to right, from top to bottom in a zig-zag (Bradley, 2011). Points 1 and 4 reflect the strongest points of focus in the reading journey—the start and ends of the 'Z'. As such, a Z-Pattern layout is used to draw attention to the Try button at the proverbial Point 4 of the 'Z', effectively designing new user behaviour by reinforcing the "try before you buy" mentality.

For the Search Filter, there was an overall preference for laying out all the information and controls up front (Figure 35). This is because users may prefer to modify multiple search parameters at once to obtain a more targeted search, so having all the information accessible in one place is more convenient than compartmentalising it into individual tabs and forcing the user to tab back and forth to access certain controls.

3D MODELLING THE AVATAR IN BLENDER

The other layer to this project was 3D modelling the avatar using Blender, which has become quite a learning journey thus far. Using YouTube tutorials, I started by learning how to model a low poly human body (Figure 36).

Once I was happy with the body proportions, I moved into modelling the face and hair. Afterwards, colour was applied (Figure 37).

I actually tried two approaches for making clothes. One was using Blender's cloth sewing feature. However, this method could not sew together the seams tightly enough even after much experimentation (Figure 38).

Thus, I tried another method where I duplicated a piece of the body and manually adjusted parts to mimic the real shirt. This looked a lot better so I ran with it (Figure 39).

From feedback, I was advised to make the avatar look less visually generic so it reflects the common person more accurately and communicates the value of the product more clearly. I will work on adjusting the body proportions soon.

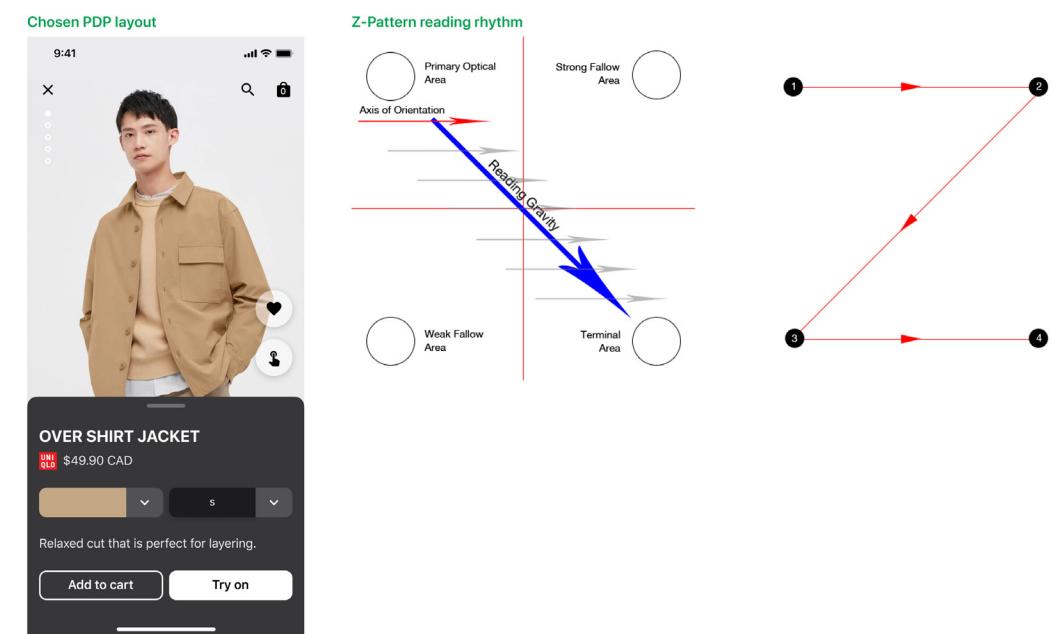


Figure 34: Chosen PDP layout post-test, with Z-Pattern reading layout diagrams.
JASPER TU, VANSEO DESIGN

