

Final Report on Patch



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Value Proposition

Shop smarter, style sustainably.

Mission Statement

Patch aims to help consumers move away from Fast Fashion and impulsive purchasing. By making sustainable shopping attainable, fun, and instinctive, it helps users build a habit of thinking deeper about their purchases. Patch provides consistent nudges and facilitates social connections around these efforts.

Team Members

Kevin P: UX Design + Research, Web App Developer, Secretary

Anastasiya V: UX Design + Research, Web App Design + Development

Mariana G: UX Research, UX/UI, Branding

Kyle Z: Website Developer, User Researcher

Why Patch

Ever find yourself shopping fast fashion, but hesitant about clicking the button to confirm your order? Or even worse, if you're like me, and have never really considered the environmental ramifications of purchasing cheap, disposable clothing, then Patch is your answer, solution, and friend. Sustainable fashion involves producing clothes in environmentally and socio-economically responsible manners. Many shoppers don't take into consideration these factors while shopping for clothes, and our goal is to help them better balance the channel factors of purchasing fast fashion and reducing friction around making sustainable choices. In this way, consumers rely on "cheap, disposable clothing, made discriminately... without consideration for environmental and labor conditions (Vox)" to follow trends. Our solution, Patch, is a browser extension that offers convenient sustainable alternatives and causes users to rethink their purchases that will motivate people to make fashion choices that factor in the effect of their actions on the environment. Your Patch is ultimately dependent on you, fostering a sense of responsibility between you and the clothes you wear.

Jumping In

To start our design journey, we conducted two rounds of in-depth interviews, first focusing broadly on consumer habits and then focusing more on the fashion

industry following some useful initial insights. In the course of our interviews, we discovered a range of ingrained cultural attitudes around waste as a key factor in sustainable decisions. What follows is an empathy map reflecting on one of our first interviews, conducting with Julia, a scientist and parent interested in making more sustainable choices but limited by a variety of factors.

SAY



DO



FEEL



THINK



POV

As a result of our interviews, we came up with three POVs. One point of view was derived from Chase, a 19-year old fashion design student in college who is well-versed in secondhand and resale style. We were surprised to discover that for Chase's age, he is already thinking about getting pieces of clothing that he will wear forever. It would be game-changing to reframe fashion as a high stakes and a long term game of strategic choices. We also spoke to Ellie, where we were surprised to discover that while most of Oddli's online audience consists of adolescents, many of her customers are mothers buying pieces as gifts for their daughters. It would be game-changing to build a bridge between sustainable shopping and gift-giving. Lastly, we met Sohely, a mother of 3 sustainability-minded teenagers with differing fashion priorities. We were surprised to discover that her 16-year old daughter feels like she has "no choice" but to buy from non-sustainable brands because she, like her friends, wants to wear what she sees on Tik Tok. It would be game-changing to make keeping up with trends more sustainable.

From our POVs, we built out HMW statements, which are designed to guide and frame our brainstorming process based on the specific insights we garnered from our POVs. Below, please see our synthesis.



For Chase, we asked ourselves: if it would be game changing to make keeping up with trends more sustainable, how might we help consumers find elements of current trends in timeless pieces? For Ellie, we thought about how we might reframe shopping as building a resume or portfolio.

Solution Ideas

We really enjoyed the ideation process, and it played a critical role in how we thought about the problem space. At this stage, we were pleasantly surprised by the insights and questions we were able to develop from our range of interviews.

Our solutions were to ask how we might pitch items in our wardrobe, trade and share our wardrobe framed as a portfolio, track the use of pieces in the wardrobe and compare with others, or connect a clothing advisor for guidance on how to fill in portfolio gaps in sustainable ways. We tested these solutions based on key

assumptions we had underpinning them, and then arrived at several motivating resolutions.

