skinMirror design process

giselle gray

skinMirror

skinMirror is a smart mirror app that utilises AI technologies to improve user's skin care routines. The skinMirror was made in response to the struggle faced by users to keep up a skin care routine, even when they understand the importance of skin care. Prevention of premature aging, maintenance of skin conditions and sun safety applications are now possible in the comfort of one's own home.

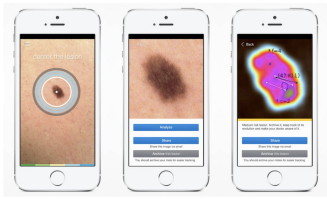
01

Background and User Research

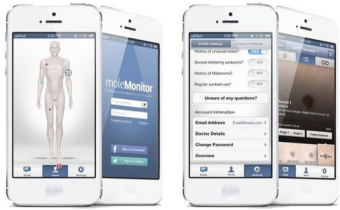
Semi-structured interviews

Think aloud

Precedent analysis



SkinVision



moleMonitor

Naked Fit

Whilst researching, we kept the context quite broad. We looked into chronic skin conditions, skin cancer and existing technologies that aim to track changes in skin. We performed semi-structured interviews and the think aloud method with users. We also looked into user's routines and what motivated them to take care of their skin. We tried to understand the context and find what pain points were most prevalent with existing solutions in the field.

02a

Defining User Needs

Affinity diagram

At this stage we had to reflect on our own bias and make sure that we could focus on the user and the user needs. The insights we gained from users were centred around the lack of motivation to do with maintaining a routine. Surprisingly, although this was true, users also thought that maintaining their skin's appearance was considered important to them. Personal history with skin issues made the users more aware of the importance of their skin's health. Also when chronic skin issues such as eczema were an issue for users, multiple steps were taken daily to prevent flare ups and control symptoms. If a flare up is not detected early, it can't be stopped, which frustrated users, because if they knew their skin was showing signs of a flare up they would have treated it straight away.

Summary of of user frustrations

"I'm not motivated enough to take care of skin"	"Taking care of my skin is difficult and uncomfortable"	"Superficial factors motivate skin care"	"Detrimental factors motivate skin care"
Feeling that skin should be taken care of	Ways to monitor skin conditions are seen as difficult to do	Moisturising and hydrating skin is part of skin care routine	Personal and family history with skin condition motivation to take care of skin
Don't care enough about skin health to do anything	Sunscreen is uncomfortable	Cleanliness is an important motivation in skin care	Concern about life has motivated to take care of skin
	Seeing a dermatologist is expensive and inconclusive	Concern about physical appearance is motivation to take care of skin	Changes in external factors affects skin care routine (weather, geography)

02 b

Personas

Personas were developed as a distillation of user needs. We wanted to keep these personas in mind when developing our context further. We often empathize with our personas as we designed our concepts

Jack is a retail manager for Just Jeans. He also studies fashion design at TAFE, so he is constantly handling fabrics clothes and treated material, he comes into contact with chemicals often which has affected the eczema on his hands that he's had since a child. Jack constantly has to keep moisturising or using steroid cream to prevent dry skin from catching on the clothing and fabric he uses everyday. Jack is a keen painter and has to be careful with which paints he uses because his skin reacts poorly to some of the chemicals used. He wants to be able to constantly create without having to worry about is hands. He is also self conscious about his eczema, especially at work.

Persona

Motivation:
John is an easy going guy that doesn't sweat the small stuff. He washes his face every with water as he **wants to be clean** and he sometimes puts on some moisturiser if his wife tells him **his skin is dry,** this usually happens in the winter. Tom has **family that has been affected by skin cancer** so he knows he should be mindful but he also **thinks that it's healthy** to get some unfiltered sun on his skin- for the Vitamin D.

Frustrations:
Taking care of his skin beyond the odd hat or sunscreen application just **isn't that important to him**. He doesn't worry about his skin as h**e's personally never had any problems** with it, but if he or his wife noticed something that didn't go away in a few weeks, he'd see a doctor - **if he remembers.**

Persona

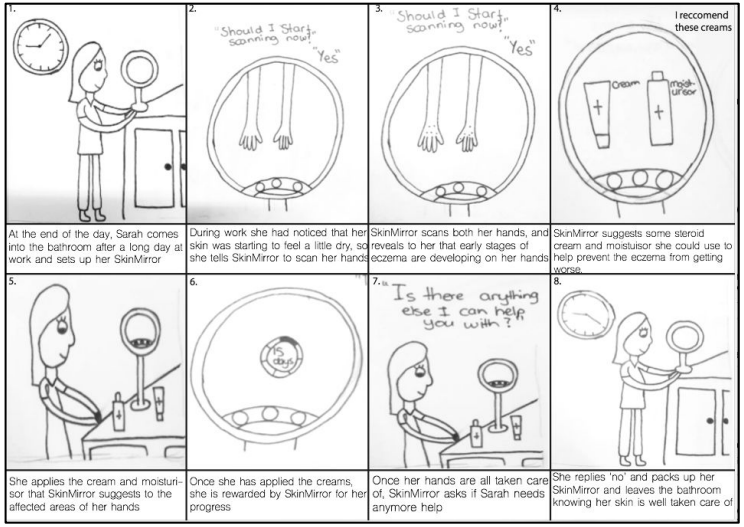
Image 1. Pinterest.