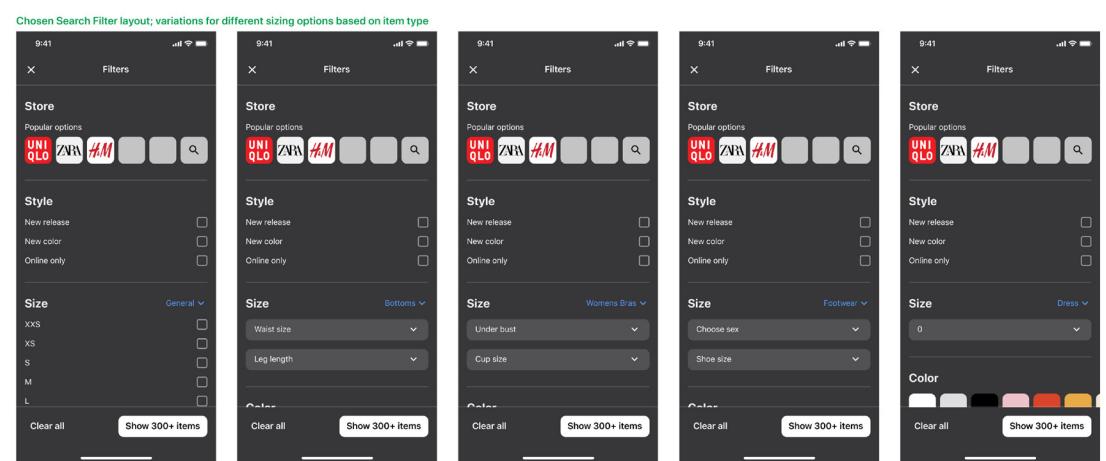


Figure 35: Chosen Search Filter layout, with variations for different sizing options based on item type (Ex: General (Tops, All) // Bottoms // Womens Inners // Footwear).
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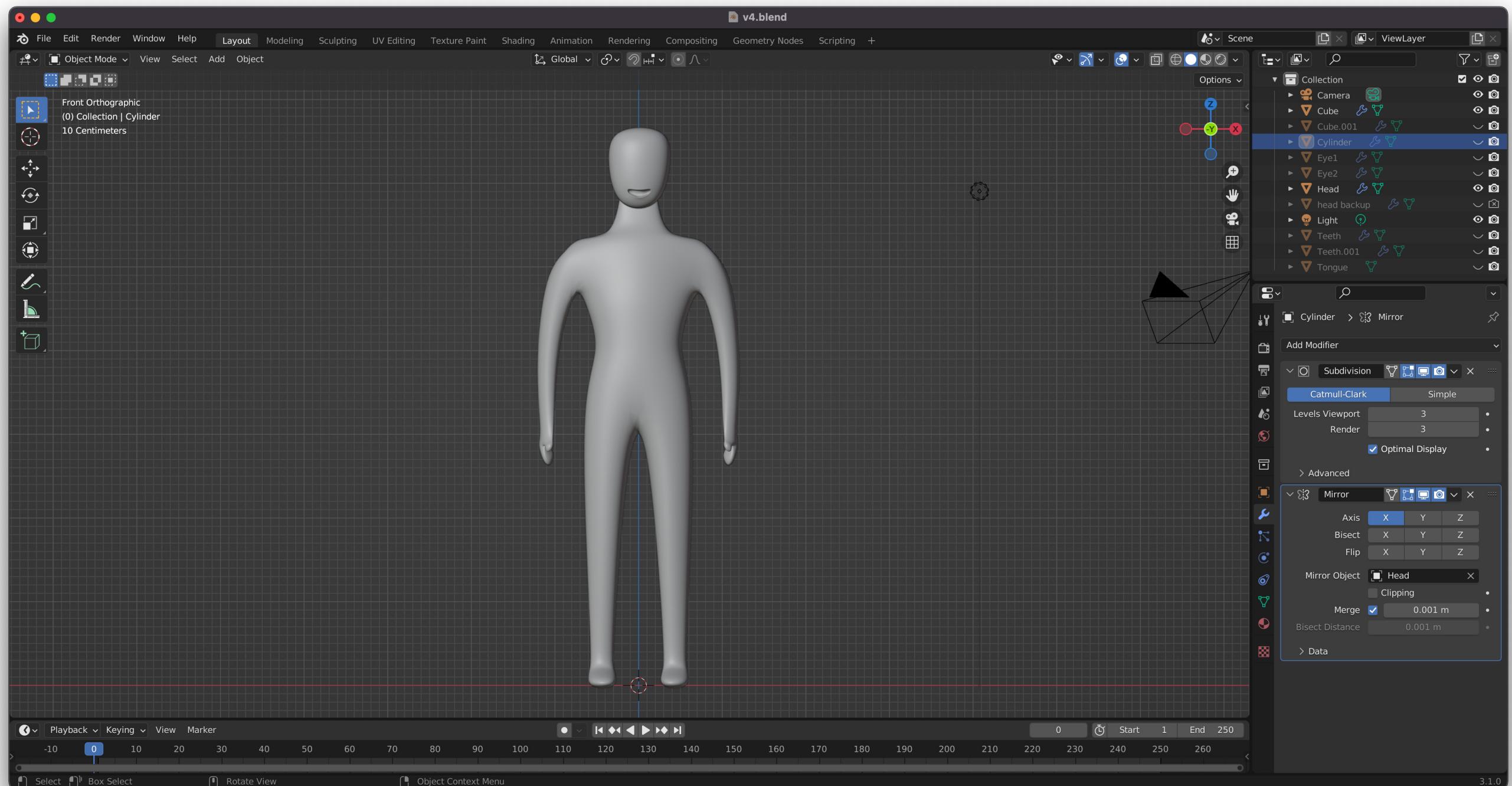


