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UCD 2.1 - Habbit

Isoflow brief

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Project plan

The full project plan is attached as a PDF, managed using ClickUp.

Introduction

For this brief we were asked to create a health and wellness watch application with an associated smartphone application for parents that will teach kids healthy habits in an easy, fun and safe way.
To start this project off, we have decided to conduct baseline research to get a feel for similar applications and products. We will adopt key insights and build them into our eventual solution. Once we have an idea regarding our starting point, we can begin creating low-fidelity prototypes. From here, we will iteratively develop our prototype solution - going through several rounds of user testing and feedback sessions whilst improving our design.
While doing so, we will also be conducting user research, observations and interviews in order to fully understand our target audience. This, in conjunction with our baseline research, will form the foundations of user personas.
Eventually, we will reach a final solution which fits the needs of our target users. This prototype will be reimagined digitally, in a high-fidelity format, where a final round of user testing will be done.

Project scope

Key considerations and requirements for the project are as follows:

Functional requirements - *What* it should do

- Teach healthy habits in a fun, easy and safe way
- Pinpoint child's location, GPS boundaries.
- Keep track of sickness and stress of the child.
- Balance sedative play and active play.
- Account creation.
- Link multiple watches to one account.
- Store child's basic information.
- Set screen-time reminders from the app to be sent to the phone.
- Notification center.

Non-functional requirements - *How* it should do it

- Child's smartwatch with associated parental management application
- Omit reward and discipline motivators.
- Use of gamification.
- Activity center to view summaries of child's health (food, liquid, screen time, activity data)
- Blue-sky feature, keep parents using the application.
- In-app notification when a child moves out of bounds.
- No calorie tracking.

Technical limitations

- 33.3mm by 38.6mm display, 272 x 340 pixels
- GPS, bluetooth and cellular connectivity
- Blood oxygen sensor, electrical heart sensor, optical heart sensor
- Ambient light sensor
- Touch screen & haptic feedback

Baseline research

Child health

To determine what kind of habits the gamification features will be based on, one of the initial steps was to conduct desktop research on what is currently considered a healthy habit for a child, and how it is learned. We also determined what an average day for a child aged 4-7 looks like in order to identify opportunities. The baseline research objectives are therefore as following:

- What are considered healthy habits for children
- How are they learned
- What is the average day cycle for a child aged 4-7

What are considered healthy habits for children?

According to The National Institute of Diabetes and Digestive and Kidney Diseases, healthy habits for children need to be looked at as a whole. They involve the working together of multiple lifestyle aspects, such as nutrition, exercise, mental activity and having regular sleeping patterns. Obesity, for instance, is not only linked to bad nutritional habits, but also to not getting enough sleep. As a parent it is therefore important to consider and connect all of these aspects as they influence things such as growth, learning ability, building strong bones and muscles, maintaining a healthy weight, reducing risk of diabetes or heart disease, and feeling good about themselves (NIDDK 2019: Online).

Nutrition

- Eating breakfast
- Reducing sugar
- Drink water instead of juice or water
- Less processed food
- Limit portion sizes

Exercise

- at least 150 minutes each week (CDC 2022: Online)

Mind

- Read everyday
- Stay positive (resilience)
- Play outdoors
- Reduce TV time
- Play with friends
- Get adequate sleep

Hygiene

- Wash hands
- Brush teeth

(Healthline 2020: Online)

How are healthy habits learned?

When it comes to nutrition, the way food and beverages are marketed often lead to wide-held misconceptions about what is healthy for children. According to Healthy Eating Research, participants of a study were confused about the difference between sweetened fruit-flavoured drinks, as opposed to unsweetened juice for instance, and its perceived health benefits for children. It is therefore important for parents to understand what is good for their child, in order for them to be able to role-model a healthy lifestyle to their children.

Because according to Healthy Eating Research, instead of applying pressure, it is important for children to see their parents make healthy choices in order for them to adopt healthy choices themselves. For healthy eating specifically, it is also important to expose children to healthy food early on because this increases the likelihood of them enjoying the taste of it later in life. What's more, multiple exposures to new food are also important because it can take some time for a child to adopt a new taste (Healthy Eating Research 2022: Online).

Learning by example, as opposed to applying pressure and rewards, can be applied to further healthy habits as well. According to NIDDK, if a child sees a parent having fun engaging in a physical activity, they are much more likely to find inspiration to be active themselves. It is therefore important to find healthy activities the whole family can find fun in, such as a dance routine for instance. In order for children to engage in healthy habits independently, it is important for them to understand the benefits of why they are doing something. Therefore the NIDDK suggests that beyond role-modelling, parents should engage their children in conversations about why they are doing a particular activity, and also let them have a part in the decision making process because this builds autonomy. When going for a walk for instance, parents can let their child pick the route, and talk about how walking makes them feel better. Encouraging phrases such as, "Let's walk 10 more minutes to make us stronger" are also helpful (NIDDK 2019: Online).

It is important for children to understand why healthy habits are beneficial to their personal growth, so they don't just engage in them because of fear of punishment or in anticipation of a reward. And, following the research we found, the methods for achieving this are as following:

- Role-modelling by parents
- Conversations about the benefits
- Participation (in preparing a meal for instance)

Autonomy

In an article on Teach Early Years, Alexia Barrable writes that children start to explore their autonomy as early as 18-months-old, and it is generally fully developed by age three. Because autonomy is considered a basic psychological need humans require for self-determination, it is important to encourage autonomy in young children. It can have a wide-reaching impact, the article says, on a child's development, such as executive function, mastery-related behaviours and general socialisation. But if autonomy is not supported in children, by overly controlling parents for instance, this is linked to increased anxiety levels (Teach Early Years n.d.: Online).

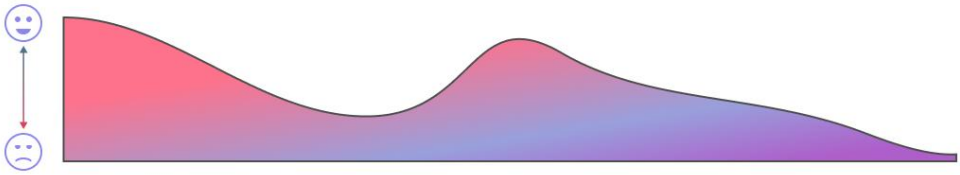
According to Early Childhood Education Blog, autonomy can be encouraged in children by setting up environments where choices can be made, listening to children's ideas and opinions, and giving children real responsibility (Early Childhood Education Blog 2018: Online).

What is the average day cycle for a child aged 4-7?

In order for a child to maintain healthy habits, it is also necessary to have a routine so that these habits become second nature and there is enough time to incorporate all components of a healthy lifestyle regularly. We therefore looked at some suggested daily routines for 4-7 year-olds that would involve enough time to incorporate healthy habits of all identified categories (nutrition, exercise, mental health, and hygiene). The experience map below exemplifies such an average weekday and identifies opportunities for assistance and improvement.

A 4-7 year-olds daily routine

ENERGY



DOING

Wake up
- Wash
- Get dressed

Go to daycare
- Take healthy snacks

Lunch
- Wash hands
- Drink water
- Wholesome food

Come home
- Unpack bag

Screen time
- Watch TV
- Play games

Dinner
- Wash hands
- Drink water
- Wholesome food
- Clear table

7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00

Breakfast
- Drink water
- Eat cereal
- Brush teeth

Play outside
- Interact with friends
- Playful exercise

Bedtime
- Put on pajamas
- Bath
- Brush teeth
- Bedtime story

STAGES

Morning	Afternoon	Evening

THINKING

Morning	Afternoon	Evening
Parent: • "I hope I won't be late for work!" Child: • "I wonder what game we'll play today?"	Parent: • "Today was so unproductive!" Child: • "I hope my snack isn't carrots today."	Parent: • "I'm so exhausted" Child: • "I want to watch more TV."

FEELING

Morning	Afternoon	Evening
Parent: • Stress due to punctuality Child: • Curiosity & excitement	Parent: • Stress due to chores Child: • Boredom with food	Parent: • Tiredness due to being stressed all day Child: • Feels comfort in sedative entertainment

OPPORTUNITIES

To take some responsibility off the parents by giving the child more autonomy and involvement in completing their daily chores.

Teaching healthy habits without punishment can be done in several ways.

Giving support while learning, this is done though building routine or “scaffolding” as said in the article (Marshall, 2022). This allows children to be supported until they are fully capable of doing the habit themselves.

Saying yes is important (Marshall, 2022). This allows for positive reinforcement even if the task is not a nice one. It is important to limit the amount of times we say ‘no’ as it may negatively effect a child’s learning due to the negative qaunatations attached to it.

Children learn by watching. The monkey see, monkey do behahaviour (Rymanowicz, 2022). This is also known as observational learning. Children can learn through watching their parents perform tasks or through platforms such as the television or even games. Children are more likely to repeat a behaviour if it received some form of positive reinforcement.

Rymanowicz, K., 2022. *Monkey see, monkey do: Model behavior in early childhood*. [online] MSU Extension. Available at: <https://www.canr.msu.edu/news/monkey_see_monkey_do_model_behavior_in_early_childhood> [Accessed 3 June 2022].

When it come to teaching a specific habit, for example healthy eating, it is good to give your child some form of autonomy. Let them choose their fruits or let them help you prepare dinner (Marshall, 2022). It is also important to explain the reasoning behind behaviour for overall understanding, ready nutritional labels to children for them to start comprehending nutritional values.

Competitive analysis

Introduction

A competitive analysis is used to measure the strengths and weaknesses of potential competitors. It compares features to identify potential areas of opportunity. The competitive analysis in this project has been used to identify similarities, benchmarks, and possible weaknesses of competitors.

Apps Introduction

Super Stretch Yoga HD: Super Stretch Yoga is a watch app that makes doing Yoga for kids easy and fun. A character pops up doing a yoga pose and then a kid needs to mimic the pose. The app prides itself on teaching kids healthy activity habits as well as reducing stress and anxiety in children.

My Food: Nutrition for kids: My Food-Nutrition for Kids is a watch app that allows kids to explore food opportunities and learn nutritional facts about specific food items. It incorporates a game where kids grow and nurture their own garden to then cook food with their gatherings.

Find my Kids: Find my Kids is a watch app that can be downloaded for parents to be able to have the GPS location of their kids. It also allows parents to call their kids and their kids can send out emergency SOS calls. This app is predominantly for child safety.

Watches Introduction

Garmin Vivofit Jr.: The Garmin watch is specifically designed for kids. It allows them to win rewards through moving and reaching goals. It has enough features to keep kids busy but avoids unhealthy features like an internet connection. It is a very practical watch that mainly focuses on improving movement and activity in children.

Vtech KidiZoom DX2 smartwatch: This watch is more game-focused, they use a game to encourage kids to run around and catch ‘monsters’ in the real world. It is focused on improving activity levels in children. It has basic features that allow children to time activities and take photos.

Xplora X5 Play smartwatch: This watch is focused on increasing activity and safety. It allows children to receive rewards for being active. It allows parents to have a GPS location for their children. It also allows platforms for basic communication but avoid social media purposefully. It has a camera that can take photos. There is also an AppStore that allows children to use their reward tokens.

Comparison Table

A comparison table is used to measure the features of different potential competitors. It highlights consistencies as well as possible gaps in the market.

	Calorie Display	Fitness Reminder	Steps	Calls	Games	Water Intake	Parental Connection	Food Intake Tracked	Screentime Limit	Heart Rate	Rewards	Nutritional Info	GPS Tracking
Super Stretch Yoga HD	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
My Food- Nutrition for kids	✓	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗	✓	✗
Find my Kids	✗	✗	✗	✓	✗	✗	✓	✗	✓	✗	✗	✗	✓
Garmin Vivofit Jr.	✗	✓	✓	✗	✗	✗	✓	✗	✗	✗	✓	✗	✗
Vtech KidiZoom DX2 smartwatch	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗	✓	✗	✗
Xplora X5 Play smart watch	✗	✓	✓	✓	✗	✗	✓	✗	✓	✗	✓	✗	✓

From the above table we can see that majority of the features are used across all platforms or there is a balanced amount of platforms either using or not using a specific feature. However, for **calorie display, water intake, food intake, heart rate (well-ness) monitoring, and nutritional information** there is possible opportunity in using these features. We can also note that none of the competitors make use of all of the features.