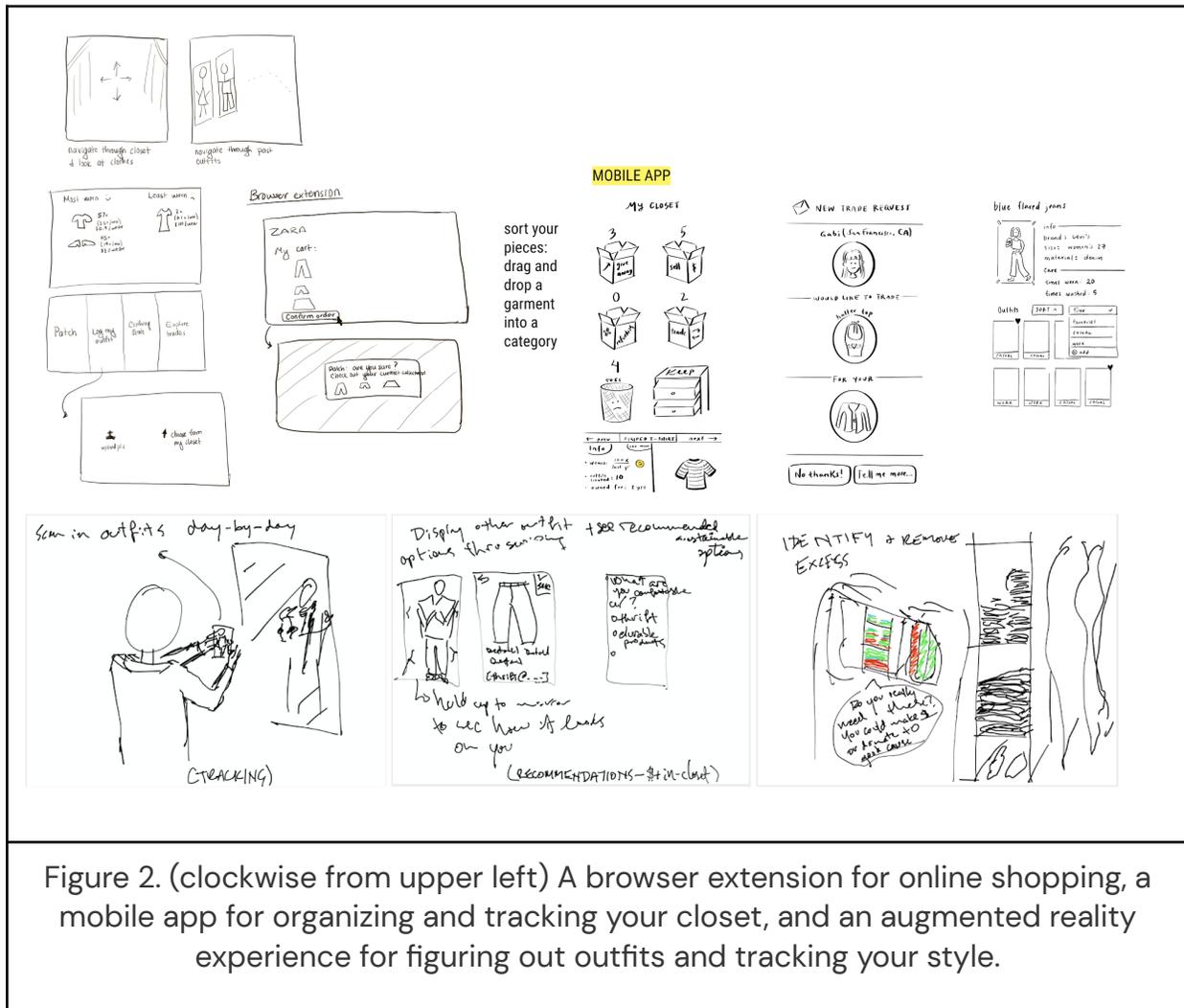
For the first solution of pitching items in our wardrobe and diversifying it, we tested our assumption that people wanted to feel confident about as many pieces in their wardrobe as possible. We realized that for them, the least essential pieces were in fact similar to the most essential pieces, but not necessarily as close to the users' style. Users were basically able to tell stories about each essential piece, and identify exactly why their underused pieces were underused.

Our next solution tested whether people are willing to consistently keep track of what they wear. We discovered that people were mostly happy to do so, but needed daily reminders. This particular insight was instrumental in our selection of a browser extension as the implementation of our idea, which we will dive into later on.

For our last solution of asking a clothing advisor about portfolio recommendations, we found that users often lost energy when going through a long, anonymous survey, but preferred instead to talk about the process of sharing stories behind each piece. The assumption here was that people would normally be interested in getting advice on how to get the most out of their wardrobe and to fill in those gaps.

From here, we knew that our next steps were to narrow our target audience for more refined testing and development, and to facilitate more exchange between users.

Some of our solution ideas are shown below.



Final Solution and Tasks

Our three tasks are as follows, based on a final solution of a chrome extension to address the issue of sustainability in fashion. Relative to other possible solutions, such as mobile app, we noted that the Chrome extension is the most direct answer to our problem of reminders and reframing shopping, as it is a subtle note for shoppers and gives them a pause in their typical process before clicking submit. For example, it is fairly difficult to insert ourselves into the shopping process through mobile apps and other media which have standalone applications. A browser extension can access user browsing and subsequently insert more precise interventions into the shopping process.

We realized that while the concept of the mobile application was unique and contained more applications due to its relevance to both in-person and online shopping, we opted for a product that would elicit almost no work from the user's side, and still serve as an instrument for sustainable change in fashion. We also thought it would be less intrusive for the user in comparison to the mobile app, which requires the user to constantly be engaged with it.

1. **Simple:** Reflect on fashion choices (2 paths). 1) Waiting to checkout from fast fashion sites 2) Seeing own trends in profile

We chose this as our simple task because we felt a critical, underlying idea of our product is to help users think about their wardrobe and portfolio in a more active way, and the way they browse for particular styles. Simply this reflection is the first step to helping the consumer realize the importance of sustainability in their shopping process.