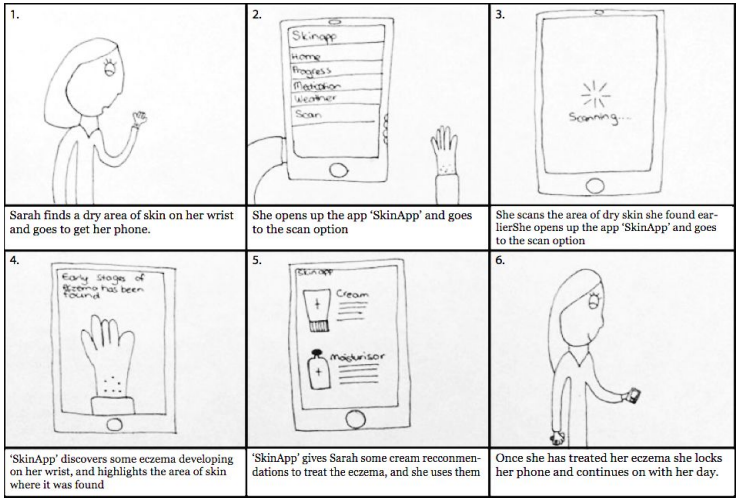
Motivation:
Sarah cares about her skin as **she's had dermatitis** in the past which have made her very **aware of her skin** and her appearance. She washes, moisturises and uses many creams because she wants to **age gracefully**. She is preemptively taking care of her skin so that **she doesn't look bad in a few decades time.**

Frustrations:
Sarah uses sunscreen in the summer on her face and arms but it's **not something that immediately crosses her mind** when she is doing her morning routine.
Sarah also has a few freckles that have popped up in the last few years which she attributes to the sun and not covering up well enough. She doesn't think about them much but sometimes **she thinks they look different and worries**. She thinks about going to the doctor but **she forgets because she has other things to do**.

03a

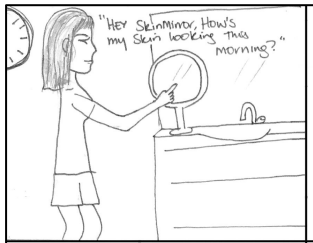
Ideation





Storyboards

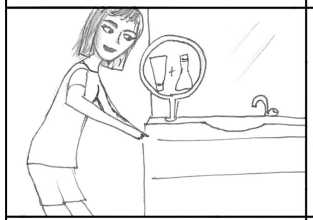
Storyboards were created to explore use cases for AI technology within the skincare space. We developed our concepts through storyboarding. We explored concepts which included a phone app and smart mirrors. We found that within this context, smart mirrors worked well. So we decided on two concepts: one aimed at chronic skin condition maintenance and maintaining a skin care routine.



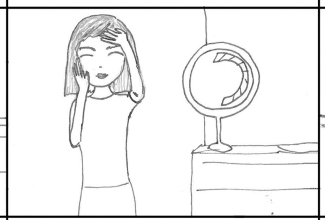
Sarah wakes up and goes to the bathroom to get ready for work. She starts up her skin mirror

As she does her regular routine, she asks skin mirror about the day ahead

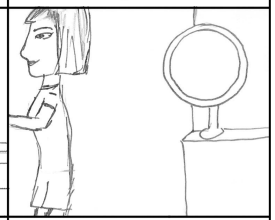
skinMirror tells her her skin is dry on her forehead & it will be 30 C with high UV index



She is suggested a cream and sunscreen for her face



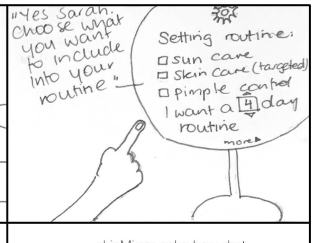
When she puts on her creams, she is taking care of her skin, and is rewarded on skinMirror



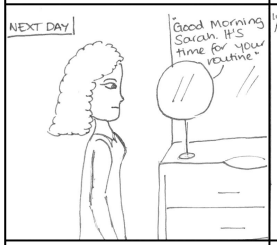
She leaves the bathroom happy and ready for the day ahead