From the table, we can see that My Food - Nutrition for Kids, Garmin Vivofit Jr., Find my Kids, and Xplora X5 Play smartwatch are the biggest threat in terms of features we are considering. These four apps/watches will be considered for the SWOT analysis.

SWOT

A SWOT analysis is used to identify a product's strengths, weaknesses, opportunities and threats. This allows us to identify potential threats that may hinder our product as well as opportunities we can act on from our competitor's weaknesses and faults.

My Food- Nutrition for kids

Strengths	Weaknesses
- They focus on a niche. - There is minimal focus from others on **nutritional information** and learning. - Their game is unique and offers a great opportunity for learning how to grow your own food. - They provide **vegetarian options** which cater to more people.	- The app is very game-orientated and doesn't offer screen time limits but rather encourages being on the screen. - The design is old school and can be quite distracting for children. - There is no way for a parent to simultaneously interact with the child. - They do not teach about water intake.
Opportunities	**Threats**
- Refining design to be minimalistic and organized. - Broaden the scope to look at teaching about **staying hydrated** as well. - Encourage screentime limits.	- Their specific focus means that they can offer a great service in this area with more in-depth information. - The game element might be appealing to parents to occupy their children.

Find my Kids

Strengths	Weaknesses
- Focuses on a niche. - Emphasises the importance of safety for children, which can be very appealing to parents. - You can set safety zones via **Google Maps.** - There are additional features like listening to surroundings, location history, checking screen time, and sending SOS messages.	- Very narrow and limited focus on location mainly. - There is no 'fun' element to the app, it can be quite scary for children to understand why they are using this app.

Opportunities	Threats
- Adding an element of ‘fun’ can make the app more enjoyable to the child. - Adding features like looking at a child’s **heart rate and blood oxygen** levels can help with the safety element as it indicates when a child is in a stressful situation or feeling sick.	- Their safety and security system and application are very well oiled and seem to be very popular as the website states that they have 7 million worldwide users.

Garmin Vivofit Jr.

Strengths	Weaknesses
- This watch has several features from the basics like timing to more unique features like a chores list. - Garmin is already a well-known brand that parents are likely to use and therefore are more likely to buy a watch for their children. - It is often associated with a well-known **children’s brand**. Marvel is currently linked to the theme of the watch.	- The watch is quite expensive for a children’s watch. - The UI is very game-focused and looks like a marvel videogame. This can be distracting for children. - It is an extremely reward-based system. It offers coins for almost all activities done.
Opportunities	**Threats**
- They can incorporate less reward-based activities with more knowledge-gaining activities rather. - They can offer an option where the watch can be ‘locked’ during school hours. - The watch can also offer other rewards not linked to the idea of money.	- They are a well-known brand and they work with well-known brands like Marvel. This already increases their reach. - Parents are more likely to buy a watch from a company they know and that has many reviews.

Xplora X5 Play smartwatch

Strengths	Weaknesses
- This watch offers a variety of features and a play store that allows children to buy more features or use their active coins to buy products. - It combines location tracking, communication, games, and more to	- From a few reviews, it does say that the watch is not durable enough for children, and accidents like dropping the watch can easily damage it. - The system is reward-based and encourages children to gain coins to

be a great overall watch.	buy items themselves, this can cause a bad relationship for them with being active.
Opportunities	Threats
- Make the watch more durable so that kids do not need to worry about having the watch on. - Offer **different types of rewards** that do not only encourage spending coins.	- They partner with leading companies like SONY and Netflix to produce extra features that children can buy. This can be very appealing as they are well-known brands.

From the SWOT analysis, we can see that an opportunity arise for us to look at:

- Looking more into nutritional value information as it is neglected by most products offered.
- Focus on water intake as no products included this feature.
- Incorporate Google Maps in terms of the safety aspect as it allows for a sense of familiarity.
- Monitor elements such as heart rate to indicate stress or health issues, none of the above products look into that.
- Find alternatives to a reward scheme as the above products are very dependent on rewards.
- Look into partnering with well know children's brands like Spur, Toys are Us, or even local restaurants. This can include teaching children about the menu options and the nutritional value it offers or being able to play with more educational toys.

Benchmarking

Benchmarking is used to set universal standards when it comes to building potential products. It helps guide the design process with set standards. Benchmarking will be used in this project to compare a kid's smartwatch, one of the current best watch apps, and one of the top kid's apps. I will briefly discuss elements such as colours, navigation, font size, and the use of imagery. All products are aged 4+.

Xplora X5 Play smartwatch	The watch has a dashboard screen that is very colourful and has playful cartoons. Their menu option consists of four options per page and you can swipe left or right for more. The font is quite small, they make use of a lot of icons and imagery for navigation.
Water Reminder	The watch app consists of three pages, the main page, a page where you can add items that you've drunk, and a page where you can say how much. The app is daily basic, it only requires you to tap and use the side button to

	scroll down. It is fairly colourful in the icons that they use.
Dr. Panda World	STarts with a cute animation of a panda. Minimal words are used. It is mainly buttons and animated characters. The font is a normal size and the game is very colourful, but uses soft finishes. The navigation is very simple and only includes tapping items and swiping left, right, or up and down.

From the benchmark, we can identify a few key elements that need to be universal:

- The navigation needs to be basic. Swiping and tapping are the limits. Maybe use the scroll option.
- It needs to be interactive, colourful, and make use of imagery like icons.
- There needs to be a limited amount of pages when using the watch itself.

Heuristic evaluation

Watches

You can use Trip Planner — Nathan Young's standards for heuristic evaluations - easy to read and summarize

Health applications

Navigation evaluation

Mobile Apps Introduction

Health applications are programs that offer health-related services for smartphones and tablets pc's mobile health programs.

Huawei health is an on board mobile health app that monitors your health and your physical activity. The app lets you keep a detailed record of information about your sleep habits, weight tracking, and your daily calories or your heart rate. You can record all your physical activities.(ref)

The iphone health app gathers health data from your iphone and apple watch, and apps that you already use. You can review all your progress in one convenient place. The app automatically counts your steps, walking and running distance, and if you have an apple watch, it automatically tracks your activities. (ref)

	Huawei Health	**Iphone Health**
Activity tracking	Check	Check
Tracks Bmi	Check	No
Tracks water intake	Check	No
Tracks Calories intake	No	No
Live tracking	No	No
Provides sleep report	Check	No
Integrates with Social features	Check	No
Is gamified	No	No

In the above table is a comparison of the two mobile health apps, we looked at the key features of each app being the activity tracking, activity reports, nutrition tracking, social features, which are aspect features we want to potentially build in our mobile app design.

Information Architecture and Navigation research on health applications.

In designing healthcare applications it is important to have a clear understanding of your end user's goals, motivations, and current workflows and pain points. Once you have that gathered, you can begin to brainstorm the information architecture patterns for healthcare design.

There are 9 information architecture patterns for healthcare design, these patterns help in mapping out the architecture and navigation concepts. A successful implementation of these patterns will help in user's build "muscle memory" within an interface that allows them to focus on completing their tasks, and makes the navigation serve its wayfinding. (Gass,2019)

1. Hierarchy

Top-down categorical tree. Users navigate top-level (parent) navigation and drill into sub-level (child) content. Hierarchy can be strict, where sub-levels can only be accessed via the direct parent, or multi-dimensional, where there are multiple ways of browsing the same content and one piece of content can appear in multiple hierarchies. (Gass,2019)

GOOD FOR: Information sets where the relationships have a logical hierarchical order.

WATCH OUT FOR: Too many sub-levels that can make the navigation seem cumbersome.

2. Tabs

A common implementation of the hierarchy pattern. Tabs are a collection of sections tied together with a toolbar menu or set of tabs. Users can quickly scan the tabs or toolbars to understand content and functionality within each tab. (Gass,2019)

GOOD FOR: Multi-tasking. Tool-based apps with a similar theme.

WATCH OUT FOR: Complexity. This pattern is best suited for simple content structures.

3. Hub & Spoke

A central hub acts as the home-base for exploration. Links point outward to other sections, each siloed from the others. To move from one section to another, the user must first jump back to the hub. This is a popular choice for task-based applications that benefit from focus and minimal distraction. (Gass,2019)

GOOD FOR: Multi-functional tools, each with a distinct internal navigation and purpose.

WATCH OUT FOR:Users that want to multi-task. Users will not be able to quickly switch between sections.

4. Linear

Content is structured in sequential steps. This pattern is often used to guide users through a process, for example, a setup wizard. (Gass,2019)

GOOD FOR: Workflows where the user must learn or do one thing before moving on to the next.

WATCH OUT FOR: Locking users into a structure they cannot get out of.

5. Nested Doll

A variation of the linear pattern. Users incrementally reveal additional options as they traverse deeper into the navigation. Funneling users from broad overview to detail helps them focus on what they are looking for and narrows content within an individual section. (Gass,2019)

GOOD FOR: Singular or closely related topics. This can also be used as a sub-section pattern inside other parent patterns.

WATCH OUT FOR: Users that want to multi-task. Users will not be able to quickly switch between sections.

6. Bento Box

The bento box or dashboard pattern brings content or functionality directly to the main or home screen with components that display portions of related tools or content. This pattern is more suited to larger screens due to its complexity. (Gass,2019)

GOOD FOR: Multi-functional tools, data or status visualization

WATCH OUT FOR: Hierarchy can be diluted if too many items are vying for attention.

7. Filtered View

A single content set can be explored from multiple aspects. Views and sorting options are controlled by the user. (Gass,2019)

GOOD FOR: Navigating large quantities of faceted content, such as medical records, test results, etc. Can be used as a sub-pattern within another navigational pattern.

WATCH OUT FOR: Filters and faceted search can be difficult to display on a smaller screen due to their complexity.

8. Web

No planned structure. Content is linked together in context, like Wikipedia. (Gass,2019)

GOOD FOR: Content not known in advance, user generated content, collaborative work.

WATCH OUT FOR: Lack of structure can hinder discoverability.

9. Database

A list or collection of independent chunks of content. There are relationships between content, but they are not dependent on each other. (Gass,2019)

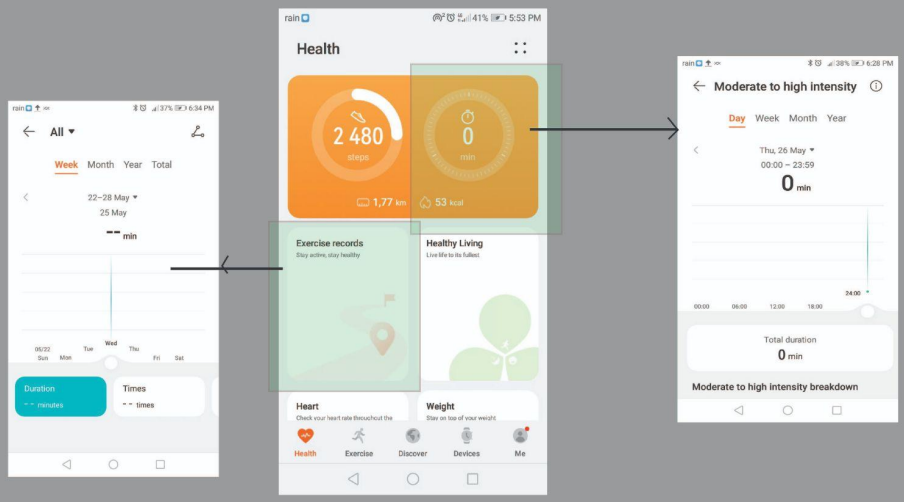
GOOD FOR: Storing data once and displaying it in many ways.

WATCH OUT FOR: Information overload. This pattern is often used as a sub-pattern within a more structured pattern, such as hierarchy.