2. **Moderate:** Work with friends to shop more sustainably (2 tasks). 1) Share purchases and achievements with friends 2) Trade and share ideas with friends

This was our moderate task because from our interviews and insights, we knew that people enjoyed working with others, particularly friends, to garner tips and ideas on fashion.

3. **Complex:** Find a sustainable alternative to a fast fashion item with Patch's help.

Our complex task involves finally using Patch as a way to provide strategic, sustainable recommendations for clothing, especially as compared to the fast fashion item that the user is looking to purchase.

We've also included sketches of our design journey, as you can see our final product come to life through the different stages.

Discussion of Initial Changes

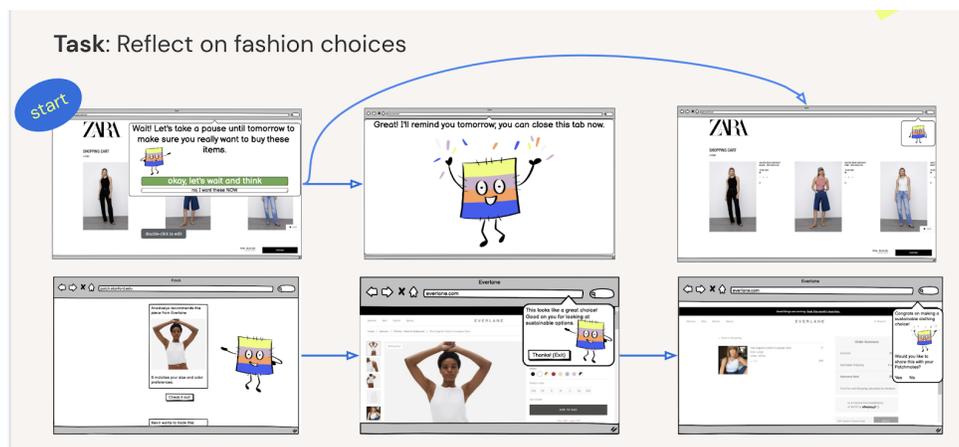
We discovered several issues with the design, but realized that users ultimately were able to understand how to navigate shopping with the Chrome extension, and its different functions with relative ease. Initially, it was difficult for users to understand how to navigate the wireframe, which we felt was more so a result of the difficulty in understanding how to use the wireframes rather than the web extension itself.

Some of the most significant areas of improvement to Patch would be to slightly alter Patch's design to be more streamlined and refined, such as getting rid of

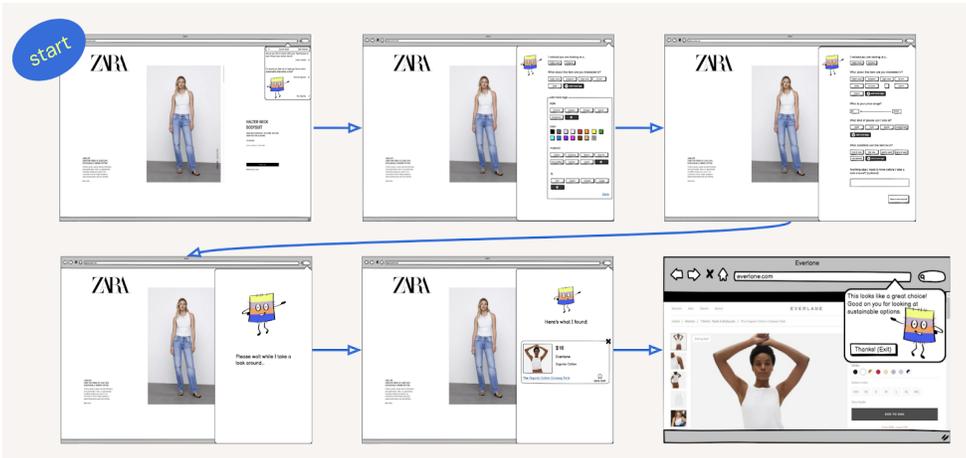
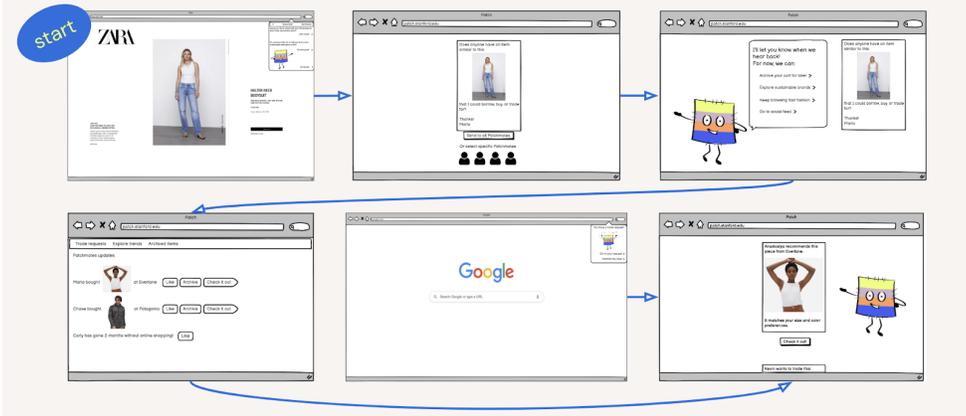
stitches that staunchly stick out. We are considering opting for a more serious character by changing Patch to someone else. Moreover, we want to make buttons more visible to users so they understand Patch's features, similar to how Netflix utilizes bright, contrasting colors for its buttons. The wording for buttons also requires change, due to its misleading and confusing nature, such as changing "archive" to "save." Also, for users who are exploring the browser extension for the first time, we want to give additional context, especially those who encounter the terms "consignment," "resale," and "refurbished" for the first time. User 3, in particular, noted that the social feed was also not particularly simple to understand, and could use some more guidance in how to navigate it.