Figure 36: Base model with body and head.

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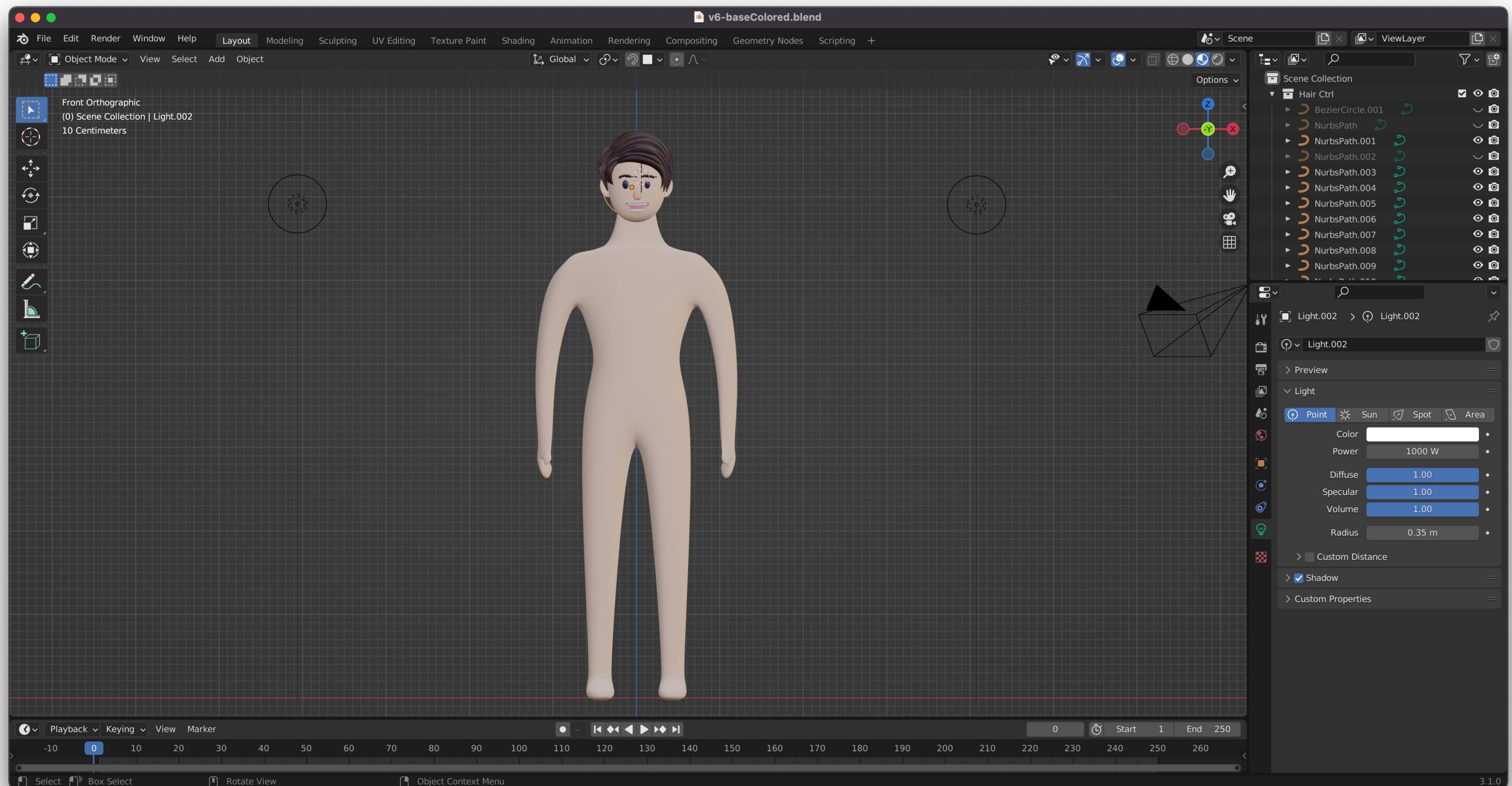