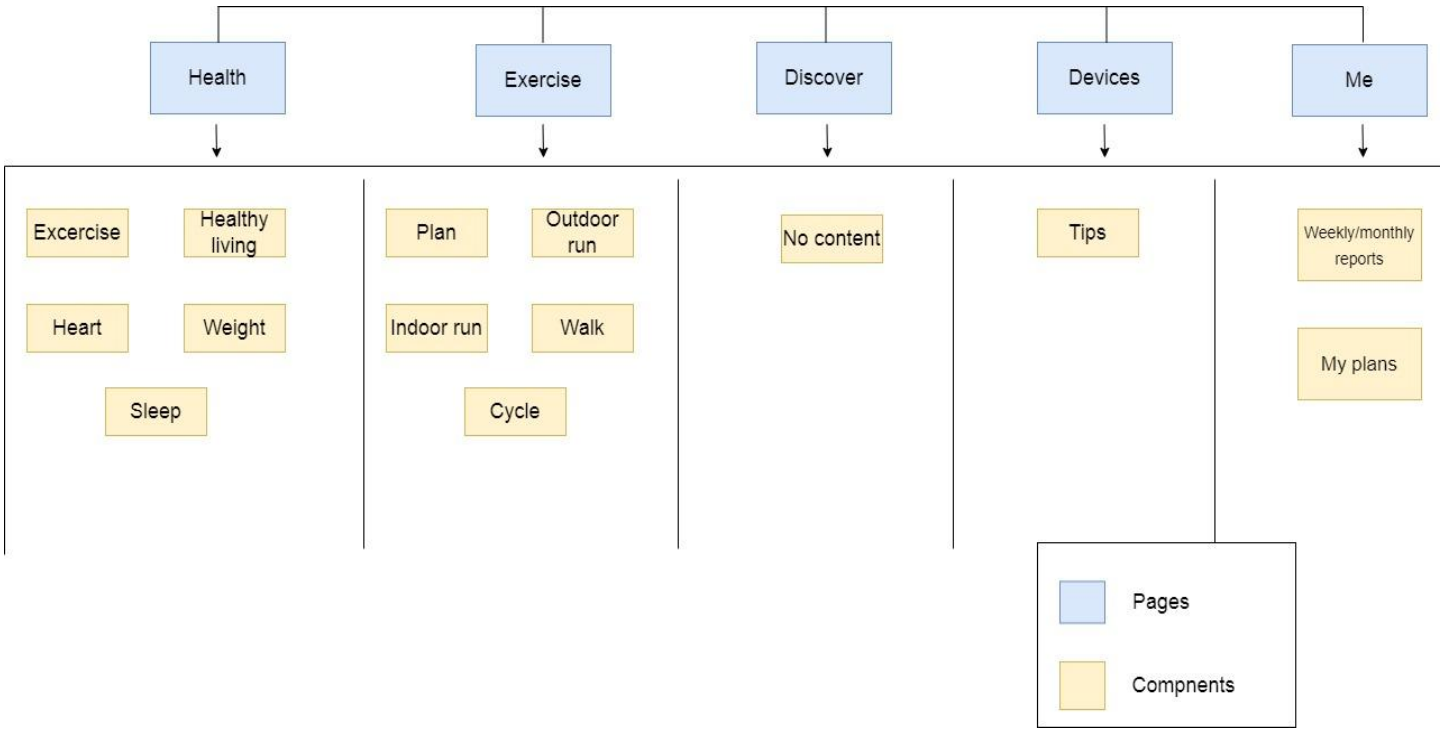
Through my research using the bento box information navigation is common in the fitness and finance apps. It helps organise large amounts of data generated within the app.
Below is an image showing Huawei's health app.

The Huawei health app uses the bento box pattern, which aims to give you an overview of multiple pieces of dynamic information at once. Then you can choose to see certain pieces in more detail.

Screenshots of the on board health application found on the huawei P8 Lite, how it has used the bento box navigational pattern.



Below is the information architecture drafted in a bento diagram structure to see the navigation layout of the mobile app.



Gamification for children

Lifestyle

A key concept associated with the problem statement is the idea of *gamification*. Gamification is the integration of typically game-like components into real-life situations. This is done in order to encourage user engagement with a particular product or service.
Freya Lucas identifies three key elements of gamification in her article (2019):

1. **Triggers** - Provokes behaviour that will benefit the player in the long run,
2. **Reinforcement** - Stimulates the player into repeating positive behavioural patterns, and finally;
3. **Goals** - to “win” or achieve something.

By gamifying “boring” tasks, one is able to make chores more entertaining, thus subliminally enforcing healthy lifestyle habits. In Lucas’ article she discusses the effectiveness of Dentacare’s card game to encourage children to brush their teeth. The main components of this card game is as follows:

- Teach children what is **bad for their teeth** (using antagonistic characters)
- Teach children how to **look after their teeth** (by brushing)
- Urge children to protect their teeth using a battle-based card game, **protecting their teeth** from “bad guys” and regenerating health using **healthy habits**.

In using this, Dentacare **shifts the focus** from brushing teeth as a chore to brushing teeth as an activity.

Learning

Accelerol's article (2018) on gamification highlights several key factors used to **increase interest** and **learning** using gamification in an academic environment. This article also highlights the importance of the inclusion of gamification with the following statistics:

- 80% of learners would be more productive if their work was more game-like
- 89% say that a point system would increase their engagement

This article also provides several gamification techniques to increase learner engagement. Due to this project's specific scope, I will only discuss techniques relevant to our project plan.

- **Set the main success criteria**: Identify the main goal and what experience you aim to set for the users
- **Keep learning objectives close**: Remember that this entire process is to help the user to learn how to forge healthy habits.
- **Use levels for the learning journey**: Points and levels help track progress, as well as drive the user to complete their tasks.
- **Let them see their progress**: Use progress bars or percentages so users can see how far they are in each task.

Children's games and virtual companions

There have been companies (such as Xplora) in the past that have blended fitness trackers with gamification tactics in order to **encourage healthy habits** in children, as discussed under the competitive analysis section. In the competitive analysis section, we will discuss the features of these types of applications and accessories in further detail.

It has been shown that gamification has been highly effective in encouraging healthy lifestyle habits amongst young children. A Mobiquity article highlights the importance of virtual pets in teaching children how to manage their own health, teaching them habits important for their longevity in the case of being burdened with unique health conditions. They mention that parents are often responsible for their child's health concerns. This is because of a child's "**inability to effectively manage**… their **condition, treatment** and the associated **mental load** that is placed on the child. To that end, engaging an **effective behavior** driver (i.e. a virtual pet) that assists children in managing their condition **without pushing** the **stress** of associated health outcomes." (Mobiquity, 2016)
In summary:

Much like mentioned in our scope, this article emphasises the importance of delighting the user rather than pressuring them in order to divorce the negative pressures of care management from necessary daily tasks (Mobiquity, 2016).
They mention that a possible solution is a **adoptable, virtual pet** companion which **shares the same condition as the inflicted child.** Because they share a condition and its effects, the relationship between the child and the pet grows rapidly.
The child then becomes the primary caregiver for the pet, thereby indirectly teaching the child how to look after themselves vicariously through looking after their companion. This allows a child's health needs to be met, without placing large amounts of pressure onto the child.

When the pet needs water, sleep, medicine, ect, the pet needs it too. By giving the companion what it needs, it serves as a reminder to the child that they need the same thing too - encouraging healthy habits in a fun and inclusive way. Customising the character as the child sees fit will additionally strengthen the bond between the child and pet.
The shared condition and routine strengthens the bond between the companion and the child and provides a foundation of understanding that is difficult to achieve as a parent or outsider.

The article also mentions *Tamogaitchi* (Yokoi & Maita, 1996), the highly successful hand-held virtual pet from Japan - inspiring many similar virtual companions in its wake. As the Tamogaitchi grows, the relationship between the child and the pet also grows. Feeding and nurturing the pet makes children aware of their own needs, associating the causes and effects of the pet onto themselves. It is easy to see the **effect of a missed treatment on a pet** and the child begins being able to see the same effect in **themselves**.
When the pet misses a treatment, the child does too. Mobiquity notes that this could be used as a **driver for user behaviour**, using the state of the pet to trigger a highly motivated response. This provides a goal to the child: The path to **make their pet happy and health**y is via proper (self-) care. As they repeat this process, it becomes integrated with their own care.
Additionally, the child is never “alone” and has someone to share their experience with - leading to the pet gaining the users trust. This allows the companion to track the child’s healthcare routines, so that necessary information can be relayed to the parents or relevant authorities**.**

In summary:

- Children learn how to look after virtual pets, and therefore themselves.
- Customisation (appearance, conditions, and otherwise) makes a child feel more connected and responsible for their pet.
- A strong bond is necessary for a child to feel responsible for their pet.
- Looking after a virtual pet takes the cognitive load off a child learning to care for themselves, making healthy habits easier to adopt.

Companion status

Name	Hunger	Hygiene	Happiness	Health	Exercise	Sleep	Friendship	Levels
Tamagotchi Pix	✔	✔	✔	❌	❌	❌	✔	❌
Moshi Monsters	✔	❌	✔	✔	❌	❌	✔	✔
Nintendogs	✔	✔	✔	✔	❌	✔	✔	❌
Moy 7	✔	✔	✔	✔	✔	✔	❌	✔

Game features

Name	Customisation	Minigames	Collectables	In-app purchases	Multiplayer	In-game currency
Tamagotchi Pix	✔	✔	✔	❌	✔	✔
Moshi Monsters	✔	✔	✔	✔	✔	✔
Nintendogs	❌	✔	❌	❌	❌	✔
Moy 7	✔	✔	❌	✔	❌	✔

The Ocariot Experience

A study was conducted to encourage healthy lifestyle habits amongst children using a digital health coach (Bastida, et al., 2019). The goals of this project was to:

- Distribute meals along the day: eat small amounts several times a day;
- Lots of fruit and vegetables;
- Water as a drink to quench the thirst, avoiding sugary and industrial drinks;
- Get active each day: at least 1 hour of physical activity every day;
- Limit screen time: sedentary time is associated with an increased risk of becoming overweight;
- Sleep quality: associations between short sleep duration in early childhood and obesity are consistently encountered.

The expected results of this experiment was to (Bastida, et al., 2019):

- Children embracing **healthy habits**.
- Children **acquire knowledge** about healthy habits and understand how to apply them in their daily life.
- Make the **learning process** about healthy habits as memorable as possible while using the app.

The core components of the gamified experience identified by the Ocariot Experience are defined below. I have adapted these components to be more relatable to the concept of a virtual pet as defined above.

- **Storytelling** - The world in which the character and narrative takes place.
- **The avatar** - Representing a mentor who challenges children with healthy activities whilst providing guidance.
- **Personalisation** - will be used by children to personalise their mentor, making it their own.

- Educational games or **engagement tactics** - will focus on promoting the forcing of healthy lifestyle habits of children.

Legal & Ethical considerations of GPS compatibility in children's watches

Losing children is an ongoing nightmare of parents, legal guardians, and caregivers alike. In South Africa, the notion of a GPS (global positioning satellite) tracker seems like a simple solution to always keeping track of your children. However, this also has a list of ethical, legal and privacy concerns that need to be considered, discussed, and respected. In this section of the document, we will discuss these implications and what we have done to respect the privacy of parents and their children whilst providing them with services necessary to keep children safe and their guardians' mind at ease.

We consulted an article which discusses the implications of GPS tracking in South African pre-primary schools (Niekerk, 2016). Much like the scope of this document, they mention the use of GPS zones. In this article, they mention that some smart watches only start recording the child's location once they have left a particular GPS zone. Additionally, these watches have a panic button / call feature to alert guardians under urgent circumstances. This feature will provide an invaluable framework for ensuring child safety in South Africa – an environment where child kidnapping is, unfortunately, prevalent.

Although it is completely legal to adorn your child with a GPS tracker, the issue in question is: "Should you?" – the answer to which is undefined and is largely up to the individual. Accepting this, we want to discuss the considerations, safety, and privacy features to ensure that parents choosing to track their children will do so in an ethical and safe way.

Some professionals mention that they do not think it is wholly beneficial for children to be able to turn to their parents every time they encounter an issue, as it leads to lack of development and conflict avoidance in the child – meaning the child will be unable to manage their own stress later down the line. Essentially, it is important that GPS should be used in case of emergencies. It is still important to keep "traditional" forms of guardianship at the forefront of developmental teachings. It is important for a child to know who to go to for help, and for them to know how to extract themselves from dangerous situations and identify threats themselves.

Additionally, some watches are fitted with microphones and cameras, which may breach the privacy of school staff members should this watch capture information about its surroundings.

In summary, we have identified the following Pros and Cons of child tracking:

Pros

- **Peace of mind** of the parent, knowing where their child is at all times.
- Child can easily contact parent/guardian in case of **emergency** with S.O.S. feature(s).
- Guardians are able to allow their children more **freedom** (e.g. playdates with new friends), as they are able to watch over them remotely.
- Children feel a sense of **safety** and **security** when separated from their guardians.