We also received great feedback that the browser extension interface provided opportunities for more targeted and consistent nudges that are integrated into the act of shopping. These nudges were not overly overwhelming or targeted, but served their purpose in focusing on opportunities for real change in user shopping habits. The users we tested really enjoyed the overall functions of our product, as well as the graphic design of Patch, with its user-friendly, appealing appearance as a shopper accompaniment.

Low-Fidelity Prototype



Task: Work with friends to shop more sustainably



Medium Fidelity Prototype

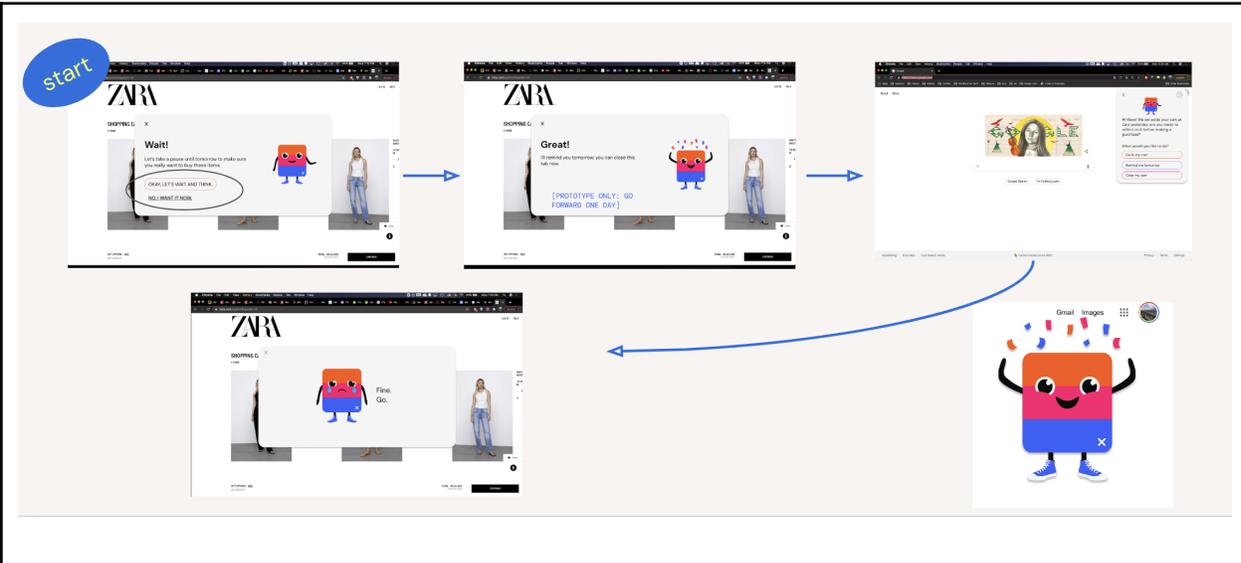


Figure 12. **Simple Task:** Reflect on fashion choices.

For our simple task, in comparison to our low-fi, as shown, we added ribbon functionality which sends alerts and reminders from a central location. We have also streamlined pop-ups that contribute to a positive user experience. We implemented these changes because alerts and reminders are important in reflection by Patch's users, so a central location is important for that purpose.

Moreover, we remodeled Patch based off previous feedback. From our previous low-fi designs, we received feedback that Patch could appear more polished, including more likeable, colorful, and vibrant as ways of standing out to the user. As a result, we changed the color scheme to reflect a more active Patch, rounded out the edges, and took out some of the stitches to give her a more refined look.