Sarah has noticed she's not taking care of her skin

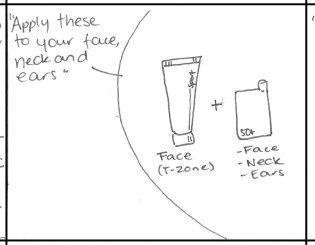
Sarah wants to set a routine for herself via skinMirror



skinMirror asks her what she wants included in her routine



Sarah is reminded by skinMirror to start her routine



skinMirror tells Sarah what creams to use based on the weather and her skin condition

Sarah completes her first day of her routine

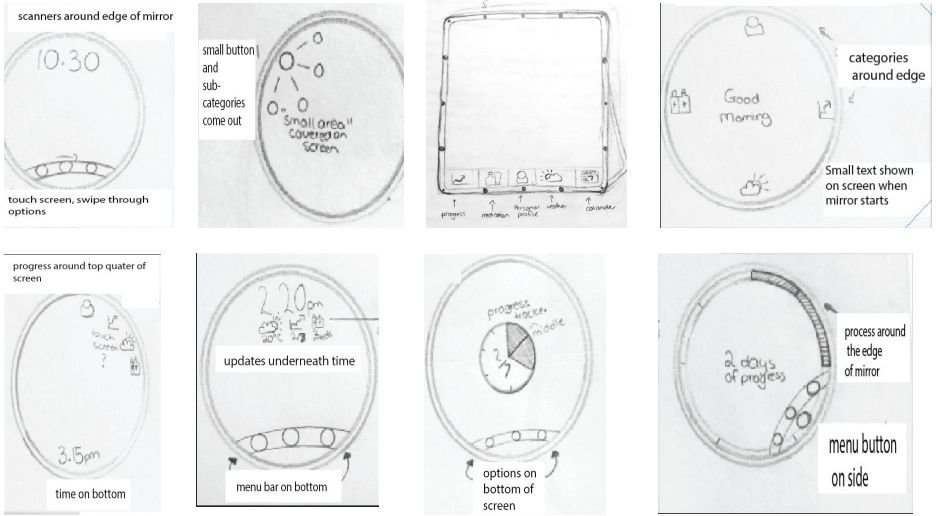
03b

Sketches

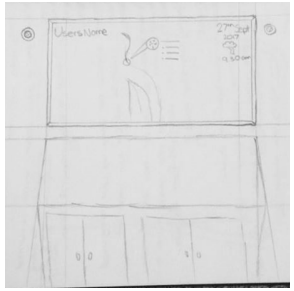
Combination of sketches of interfaces created whilst finalising our main design concepts.

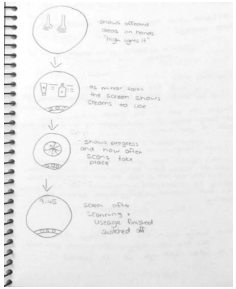
Iterations of screen layout

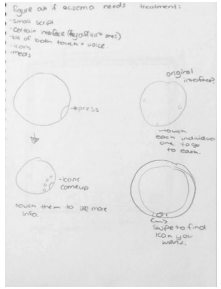
Experimented with different ways of displaying information on screen without taking up too much of the screen. Having icons to large took up too much of the screen, and having the icons to close together made them to difficult to understand. It was found for a round screen layout having a small area of the screen taken up with a slide bar was the most efficient.



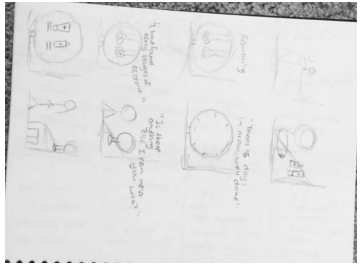
Iterations of different screen types and layout



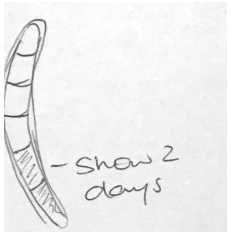


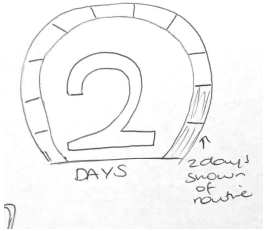


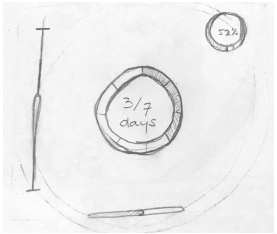
Experimented with different screen shapes for the mirror, so the user is able to still use the mirror but also use the extra features. Having the mirror to large would've allowed for whole body scans, but this could lead to privacy issues with data being stored about a person's whole body. It was found that a round screen enabled users to scan only desired parts of their body at any time.