Cons

- Children may enable S.O.S. feature mistakenly, unnecessarily **stressing** the **parents out**.
    - “The Boy who Cried Wolf” Scenario – eventually parents may assume all alarms are **false alarms**, rendering the feature useless.
- Child may become too reliant on concept of parents looking out for them, and will put themselves in **needlessly dangerous** situations; false sense of constant security.
- Parents may **rely** too heavily on the watch and will forget to teach children good general safety habits.
- Possibility of **systems failure** – inaccurate tracking, or failure to send S.O.S. signal when needed.
- Overbearing and overcontrolling parents – “**helicopter parent**”
- May be seen as a **replacement** for an active guardian – meaning children **aren’t taught** necessary safety and decision making skills.
- May lead to **paranoia** in children if the watch breaks, or the parent decides to discontinue its use.
- Children may need to **take off their watches** to take part in (pre-)school activities, perhaps mixing watches up
    - Also heavily increases cognitive load on teachers, having to remember which watch belongs to which child.
    - Losing and damaging watches.
- Issues with school’s **privacy policy** (Microphone? Camera? Tracking?)

Proposed solution to privacy issues

In order to raise awareness of the aforementioned issues, it is important to make guardians agree to a ULA informing them of the possible consequences of relying too heavily on the watch as a parenting aid. This agreement would:

- Inform parents of the cons mentioned above
- Introduce a red dot onto the watch face indicating that tracking is currently on
    - Another indicator, perhaps flashing red dot, indicating a child has left an allowed zone
- S.O.S. feature that is difficult to enable mistakenly
- Guides, tutorials and suggestions to prevent “helicopter parenting”

Application Design

The watch - “Habbit the rabbit”

We decided to continue onward with the idea of a virtual companion pet, and will iteratively create and test prototypes of this concept to examine its effectivity. The condition of this pet will represent a high-level overview of the conditions of the associated child. For the time being, this has been limited to one type of pet: Habbit the rabbit - the brand’s mascot.

The 8 Types of Fun

While developing our engagement tactics for the watch, we used the 8 Types of Fun as the foundation for our feature integration (Hunicke, et al., 2004). The 8 Types of Fun, and our chosen implementations, are summarised below:

1. **Sensation**: Features that engage with the senses directly.
    a. **Vibration** feedback when Habbit has been engaged with.
2. **Fantasy**: Separation from everyday life.
    a. Human-like interactions with Rabbit - animal is **intelligent** and **sentient**.
3. **Narrative**: The experience or creation of stories.
    a. Users will have autonomy regarding the **choices** that they make. Thus; the narrative is the users’ lived experience (as reflected by the app) as well as the lived experience of Habbit.
4. **Challenge**: Elements that require skill.
    a. **Minigames**, allowing users to collect badges/stickers/other collectables.
5. **Fellowship**: Bringing people together, social aspect.
    a. Ability to add other Habbit users to a **friends list** - users are able to trade collectables with one another.
6. **Discovery**: Finding out new features or “discovering” solutions.
    a. Badges can be **crafted** and **merged** together to create new badges.
7. **Expression**: Story creation and self-expression.
    a. Habbit can have its clothing items and colours **customised**.
8. **Submission**: Ritual, consistency of getting together and playing games.
    a. Users’ daily **routines** expressed through Habbit - daily “ritual” managing companion.
    b.

Rewarding Altruism

An important dynamic we wish to encourage with Habbit is the idea of positive reinforcement - providing children with positive feedback for altruistic behaviour. Importantly, this must be done in such a way that is in line with the provided scope, namely:

- No **reward** or **discipline** mechanics for “correct” and “incorrect” decisions.

Instead we aim to:

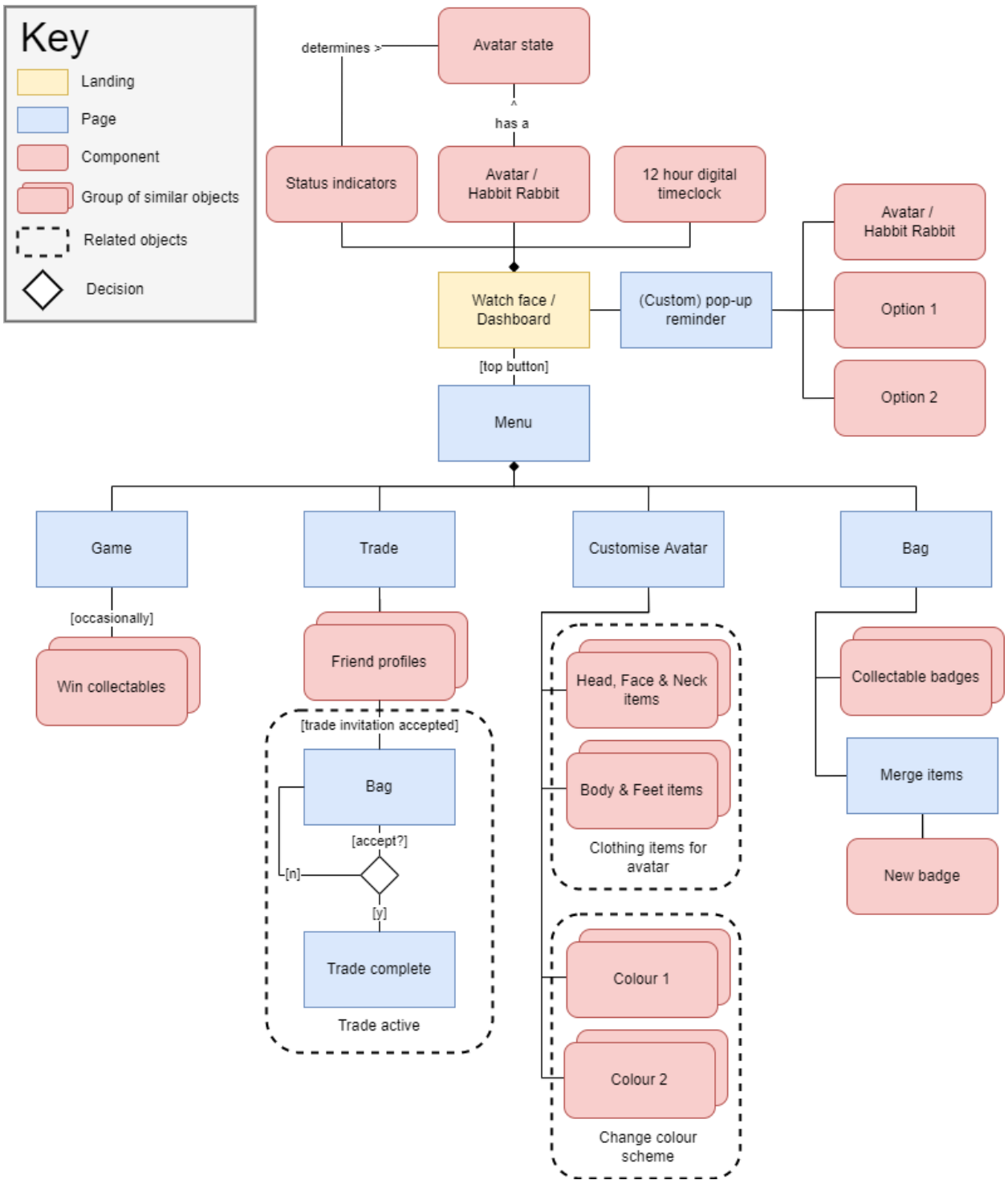
- **Encourage** altruistic action based on **delightful interaction** and **incentive**.

We aim to do this by increasing the child’s companionship with Habbit, eventually acting out of empathy and care towards the creature - learning the importance of self-care while doing so. By

playing minigames and engaging with others, children can earn badges. These badges will have different icons, those with healthy habits will be worth more than those without - thereby subliminally teaching the importance of healthy habits.
Children will be rewarded with a badge weekly, regardless of their performance throughout the week. However, if the child performs particularly well, they will earn more badges. This means that all children are rewarded for their participation and efforts, whilst also motivating them to engage with their tasks more meaningfully. This is done as an encouragement method, rather than a direct reward in relation to task completion. The main source of accomplishment is gleaned from the interactions with Habbit, and the collection and completion of the creature's wardrobe and badge book

Watch information architecture

Whilst developing the information architecture for the watch-side application, we referred to the virtual pet examples as discussed above. Snapshots of these interfaces can be viewed in the appendix.



The mobile application

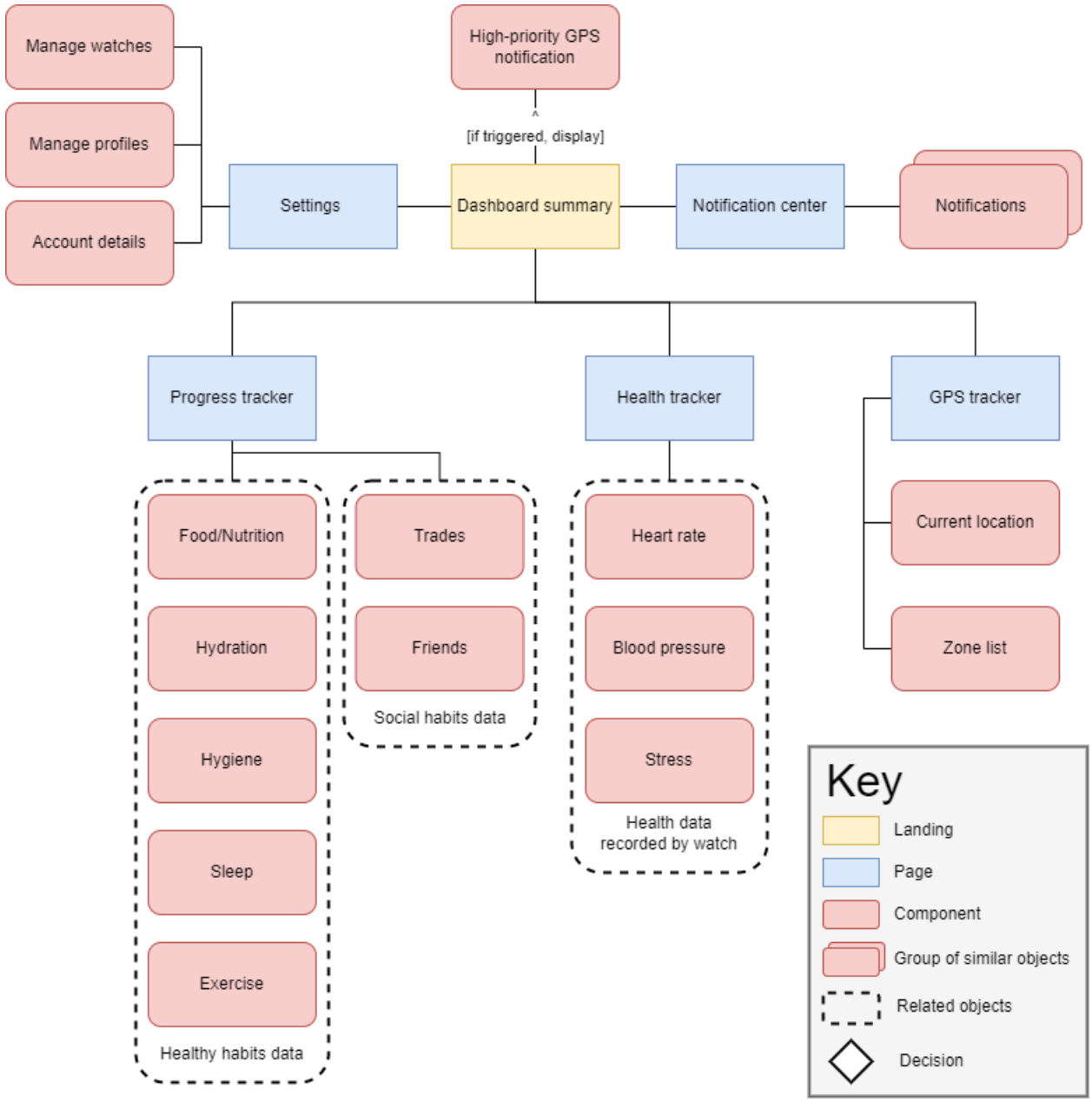
End-User Licence Agreement

As mentioned before, GPS tracking for children is currently in a bit of an ethical grey area. Because of this, we have decided to include a EULA for the user to agree to before using the app, ensuring that they are aware of the implications and are not intending for the app to wholly take over parenting duty. Additionally, we will assure guardians that GPS data is encrypted and stateless, meaning that data is not stored and is not accessible to 3rd parties. This agreement will be shown as a popup, which will be fully available in the appendix. The user is asked to agree to this EULA, thus consenting to their child being GPS tracked and understanding the implications of this. Pressing “here” will take the user to the Habbit company page, where they can read the entire EULA as shown in the description.