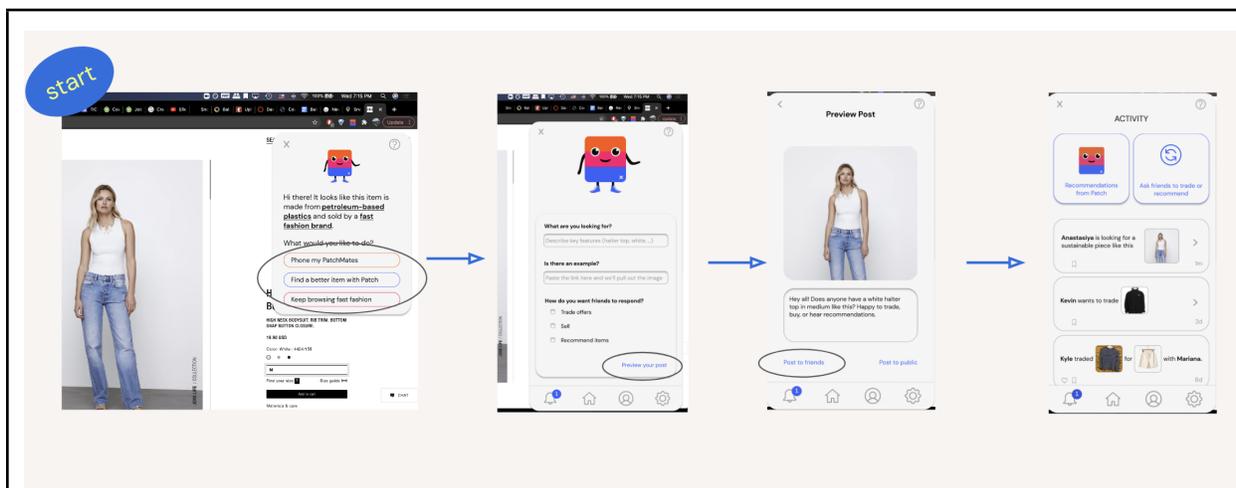
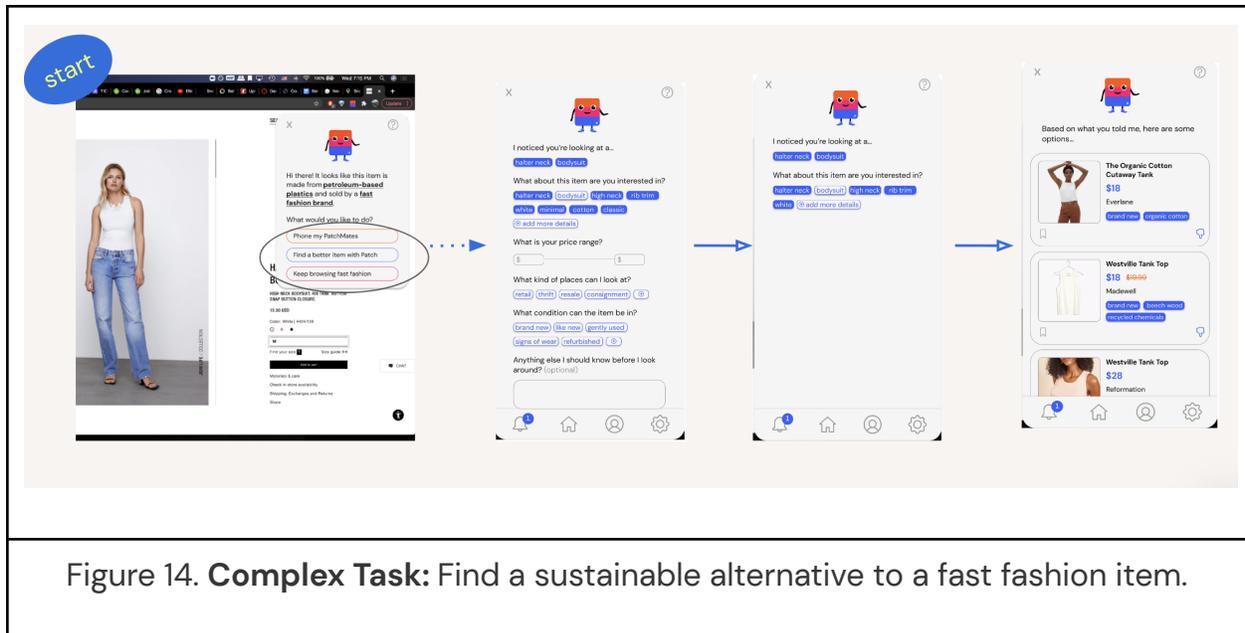