Figure 37: Adding colour and facial details and hair.
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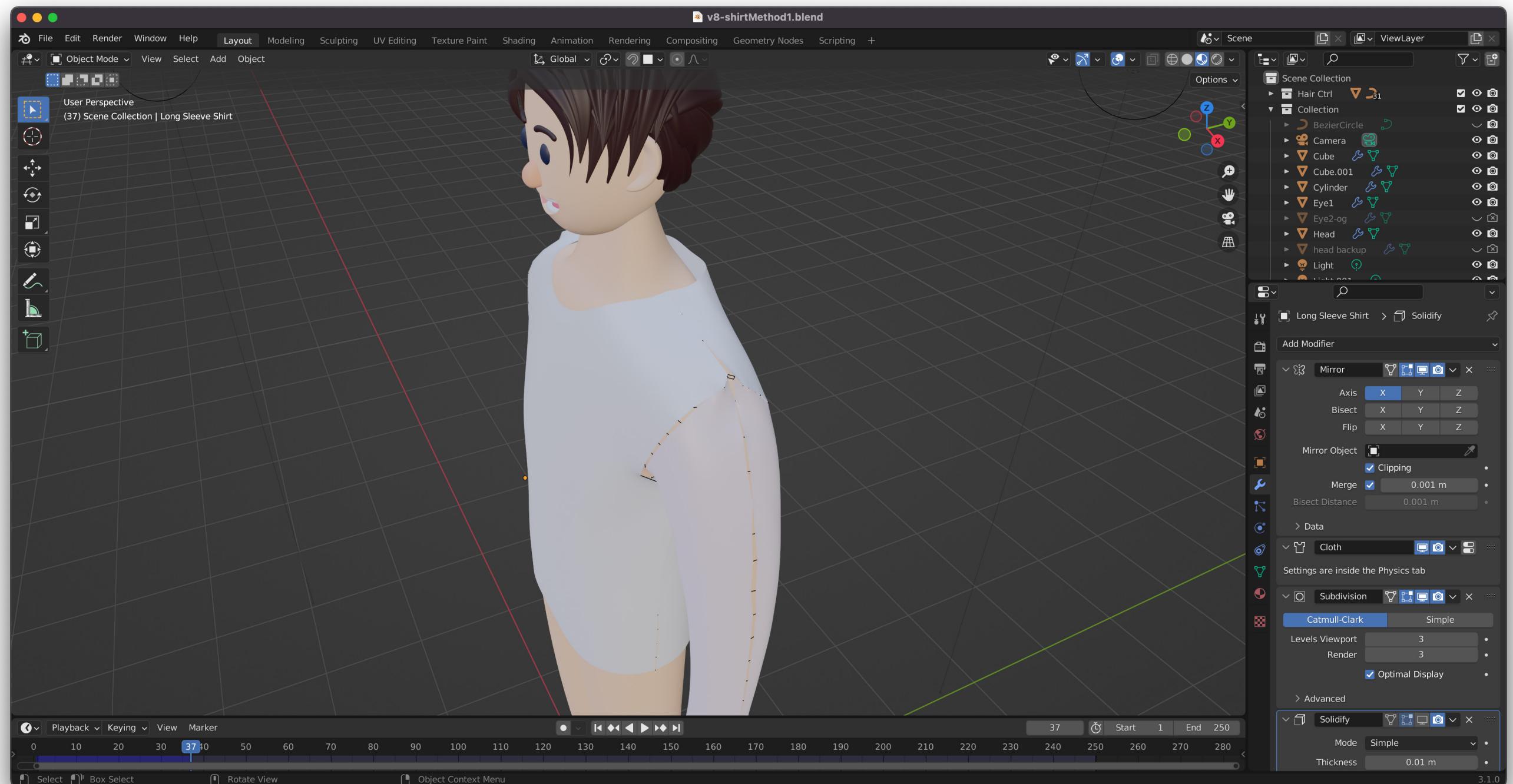