Popup will read as follows:

> Please read and consent to the following EULA to continue making use of Habbit.
>
> **You are also agreeing to the GPS monitoring of persons connected to the Habbit app. This GPS information is not stored, and is only available to connected guardian profiles. Additionally, Habbit will not be held responsible for any technical malfunction of its application.**
>
> **Habbit also does not act as a guardian surrogate, and we are not able to take full responsibility for linked dependents. It is still necessary for connected guardians to monitor connected dependents.**
>
> ***Please read the full end-user licence agreement here.***
>
> ☐ `I agree.

Mobile app information architecture



Personas

Tommy Jacobs

6 years old

Fairly active

Moderate tech-level

"I like playing on the ipad but my mom doesn't like when I'm on it too much"

Bio

Tommy is a energetic curious kid who enjoys games as well as being outside. His family just moved to a new town and he is nervous about making new friends.

Goals

To make more friends. Collect as many stamps as possible. He wants to keep his avatar as happy as possible.

Frustrations

His mom nags him a lot durning the day. He often forget to do things that his mom tells him to do. He does not understand the bigger picture of doing these daily activities.
He find things like brushing his teeth in the morning boring.

Motivations

He wants to be included by his friends, feel a sense of achievemnet and to have fun.

Julia Jacobs

45 Years old

Middle to upper class

Moderate tech-level

"I love my children and I always want them to be safe and happy"

Bio

Julian is a mom of two and has been struggling with her energy levels lately. She finds it difficult to keep track of her children and is always stressign about the unknown.

Goals

She wants to encourage healthy habits in her home. Make sure her children are safe and happy. She also wants to make being healthy fun and interactive.

Frustrations

Her children have been difficult lately when it comes to doing daily habits. She has a very busy schedule with work and looking after her children. She feels she is always worrying about them.

Motivations

Having difficulties building habits with their kids and making parenting easier.

Scenarios

Using the above personas, we have formulated two scenarios in order to illustrate our design solution to the problem statement.

Scenario 1: Julia is overworked, and needs help caring for Tommy.

Julia has a busy schedule. She spends most of her time at work, and when she isn't working, she's looking after her 6 year old son, Tommy. She often stresses about Tommy while she's working, since she goes long hours without seeing him. She read about Habbit: A habit-building helper and monitoring system to help keep track of her child. Julia thinks this will help her manage looking after Tommy while she's at work.

She buys the Habbit watch for Tommy, and downloads the parent app. Upon opening the app for the first time, Julia receives a EULA. She agrees to the T&Cs, and continues to the home page. To set up the app, Julia is asked to pair Tommy's new watch to her application.

Once done, Julia is taken to Tommy's "tasks" page which is filled with a list of default tasks. She is shown a brief tutorial on how to add, remove and manage recurring tasks.

Julia often has to send Tommy back inside before they leave for school as he always leaves his lunchbox on the kitchen counter. She decides to add a new task to remind Tommy to grab his lunch before, setting the reminder for 7:30. She also chooses a mandatory icon that will display when Tommy is reminded - Julia chooses the Bentobox emoji (), as she is sure Tommy will know what this means.

Once this is done, the app suggests Julia sets up permitted GPS Zones for Tommy. Julia permits the app to track Tommy's location, and asks her to enable notifications. Julia enters in two locations - one with a 500m radius on Tommy's school, and another with a 500m radius for her home.

The app is now set up - and she is ready to give the watch to Tommy and explain how it works.

Scenario 2: Tommy is forgetful, and feels certain tasks are boring.

Tommy feels that he's always being nagged at by his mom. She's always telling him to do things, and it feels like he's never doing anything right. He gets distracted easily - and he'd much rather spend his time playing than doing the tasks his mom asks him to do.

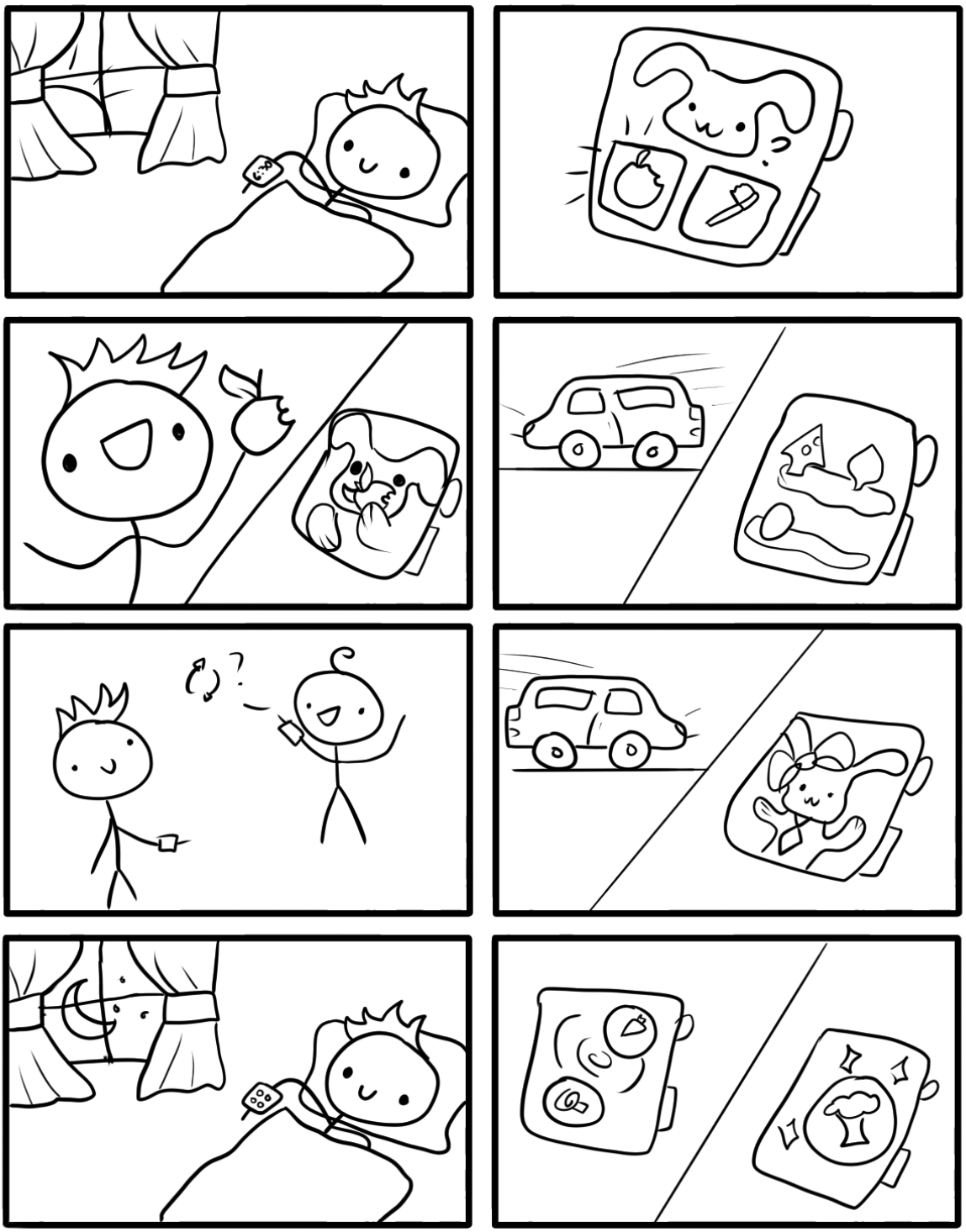
His mom gave him a smartwatch and told him it'd help him remember to do his tasks. He thinks the watch is lots of fun - he really likes the rabbit, and enjoys customising it and nurturing his in-game garden. The watch wakes Tommy up in the morning while his mom makes him breakfast. He was about to bolt downstairs to eat when his watched buzzed to remind him to either brush his teeth  or have breakfast  . Since his mom wasn't finished cooking, he decided to brush his teeth.

He trotted back to the bathroom and brushed his teeth. As he brushed, he noticed that the Habbit rabbit was brushing its teeth with him too. Tommy went downstairs to have breakfast. His watch buzzed again, and he was able to give his companion some food too.

Just as he was about to get into the car for school, his watch buzzed, displaying  . He realised he'd left his food on the counter, and went back to fetch it. When he pressed the confirmation button, Habbit smiled at him, and he felt pleased with himself.
He got into the car and his mom was impressed that he remembered his lunchbox.
The following day, Tommy remembered to grab his lunch before his watch reminded him to, since he remembered the previous day.

Storyboards - Julia

Storyboards - Tommy

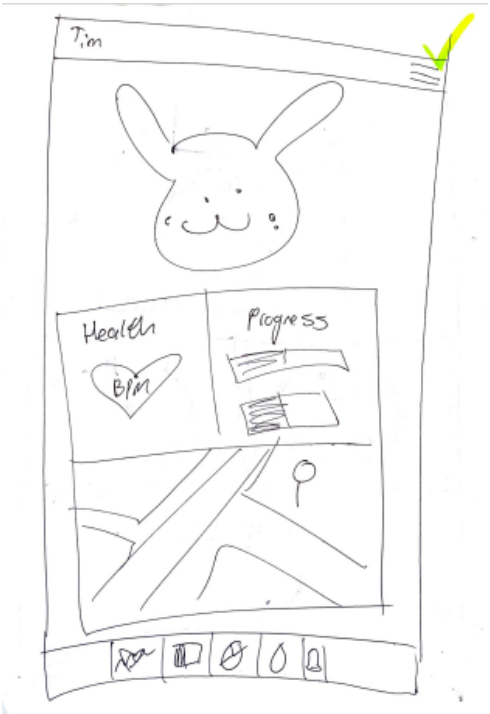


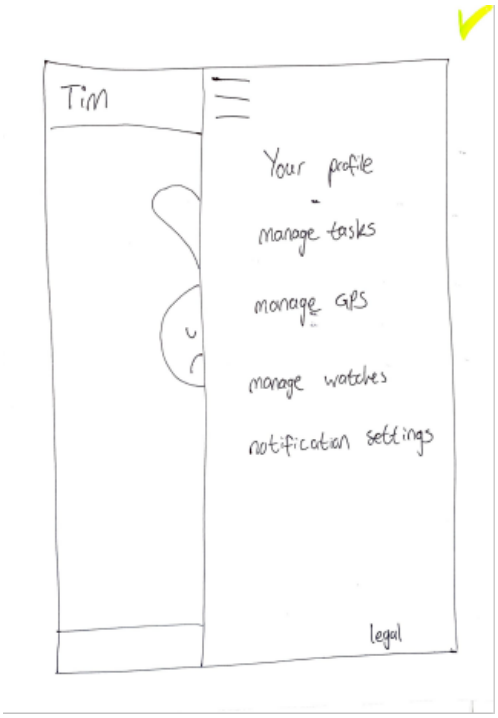
Prototype development

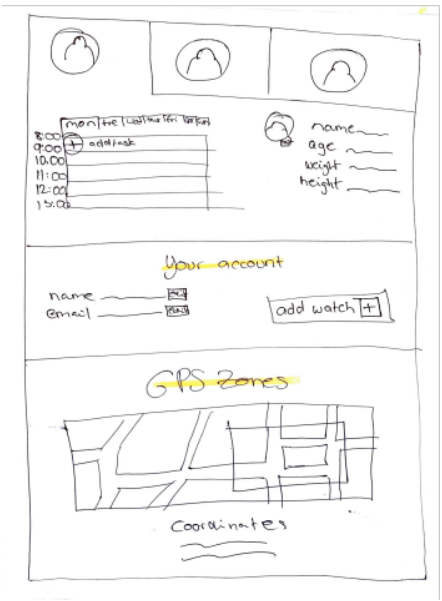
Paper prototype 1

To develop our initial paper prototype, we split up into two groups – one for the parent-side app and one for the child-side watch – and implemented the design studio method.
We each drew three versions for each screen, discussed what features we liked best, then drew two more, again decided on the best features, and then did a round of one sketch each, and worked on the final screen together. Ticks on the top right indicate that the pages we have chosen were decided on as a team, and were carried forward to the next stage of iterative development.
Below are our final rough sketches for the parent app and the watch.