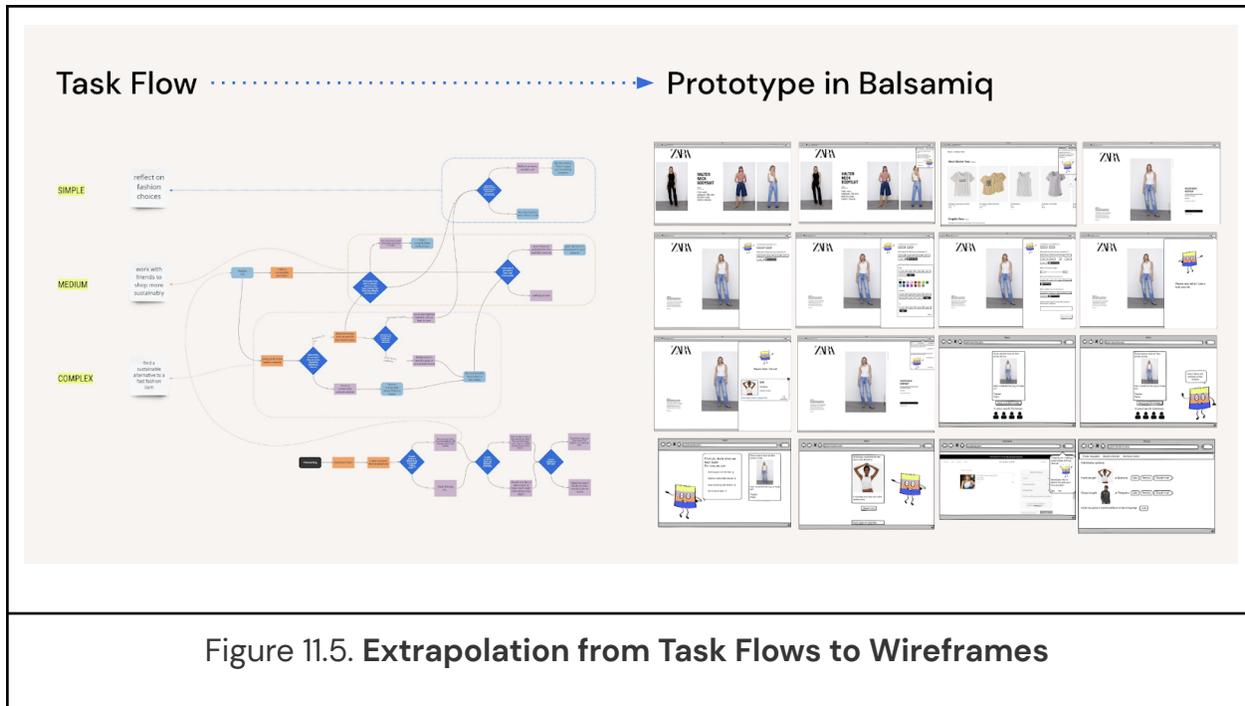
Figure 13. **Moderate Task:** Work with friends to shop sustainably.

For our moderate task, we appended new features, such as to phone Patchmates, or to find better items through Patch. These new features were recommended by our evaluators, and also are central to accomplishing the goal of the moderate task.



For our complex task, we remodeled recommendation features and more complete looking screens in our medium-fi in compared to low-fi. The reasoning behind this was because we knew that it was important to make the features more streamlined and compact for users. In our low-fi design testing, our users also mentioned that our wording was sometimes confusing, such as the usage of specific terms, like “consignment.” As a result, we wanted to streamline our jargon for Patch to make it more user-friendly and serviceable.

We extrapolated our task flows and translate to prototypes and sketches as shown below.



Incorporating Heuristic Violations Into Major Changes

We addressed almost all of the high-severity changes we learned about from the heuristic evaluators we heard from after building out the medium-fidelity prototype, as well as many of the medium- and low-severity changes.

High Severity:

Feedback:

- Confusing language: "Phone my PatchMates" (H2)
- No emergency exits when users are creating a post (H3)
- Colors used throughout pop-ups lacking consistency (H4)
- Cancel button is often present when there should be a back button (H4)
- On day 2 after waiting, users must remember what was in their cart (H6)

Change:

- "Ask my PatchMates"
- Add an option to go back to previous screen
- Solidify style guide and implement in hi-fi prototype
- Add a back button when users are going through a flow
- List out items that were in the cart when asking users what they'd like to do

Medium Severity:

Feedback:

- ④ Button style, capitalization, emphasis inconsistent throughout (H8) →
- ④ User must enter descriptive elements when messaging PatchMates, but Patch can autofill these to streamline (H7) →
- ④ Missing flow: going from home menu to getting a custom rec (H2) →
- ④ No option to edit or take down a post (H3) →
- ④ Option to get redirected to other websites is only present in the pop-up for a website homepage, not a specific item (H3) →

Change:

- Solidify style guide, implement system
- Have Patch autofill descriptors when the user is looking at specific item
- Add this flow
- Add this option
- Add an option to get redirected to other sites when looking at specific item

Low Severity:

Feedback:

- ④ Celebrating Patch popping up at different locations (H8) →
- ④ Filling out the recs form is step-by-step: inappropriate for experienced users (H7) →
- ④ Initial pop-up gives quick recs, but it could change based on user preferences (using AI and data) (H7) →
- ④ Cross stitching design in the Patch Mascot's pants may be misinterpreted as a cancel button (H8) →
- ④ Some obscure item descriptors (i.e. "rib trim") lack context (H10) →

Change:

- Make these locations consistent (more of a Figma issue)
- Make the form all be one step
- Change "quick recs" to "smart recs" - this is the intended function that is hardcoded
- Add another stitch to both logo and mascot
- For obscurer words, add a hover feature that gives a short definition of descriptor