Figure 38: Method 1—using cloth sewing physics in Blender to make clothes.
Sadly didn't work out too well.

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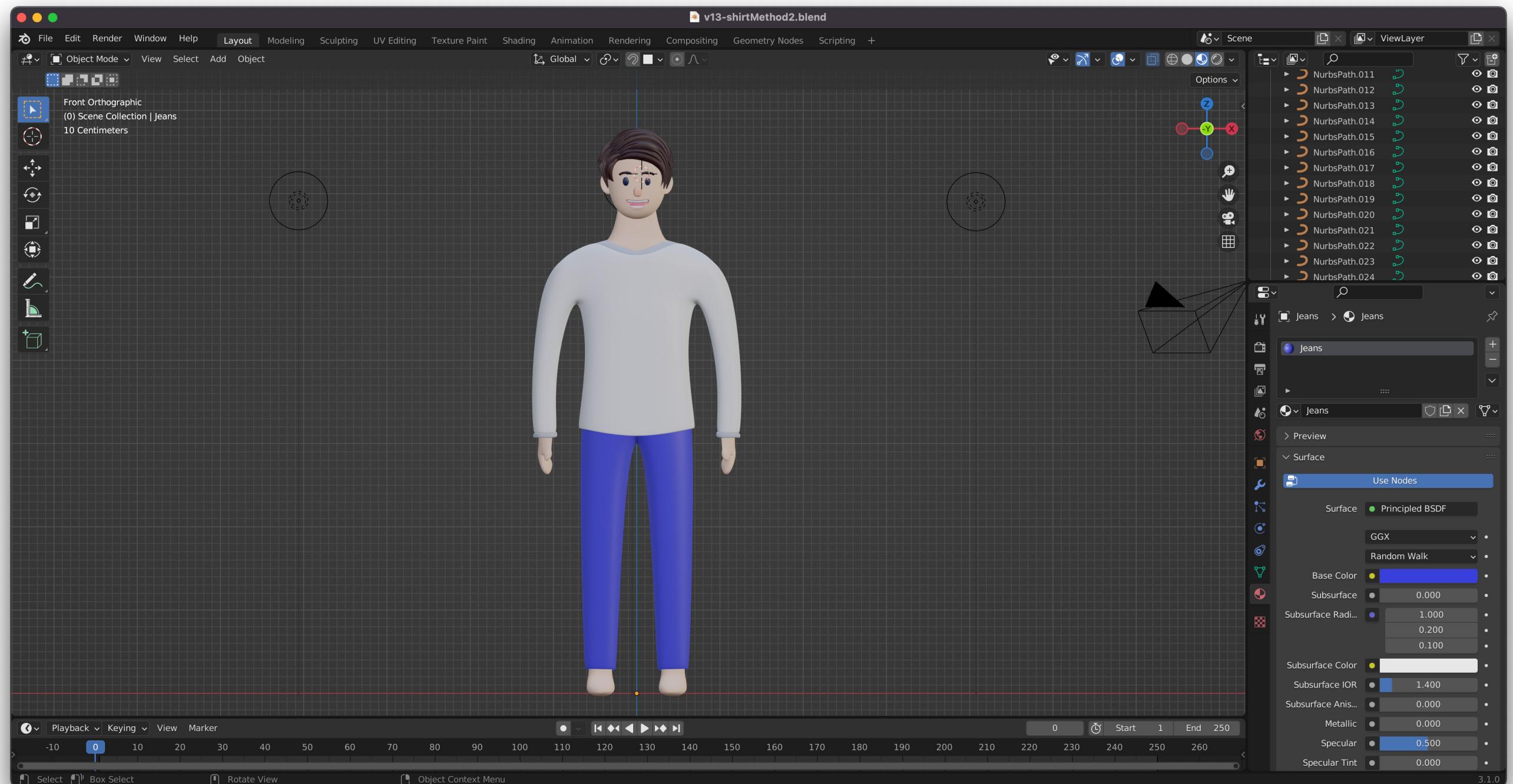