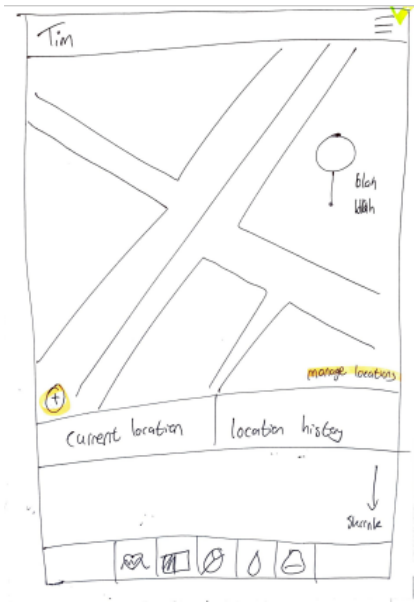
Parent app

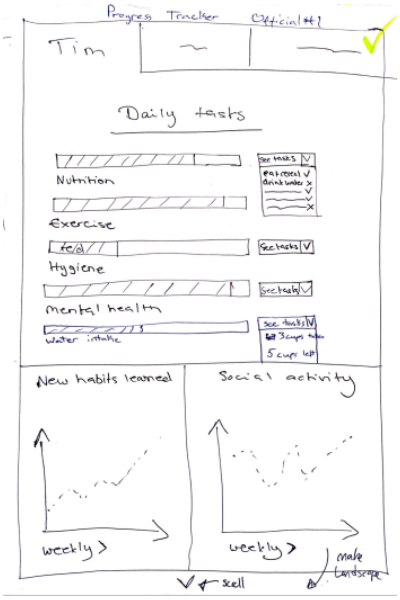

Tim
Health
Progress
BPM

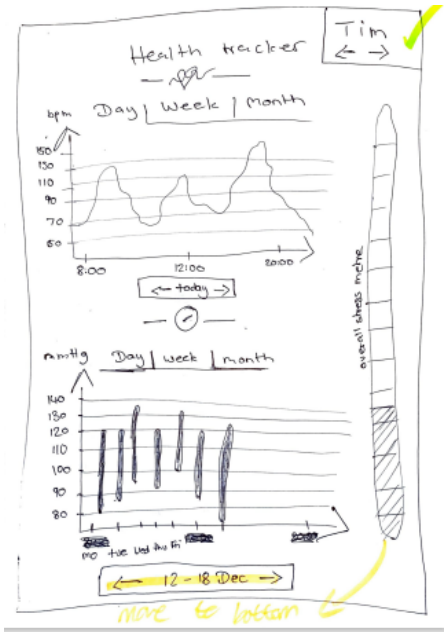

Tim
Your profile
manage tasks
manage GPS
manage watches
notification settings
legal


name
age
weight
height
Your account
name
email
add watch
GPS zones
Coordinates

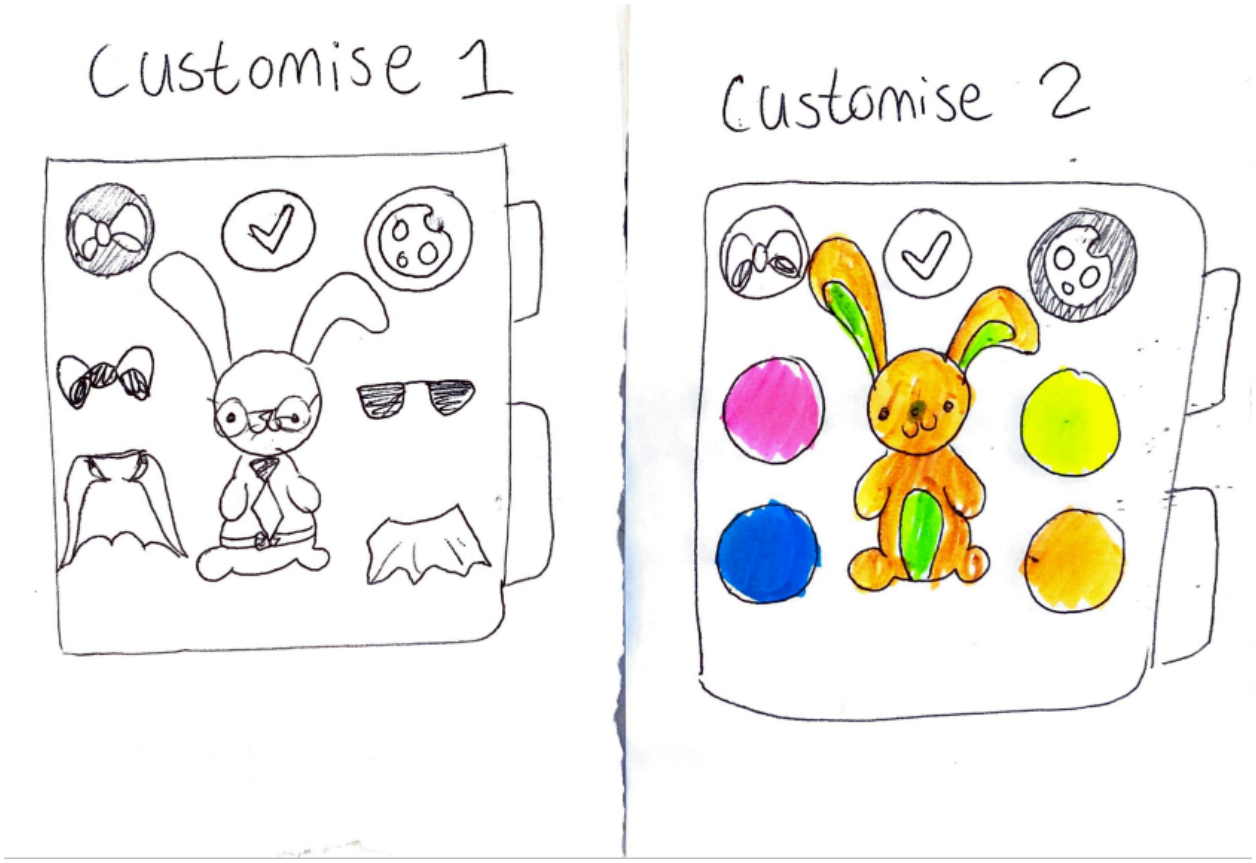

GPS settings
home
School
Dad's house
Set a Zone


Tim
blah
blah
manage locations
current location
location history
Skirrole


Progress Tracker
Official??
Tim
Daily tasks
Nutrition
Exercise
Hygiene
Mental health
New habits learned
Social activity
weekly >
weekly >
sell
make landscape


Health tracker
Tim
bpm
Day | week | month
150
130
110
90
70
50
8:00
12:00
20:00
← today →
mmHg
Day | week | month
140
130
120
110
100
90
80
overall stress metric
← 12 - 18 Dec →
more to bottom

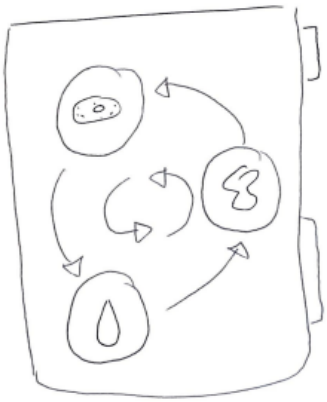
Watch


Customise 1
Customise 2


Trading #1
James
Mags
Ben
Jesse
Trading #2
Trading #3

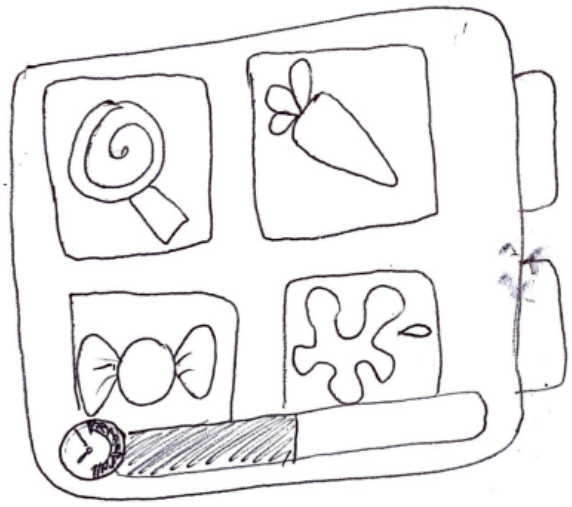
Collectables #1

Collectables #2



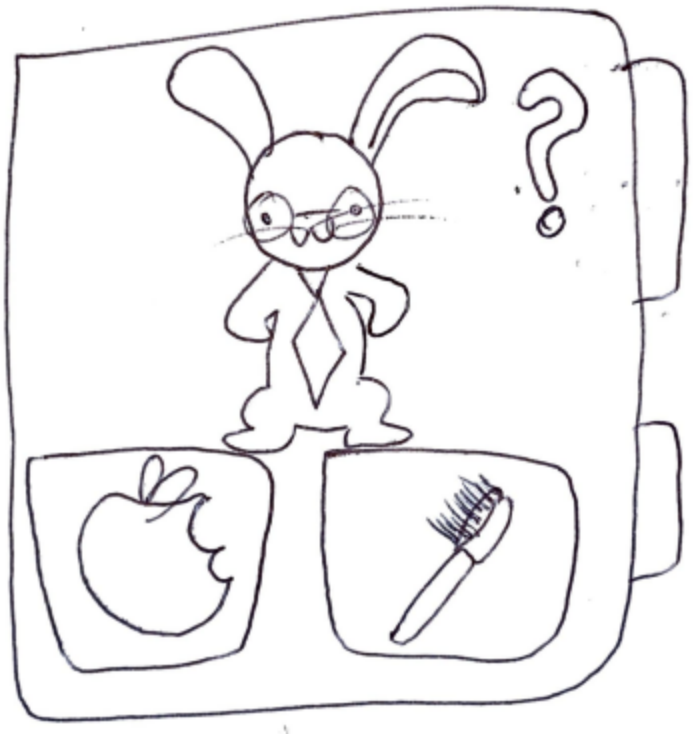
Collectables #3

Game 1



Game 2

Pop-up reminder



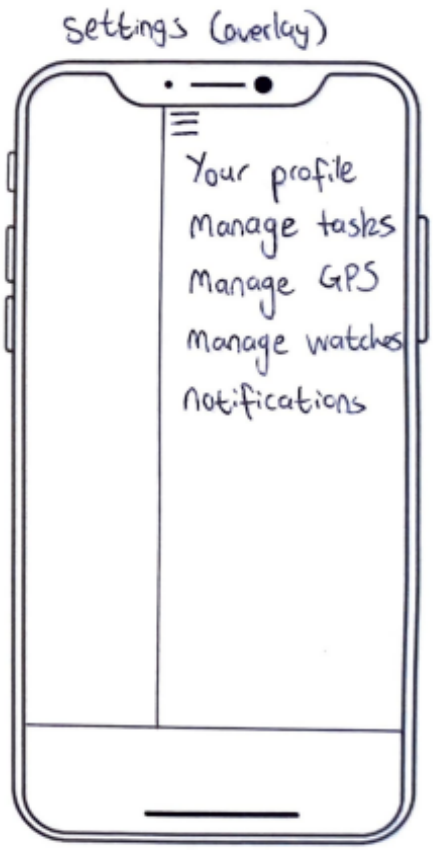
Home page

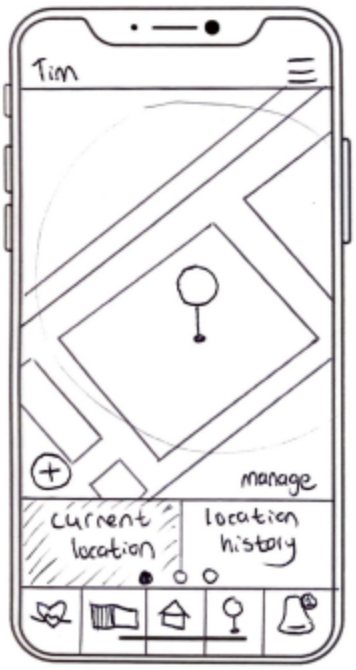
Menu

Paper prototype 2

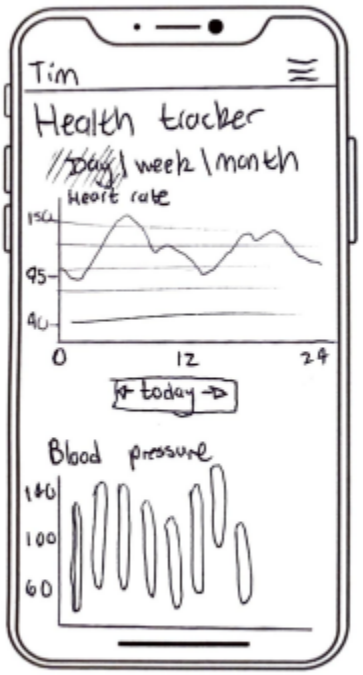
After having another look at our first round of rough sketches, we decided to neaten them up for our presentation and implement some improvements in order to conduct effective user testing which is discussed in the next section. The navigation bar as seen in the dashboard is global, and will always be set to the bottom of the page.