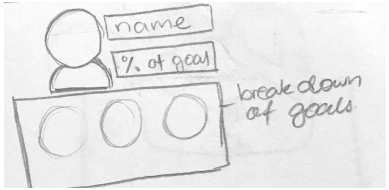


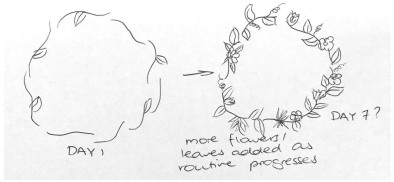
Iterations for progress bars:





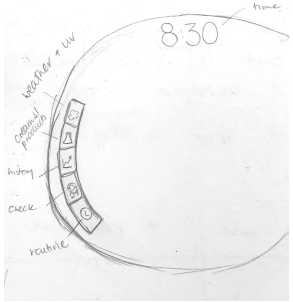


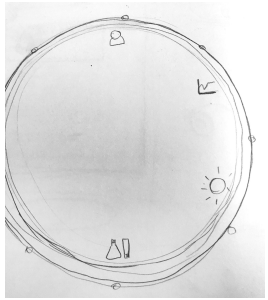


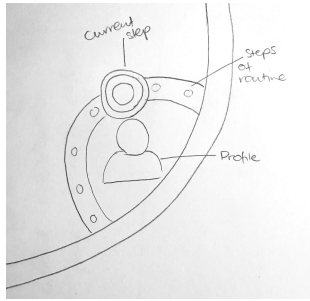


Experimented with different types of progress displays. Creative progress display was aesthetically pleasing, but unintuitive. Different shapes and visual representations were further explored, and it was found that a mix of a visual as well as a numerical value was most effective.

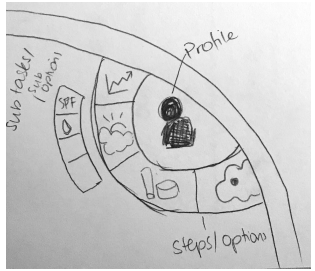
Iterations for routine display:







The representation of the routine was iterated upon to help the user visualise their routine. Different display bars including circular were sketched but didn't fit well with the concept. An unintended hierarchy was also created with certain positioning.

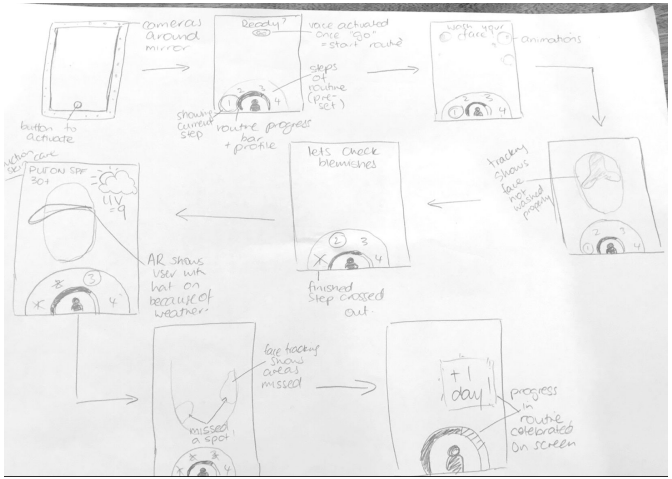


03c

Concept Development

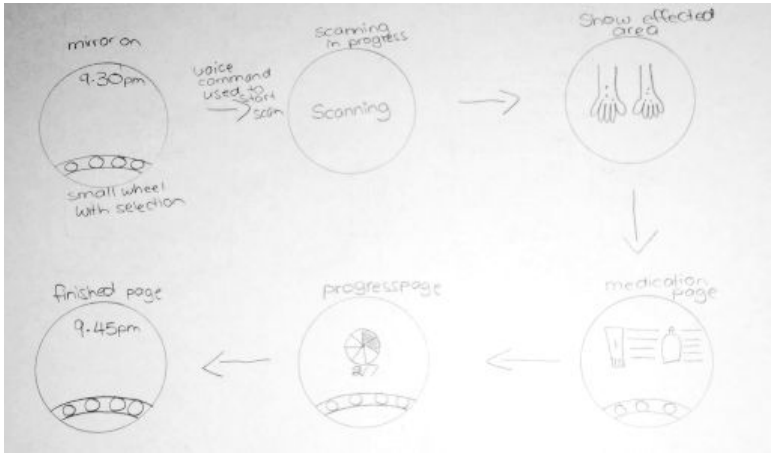
We came up with different design concepts that focused on different parts of the mirror we wanted to explore.

Concept 1



This concept focused on the maintenance of a routine. The user would be guided through a skin care routine. A counter on the screen shows them how long they're kept their routine up for so that they're motivated to stay on track.