Figure 39: Method 1—duplicating from the body to make clothes.
This worked out much better.
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DISCUSSION

The problem I explored and addressed was:

Shoppers often face a subpar and inefficient fitting room experience, which hinders their creative output and distracts them from their primary focus—making a buying decision.

To find the answers I needed, I asked myself the following research questions:

How might we streamline the try-on process so fashion shoppers can make informed purchase decisions easier?

How might we foster limitless expression and empower shoppers to reach their creative potential?

How might we allow shoppers to feel the texture of different fabrics using the latest technology?

How might we enable shoppers to accurately create a visual reconstruction of their body digitally?

How might we enable shoppers to efficiently see how they look in different styles and sizes?

How might we enable shoppers to share different looks with each other across different platforms?

How might we create the shopping experience of tomorrow?

Overall, my research did support these research questions by prompting me to explore new avenues pertaining to a virtual fitting room for online shopping. This offers a more efficient alternative to trying clothes physically in-person as anyone can simply try something on in a few taps on their mobile phone. Being able to browse any brand at any given time further unlocks a shopper's creative potential by enabling them to endlessly mix and match to find their ideal combinations and price points. With the ability to feel a simulation of fabric texture using haptic technology built into mobile devices, Jiyu bridges the gap between the physical and digital. Having the user input their body measurements and select their body type is the means used to accurately generate a virtual avatar true to real life body proportions, reflective of the actual shopper. Also, style options offered in the PDP let the shopper see how a certain piece looks on the avatar with different styling treatment, like cuffing up the sleeves or tucking in a shirt in different ways. An export/share button exists for users to share their customised avatar to others across different platforms like Instagram, and to mint an avatar as an NFT. There are other aspects of this app which make it stand as a landmark representing the future of ecommerce, such as the concept of multi-brand carts which cater to increasingly brand-agnostic shopping behaviour in Gen Z.

My next steps are to build upon provided feedback and suggestions. I want to implement tutorials with illustrations in the signup step to show a first-time user how to measure their body, when creating the avatar. I also hope to build a stronger visual presence for the Jiyu brand without overdoing the visual design, so avatar and clothes can remain the focal point.