The app

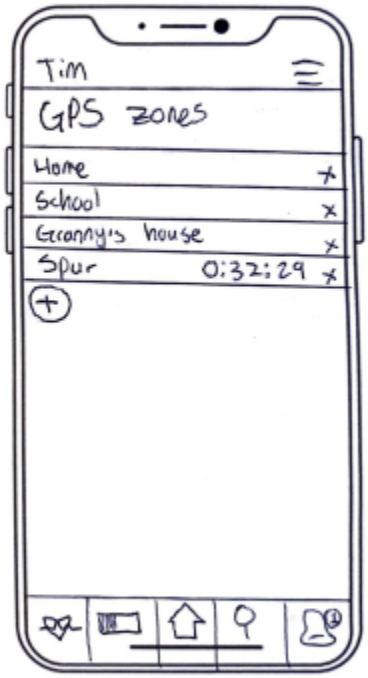




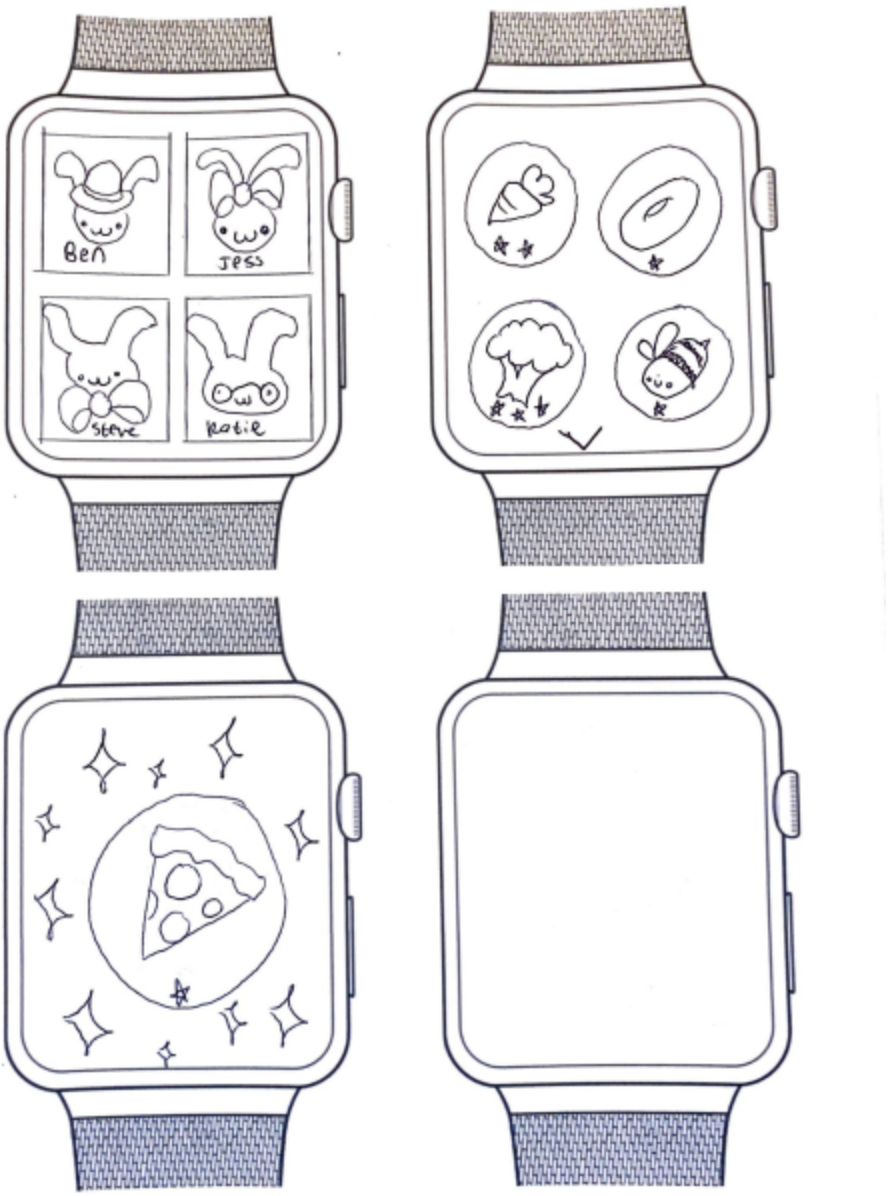
Scrolls to display progress graphs for defined time frame

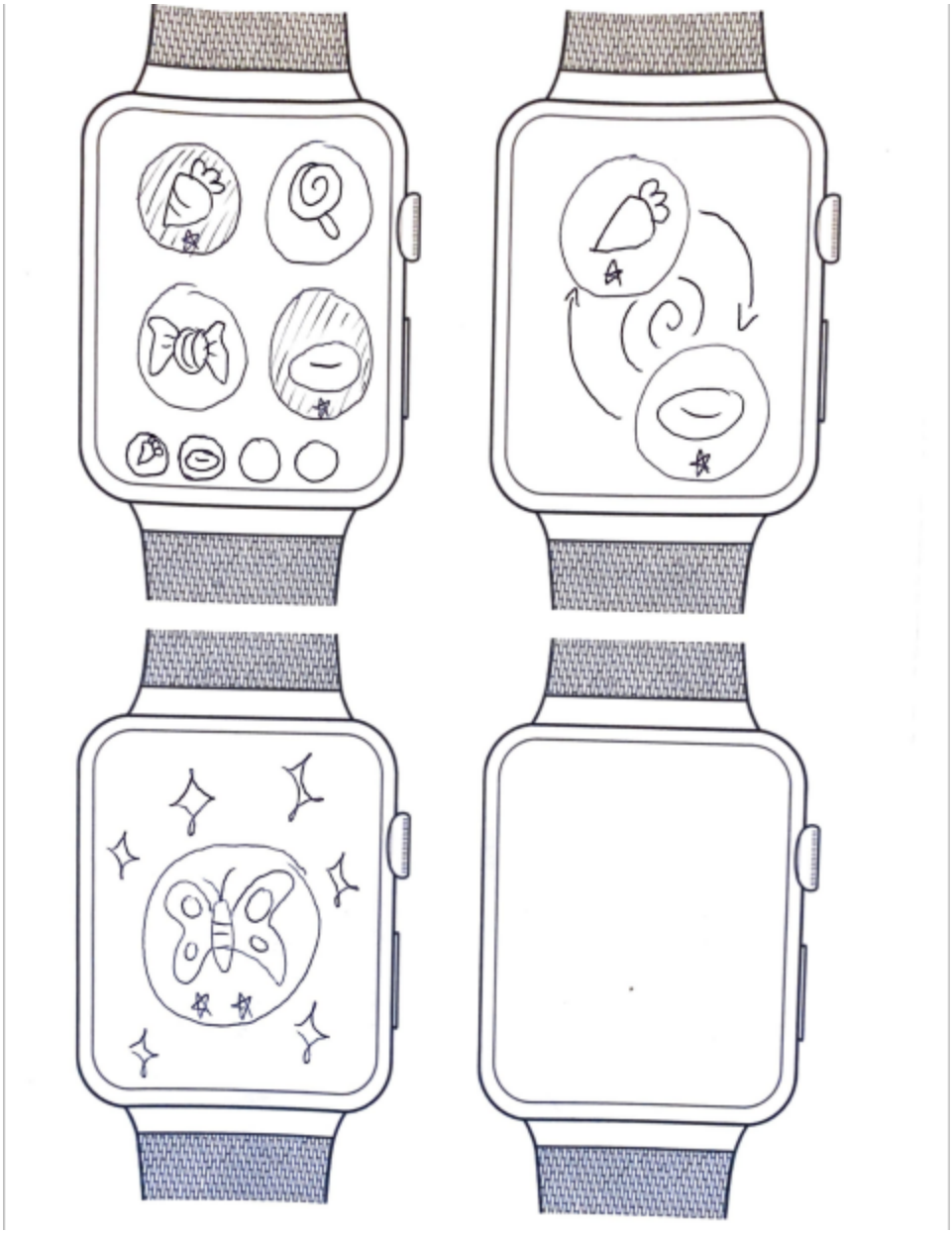


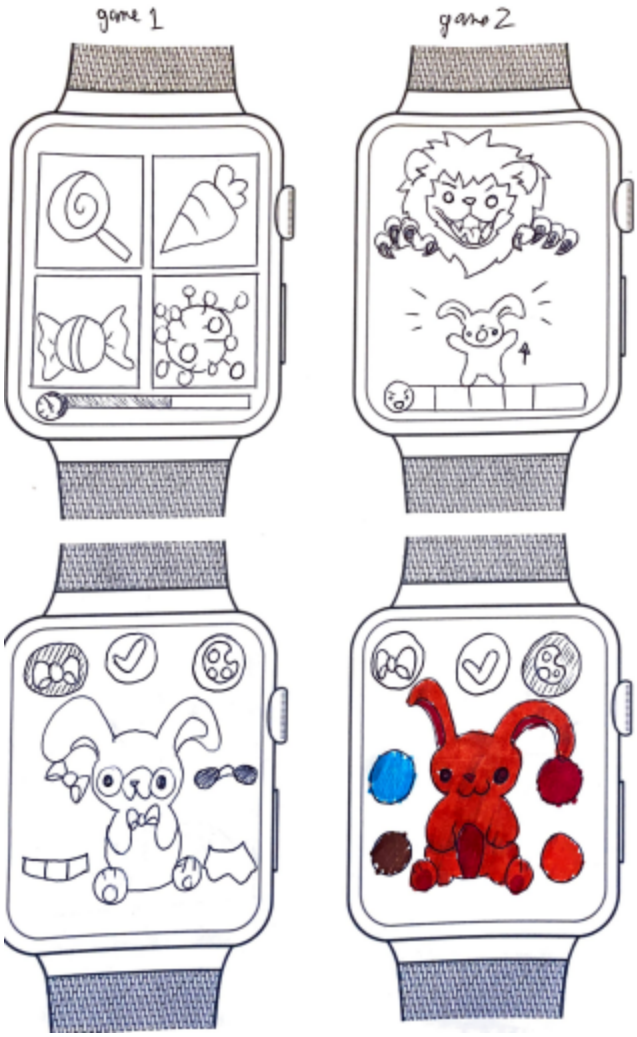
scroll for additional recorded information (stress)



The watch


Ben
Jess
Steve
Katie




game 1
game 2

User testing insights

To ensure our layout, format and iconography made sense, our team decided to conduct three user tests to uncover possible hiccups in the current designs. Using a thematic analysis (seen in appendix), we were able to gather key insights regarding the current design of the application. Our main insights gathered from our first round of testing is as follows, as well as (indenteded, and *italicised*) proposed solutions:

The watch:

- The progress and map icons were difficult to deciphecaler. Most users weren't sure what these icons meant.
    - *Change these icons to more conventional examples.*
- Users were confused by adding tasks, as it wasn't available on the tasks menu. Didn't know that they needed to use the hamburger button.
    - *Change layout of tasks page, make it more obvious how to add new tasks.*
- Only knew how to manage watches from hamburger because they saw the option whilst looking for a way to manage tasks.
    - *Make more obvious manage tasks options, make it more readily available.*
- Didn't realise one needed to swipe to access different children profiles.
    - *Add a dropdown menu for different children next to the names, and perhaps an overview for all children.*
    - *Or, universal dashboard for all children at once.*

The game:

- Most users swiped on the screen at a first attempt to open the menu.
    - *(Maybe) change how the main menu is opened.*
- All users pressed on clothing/colour options rather than swiping.
    - *Change selection functionality to tapping, perhaps showing more options as a user taps on items - showing new, adjacent items.*
- Some thought the lion minigame was too "scary"
    - *Change minigame format.*

Additionally:

- *We need to make considerations for privacy and tracking, as mentioned above.*
    - *Add indicator showing watch is being tracked.*
- *ULA agreement and parental guidelines.*
- *Splash page, and user signup page need to be designed.*

The new game

After receiving feedback that the lion might be too scary, and therefore suggesting a form of punishment, we decided to rework our minigame to be more focused on positive reinforcement. We tried to think about how we could encourage more intrinsic motivation, meaning children will engage with the tasks because they understand their benefit, as opposed to extrinsic motivation, such as the fear of getting punished. The result of this is a game that simulates the cultivation of a vegetable garden, where players will be able to tap on plants to water them, and harvest them when they are ready. A lighter circle around the plant will indicate that they are dehydrated, and a darker circle shows that they are ready for harvest. Items in the inventory are added through the completion of weekly tasks that are set by the parent, which can be traded and combined, resulting in items that can be added to the garden.