Concept 2

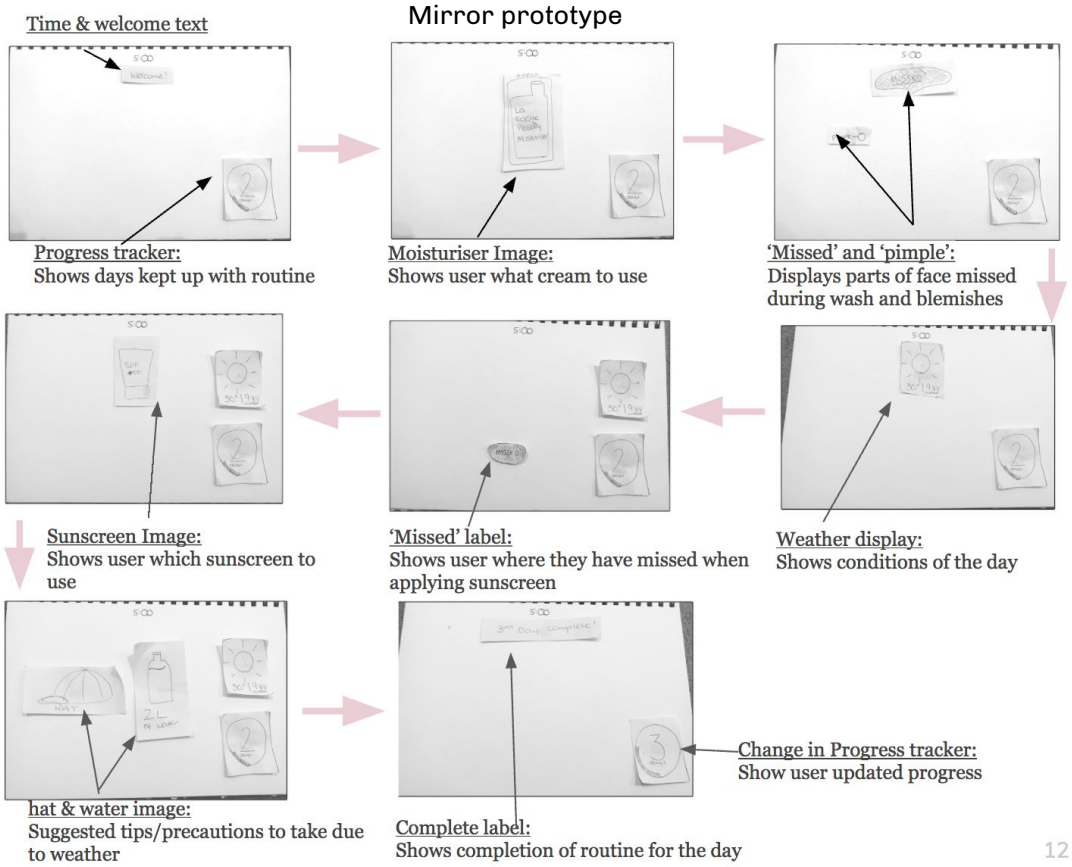


This concept focuses on a user discovering and then having to treat and maintain eczema on their hands, with the mirror giving guidance on how to treat the eczema and also shows the user's progress with day-to-day scanning.