Cosmetic-level:

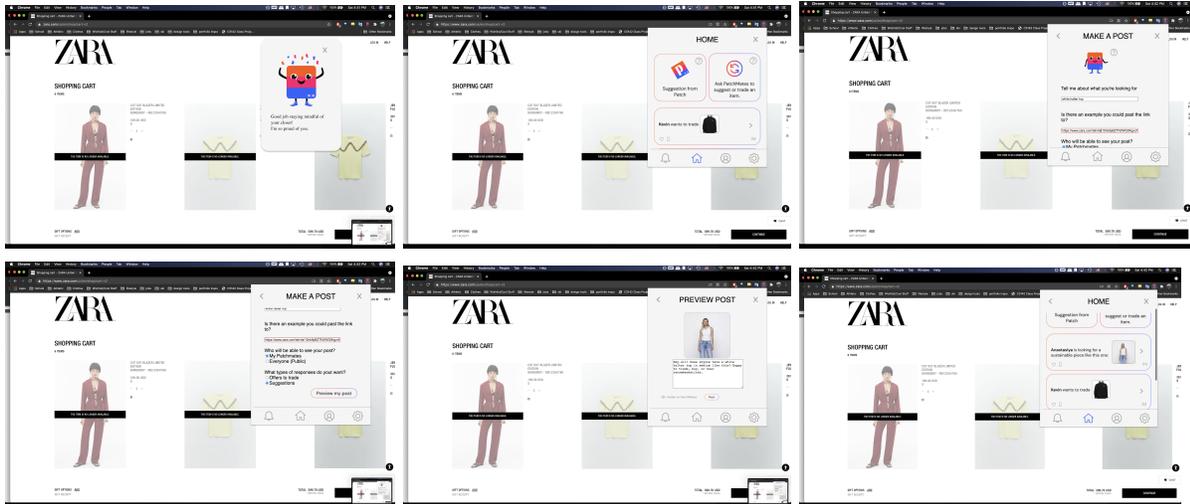
Feedback:

- ④ No confirmation messages when a post is made (H1) →
- ④ "Post to friends" being on bottom left suggests going back a step (H2) →
- ④ Having the home icon connect to a page called "activity" is misleading (H2) →
- ④ Confusing phrasing: "Ask friends to trade or recommend" (H2) →
- ④ No context for why Patch is celebrating when user makes sustainable choices (H2) →

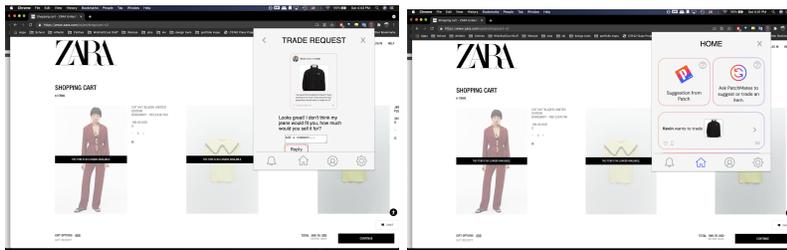
Change:

- Add a confirmation dialogue one feed when post has been made
- Have both "post to friends" and "post to public" on the bottom right
- Change the name of the page to "feed"
- Change to "Ask friends to recommend or trade"
- Add a dialogue from Patch character: "Good job staying mindful of your closet!"

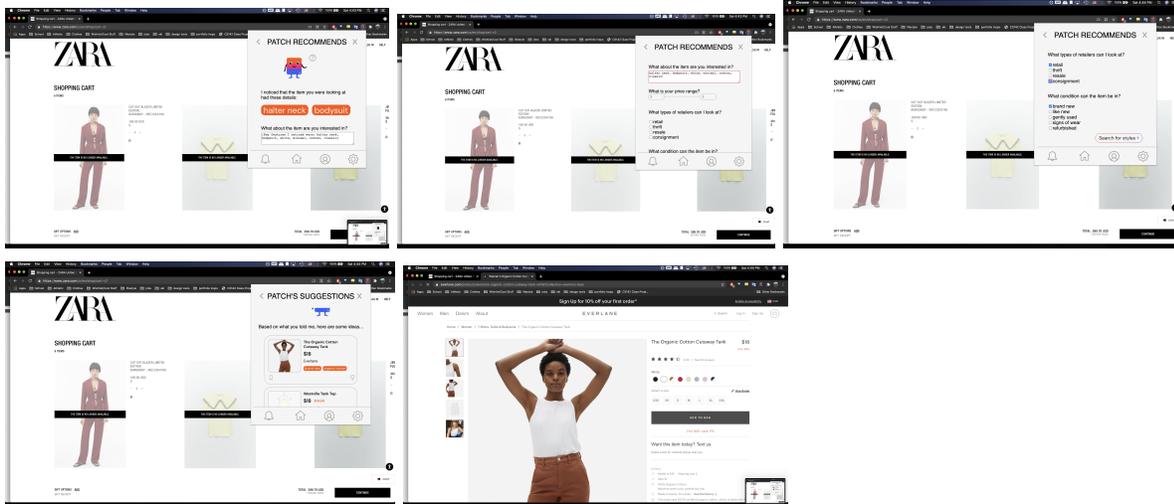
Once the user goes to check out, Patch stages a final intervention--asking the user not to leave, but to wait a day. This helps avoid hobby shopping and helps users reflect on their actual needs more.