My future ambitions beyond the scope of the course are to think more deeply about how to implement a gamification mechanism to Jiyu as per the user test feedback, and a social aspect. Gamification can exist in many ways and here are some loose thoughts that come to my mind. One way can be through a virtual fashion show operating on a rating system, where users vote on their favourite outfits. In this competition, the objective is to get the most points for an outfit based on player votes. Winning first place gets the user more points they can redeem for a purchase perhaps. Another way to gamify Jiyu is to introduce a mechanism where trying or buying more earns redeemable points or coupons you can redeem on a purchase, like PC Optimum. This also presents an opportunity for shoppers to receive tailor-made coupons weekly based on past purchase behaviour. When thinking about the business model that can be built with NFT integration and the ability for users to export avatars as NFTs, the sky is truly the limit. Firstly, the ability to buy and sell avatars as collectibles breeds an environment of digital scarcity in line with the ethos of Web 3—thus, amplifying economic opportunity for all.

Secondly, Jiyu presents huge opportunities for brands to release limited edition or temporary NFT drops, where certain items or collections can be promoted depending on a brand's business goals and what is popular among the people. For instance, thinking from my own home turf at Uniqlo, we release a myriad of collections and collaborations throughout the year that can be translated into NFTs like White Mountaineering, Inès de La Fressange, KAWS, +J, JW Anderson, and Mame Kurogouchi to name a few.

I would also like to conduct user testing with a larger sample size. The user testing I did was more in-line with concept testing which is used in the early stages to gauge user sentiment towards a design approach. In the future, once I have a clickable prototype, I would love to conduct a structured usability test with Gen Z participants and iterate off those learnings to finetune details in the UX and UI.

Other things: I am considering implementing smart recommendations, to account for use cases where a piece of clothing may not fit perfectly. For instance, this could entail recommending a size M if a size S is too tight, or recommending an alteration or hemming if a pair of jeans is too long for the individual.

Something else that can be worked on and fleshed out further is the flow for minting an avatar + outfit as an NFT on OpenSea, which is new territory for me. I recently stumbled upon a resource <https://bitcoin.design/> which has a Bitcoin Design Guide; hopefully, it can shed more light on consumer wallet UI and flows as this is territory which is foreign to me as a designer and user.

Overall, I am very happy with the progress I have made on this project, as I have found a subject area I am really passionate about that combines all of my past life experiences and context working on social media platforms, commerce tools, and retail shopping to create something which is uniquely me. Here is hoping I can continue to stretch this and refine Jiyu post-graduation into something more, as I have always desired to be a founder and to walk the path of a Y Combinator startup.

SUMMARY

Concluding remarks

Through this course, I realised novelty is a game of remix. I first began with a mental wellness concept and ran into a dead-end with an idea that was too one-note. I then explored making an avatar creator with built-in NFT integration but ran into conceptual hurdles with custom geometry creation and conceptual novelty. That led me to fuse the idea of an avatar creator with a virtual fitting room to define new online shopping experiences. This experience taught me the importance of not letting my decisions be dictated by rote technique or concept, and gave me the courage and flexibility to let two ideas blend into one, or let one idea transform into another. It also taught me the importance of practising patience to not lock-in on an idea too quickly, and positioned me to regularly reflect to connect the dots looking backwards and make sense of my data.

To quote the great chef René Redzepi, "the best way I can explain innovation is that it's your ability to take your past, put your intuition into place and then see the synergies with the past and the now. That's when something new happens. The more you fill yourself with the knowledge that surrounds food and food culture, the better you become at actually cooking."

In similar fashion, I hope to have cooked up new flavours in the product space. As for personal development, the Winter semester was a period of intense focus and work, since I pivoted conceptually and scrapped what I had previously from the Fall term. I was essentially following a protocol called 'monk mode', where I was in a state of increased discipline, focus, and productivity—motivated by living intentionally and committing myself to a goal. For myself, I discovered more about what it meant to live minimally with stoicism, developing greater self-control and fortitude against destructive impulses like distraction.

This helped in forming a clearer state of thought to understand the inherent logic behind every moment in the design process, to in turn situate me to become a cultural agitator devising new virtual paradigms for the retail shopping space.

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