04

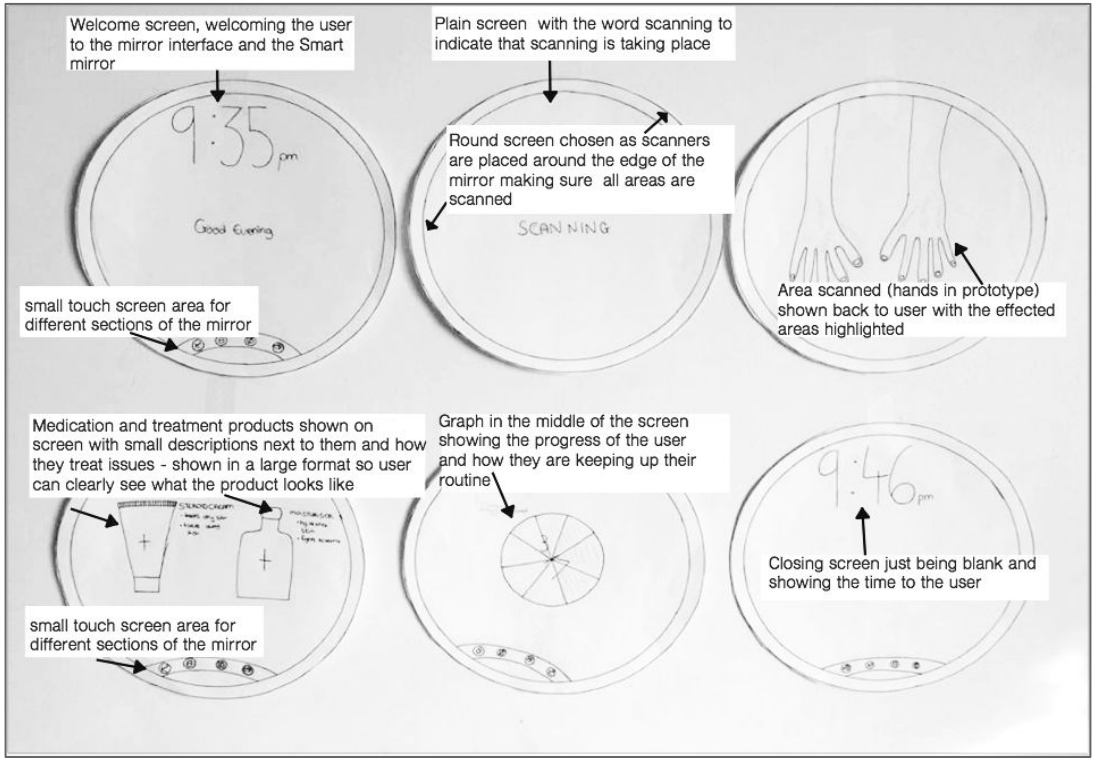
Prototypes

Mirror prototype



This prototype was performed on a mirror so that users could see their faces. It lead them through a routine in which they were told to put on creams and showed them if they missed an area on their face. The user was guided by vocal prompts and they were not required to touch the mirror.

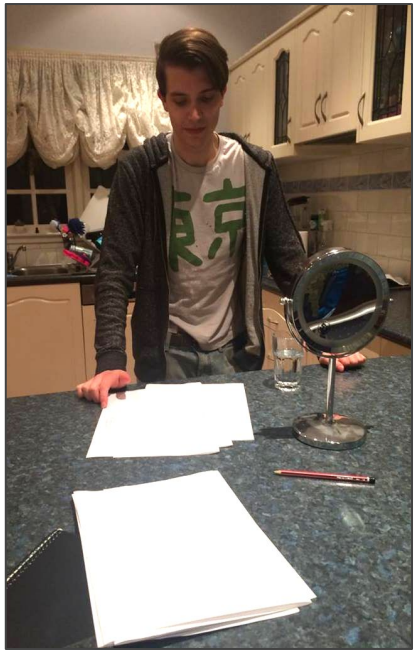
Eczema Prototype

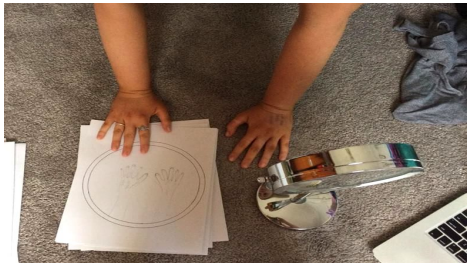


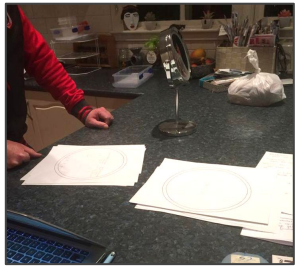
This prototype focused on a user discovering and then treating eczema discovered on both of their hands. Touch screen was utilised in this paper prototype.

05a

User Testing and Finalisation of Concept







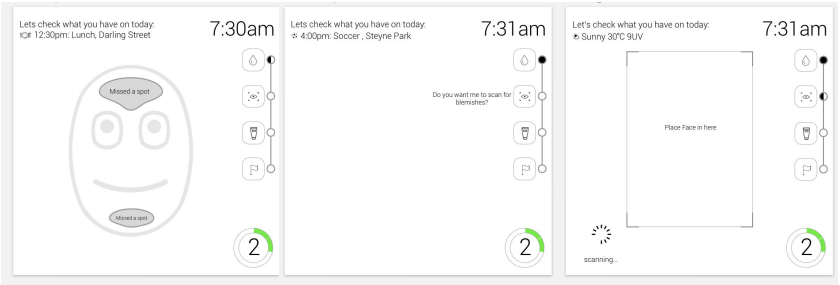
From the mirror prototype, we found users liked how they were communicating with the mirror verbally, as they didn't want to touch their mirror. Users expressed that they wanted to know what was happening during their day, but as they were doing their routine, not as a discrete step. In the eczema prototype, we found users preferred not to touch their mirror at all as they thought it would mess up the mirror making it harder to use. The round edge mirror made it difficult for users to identify icons and read text, so we decided to not continue on with the round mirror prototype.

05b

Wireframes and interface development

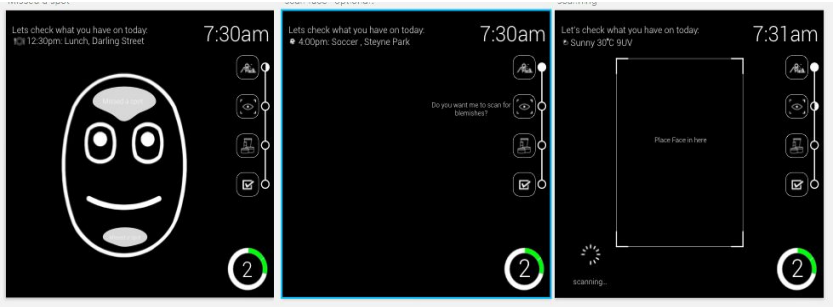
We decided on a concept which was a combination of each of our concepts.