Navigating to the drop-down menu, we choose to make a post asking our friends--PatchMates--about an item Patch noticed us looking at.



We also check out a trade request from Kevin, and go up to get suggestions from Patch.



Based on some data Patch scraped from Zara, we get and adjust personalized tags and details, as well as choosing modes of sustainable shopping to explore. Patch takes that and builds a list of recommended items, giving you the option to visit or save the pages.

Tools

We created our Chrome extension using Chrome APIs and React.js (along with HTML and CSS, of course). This was quite a challenge as it was our first time with coding any kind of app. We also found that due to the fact that Chrome extensions are a somewhat less popular medium, we were unable to find anyone with experience to help us. It took a great deal of time to figure out what is and isn't possible when it comes to Chrome extensions, which required us to switch gears a few times. The trickiest part of development for us was setting up effective communication between the browser and the extension, as well as working the existing style into the limitations of Chrome Extension windows. At the same time, the ability to run a background script and thereby react to the user's browsing is the crux of why we chose to create a Chrome extension for our solution.

We used Figma to create wireframes and to develop our design language, and we used Photoshop to create icons and buttons. Figma was incredibly useful in the development of our high fidelity prototype because we were able to export complex elements as .png files, instead of having to do all the detailed HTML + CSS work to re-create those elements. Furthermore, Figma provides useful CSS information about designed elements, so we didn't have to do this work from scratch.

Limitations of Approach

Time-based media: We had to leave out or adjust time-based media (like waiting until the next day to check out). We also focused on the core actions for each task--listening to Patch's interventions, posting questions to friends, getting and following up on recommendations from Patch, and commenting on other users' posts.

Analyzing clothing items: Our Chrome extension is designed to intervene at certain points in a user's shopping journey. Since we only intervene on the Zara website at the moment, we would need to build out further domain checking--potentially against a database based on an environmental/ethical rating group like Good On you--to really see the impact of the annoying interventions--both what is effective and at what point the notifications become too much.

Storing user input: Because we were mostly focused on the flow and feel of the app, we also don't have any real user interactions, too, as is storing changes made (like comments) or acting on user input for recommendations.

Pop-up interaction with drop-down: In our medium-fi prototype we had buttons in the pop-ups (HTML inserted into the webpage) that would open the drop-down (the page that opens when the Patch icon is clicked). However, after many hours of debugging and trying to find hacky workarounds, we found out that this is impossible. To solve this issue, we would need to embed some of the drop-down functionality into the pop-ups, and then communicate between the pop-ups and the drop-down via the background script in order for state to be consistent between the two.

Fonts: Another technical difficulty we have not yet tackled is getting our desired font to work in the Chrome extension, as a result you will see some inconsistencies in font between buttons that were exported from Figma as images, and text native to the extension. (Interestingly, we did manage to make our default font within the Chrome browser DM Sans :))

Wizard of Oz and Hard-Coded Items

Recommendation functionality: We currently don't have the ability to evaluate an image of an item and scrape clothing websites to find something similar, or take in user input to do the same.

Trading functionality: This feature requires interaction with another user over a longer time-span than several minutes of testing.

Feed: Again, this feature requires information about past actions of other users on the platform, so all of the posts are just examples.

Screen size: We hardcoded the locations and sizes of the popups, so for the best user experience please use a MacBook Pro with the screen resolution settings set to those specified above. Furthermore, we only combined the pop-up and drop-down functionality at the end of the project, at which point we realized that we were doing development using two different screen resolutions. As a result, when screen resolution is set as specified above, the drop down looks very large. (Feel free to set the resolution to one notch higher to see what we intended the drop down to look like.)

“Wait until tomorrow”: We let users navigate to the next day to see interactions due to the complexity and usability in a demo of implementing a time-based reminder

Overlaid on set pages with set information about unsustainability: Even though we can now access page data, we can’t intelligently analyze it to figure out why particular pieces are or aren’t sustainable. As a result, we use hardcoded examples where we write in why the brand and pieces aren’t sustainable.

Summary & Next Steps

Ultimately, our team has had an incredibly fulfilling experience this quarter. For some, it was an exciting opportunity to continue their passion in product design and innovation, while for others, it was their first step journeying into the world of design evolution and realizing the inception of a product through every stage of the process. We created a product that we’re super proud of, and with more time we would address the limitations listed above. We hope we can take Patch even further in order to nudge people to shop more sustainably!