Wireframes



We designed a basic wireframe informed by user testing. We found that it needed to be unobtrusive so it didn't take away from the mirror experience. After showing this to the tutors and another round of user testing, we discovered that the icons we had chosen, weren't that easy to understand, and we issues with the hierarchy of our process bar which needed to be fixed. We were happy with the overall layout of the screen as users that tested it agreed that it didn't take away from using the mirror.

Second iteration

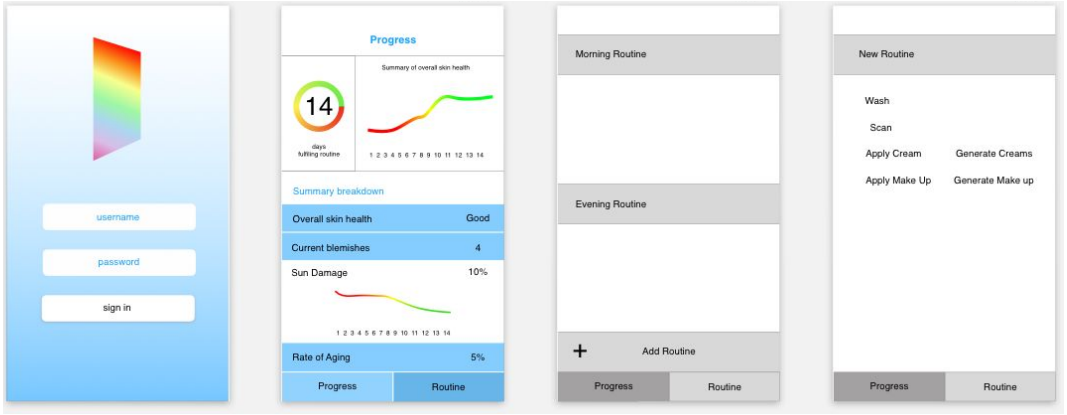


At this stage we found from showing users that we needed to change the icons for the process bar. Through more user testing we discovered new icons which were the most identifiable to users for each section and those ones were chosen for the process bar. The screen colour was also changed to black and all the text and images were changed to white, as again through research we discovered that smart mirrors used white as the main display colour.

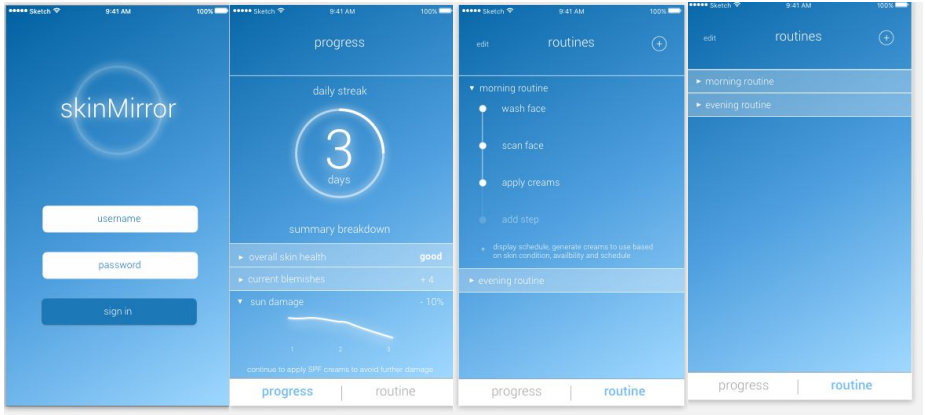
05c

Companion app

Iteration 1



Iteration 2

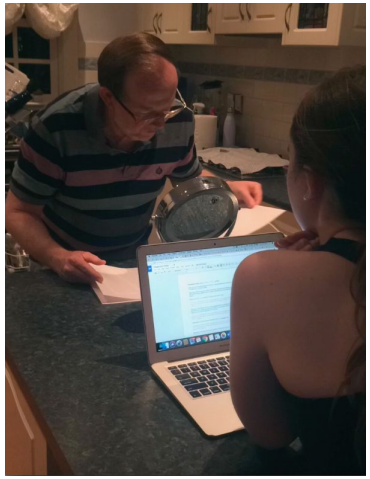


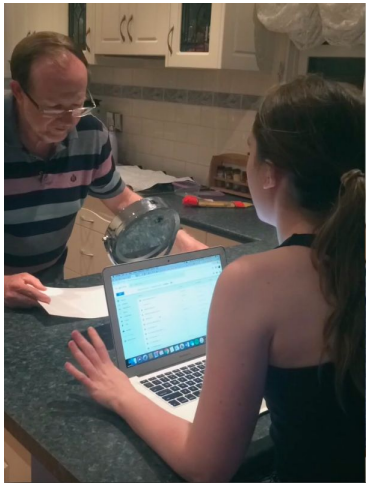
In order to fulfil the requirements of the assignment we build an interface for a companion app. The smart mirror interface had to be very minimal so a lot of steps and information were excluded from the design. We therefore had to build a companion app to understand the whole experience of the user using the skinMirror. We wireframed and developed an app interface where the user would set up their routine and track their progress.

When users want to set up new routines, they would go to the app, which would allow them to view customised steps (using AI) which could be part of their routine as well as suggest to them creams/skin care items to use and add to their routine.

06

Further User Testing

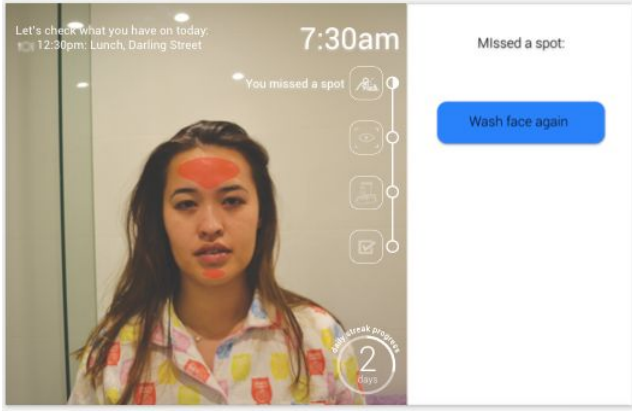


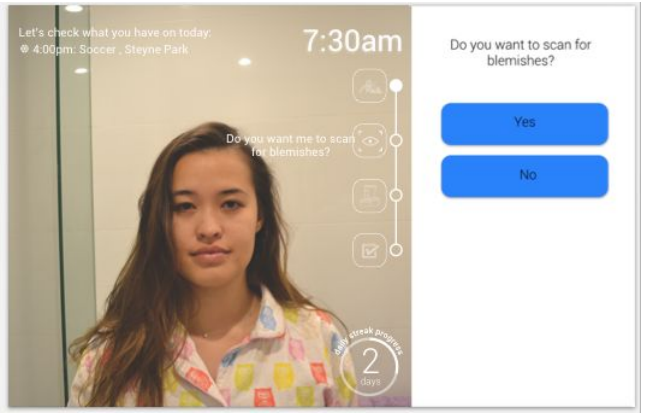


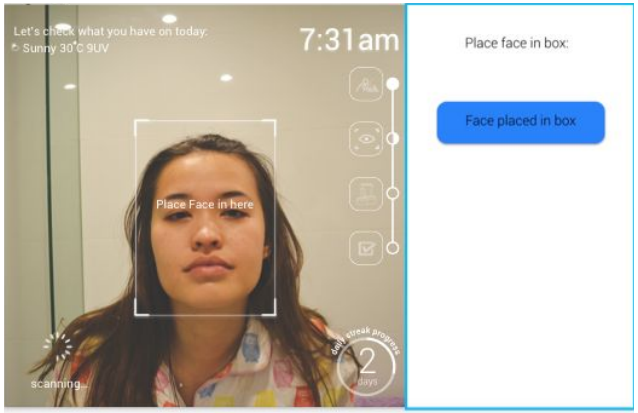
We undertook more user testing rounds once our interface was created. During this round of user testing we were able to assess the appropriateness of the screen layout and newly selected icons. The main concern the users had were with the icons in each step in the process bar. We were told that the images weren't obvious and without any context were difficult to understand. It was frustrating as we had already tested these icons with other users. We decided to test icons themselves. We put all these icons in front of the users and got them to tell us which image the believed best represented each step in the process bar. From their responses we decided once again on the new icons. After the icons were decided on, we realised we could of have gotten better results if we didn't tell the users what the image represented, but rather got users to tell us what they thought the image meant. This could have led to more accurate and faster results. Testing the icons before we put them into the first interface would have helped us to understand what the user understands.

07

Interactive Prototype







For our final prototype iteration we added a face so that we could understand what the interface would look like in-situ. Once the face was added, the main changes we had to make were the sizing of the icons and text. The progress counter was also changed, after we tested with users. Users found the previous design chunky and they felt it didn't match the interface. We made it slimmer and more text was added so it was clear what the counter was there for. For our interactive prototype we put buttons next to the screen which represent the conversation and motions the user would be doing on that particular screen. We also developed the animations for the screen transitions.

08

Reflection

Through this process we really had to focus on designing for our users. We performed many rounds of user testing as we wanted to test and justify our design choices. The design of our interfaces were aided by the sketching we did throughout this process. Constant iteration and experimentation really helped us develop as designers and it was beneficial to keep referring back to our personas to help us empathise with our users.