This way users are not faced with instant gratification or punishment, but rather are engaged in a process that teaches them that collecting the right items is beneficial for growth and sustainability. Through engaging with this game over a period of time, players will realise that a lollipop won't do much for their garden for instance, and be motivated to trade for more useful items. If they don't complete their weekly tasks, they won't have that many items to plant in the garden, and therefore aren't able to feed the avatar. This teaches children that there are consequences, but they can work on making sure that they are not negative. Through providing some understanding about why it is important to have healthy habits, we hope that children will be less motivated to cheat – although this can of course not be eliminated completely. At that age, parents will be with their children for most of the time – unless they are in daycare – so they will have some oversight into what habits they are engaging with. The app won't take the responsibility of monitoring their children's habits away completely, but it will help their children remember and understand them in a playful way.

Drag and drop veggie/badges into available spaces (can overwrite other plants, given confirmation). Swipe to access more of inventory.

Tapping on plants ready for harvest adds badges/items into inventory, and removes the plant from the farm screen.

Tapping on plants with dehydrated soil (lighter) waters the plants, turning the soil to hydrated (darker)

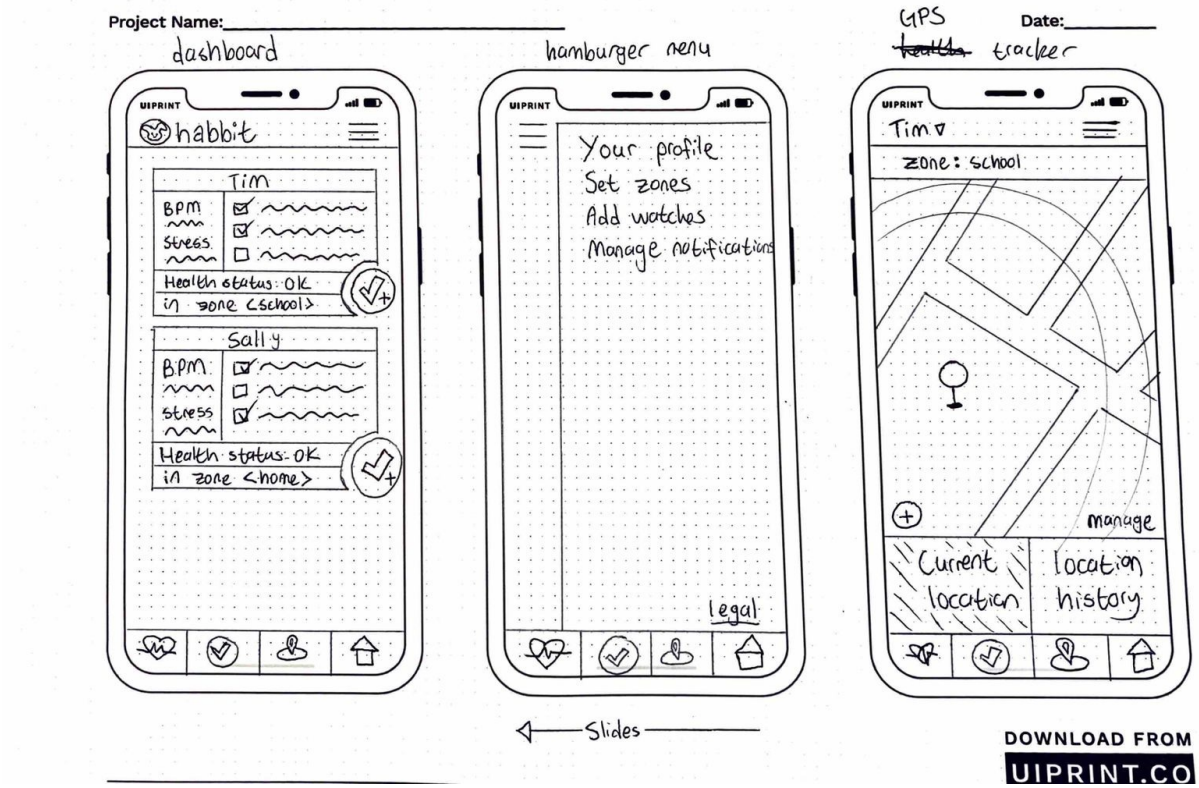
Paper prototype 3

To incorporate the new game as well as insights from our first round of user testing, we have created a more refined version of our paper prototype 2, as seen below. Using this prototype we will conduct our final round of paper prototype testing, and then start creating digital mockups.

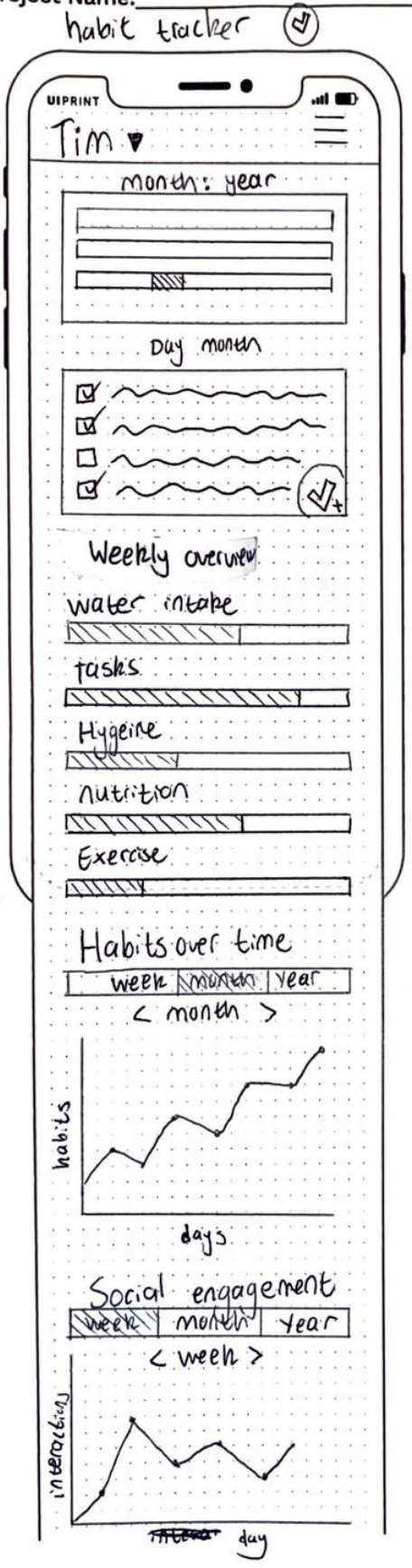
The app

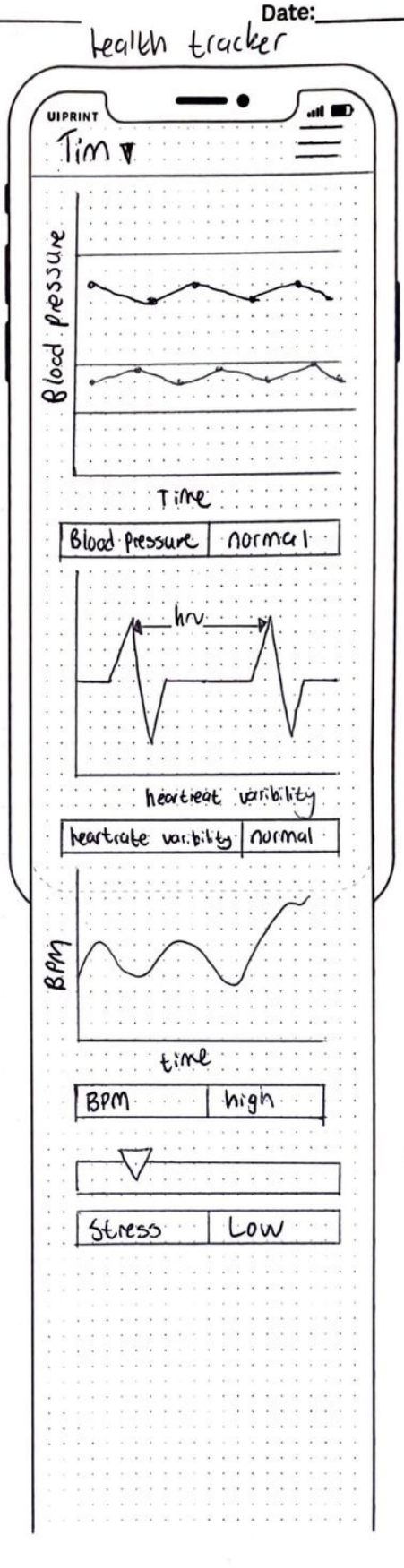
Most notably, our dashboard interface had changed to a summary view of all added children. The settings had also been simplified, having some of the settings tasks moved to the dashboard (like add task). Additionally, the notification global button at the bottom has been moved to settings.

Once a child has been clicked on or the navigation buttons are used, this goes into a focus view for that particular child's health and habit details. Additionally, the habbit logo is displayed on home, which changes to a child's name in focus view. This name also includes a dropdown menu, from which a parent can switch between children's views.


Project Name:
Date:
dashboard
habbit
Tim
BPM
Stress
Health status: OK
in zone <school>
Sally
BPM
stress
Health status: OK
in zone <home>
hamburger menu
Your profile
Set zones
Add watches
Manage notifications
legal
GPS tracker
Tim
zone: school
manage
Current location
location history
Slides
DOWNLOAD FROM
UIPRINT.CO

Project Name:_____ Date:_____





The watch

Most notably, a confirmation screen for trading has been added, as well as a confirmation screen for customisation.

1. Your friend

2. Select items

3. confirm

4. What you get

what you got in trade

User testing insights

For this round of testing, we decided to evaluate only the app, as the watch performed exceptionally in the last round of user testing. Since few changes (besides confirmation screens) were made to the watch, we decided to leave it untouched.
These insights informed our design decisions when moving to digital.

The app

- Users expected to be able to click on the “in zone <>” section to access the GPS.
- Pressed the checkboxes to view current tasks
- Most users engaged with the dashboard view over the global navigation tabs.
- Users were not sure whose information would be displayed when using global navigation buttons.
- The burger menu only makes sense when opened on a child’s specific page.

Digital prototype

App prototype:
https://www.figma.com/proto/IxTisweGjsex6ytavG5bJL/Parent-App-New?node-id=3%3A2&starting-point-node-id=3%3A2

Watch prototype:
https://www.figma.com/proto/sowcGc1f1TvKyvHLmR7zl0/Watch-prototype?node-id=1%3A15&starting-point-node-id=1%3A2

Slideshow:
https://www.figma.com/proto/39xetI00sKUcPNi5Er1Mr8/IsoFlow-Presentation?node-id=70%3A163&scaling=contain&page-id=0%3A1&starting-point-node-id=70%3A163

Conclusion

Throughout this document we kept our target market in mind, and tried to design a simplistic child-focused watch-app and associated parent-focused smartphone app. We considered design, legal and functional aspects in order to create a well-rounded and functional concept. We iteratively developed wireframes to illustrate our solution, eventually evolving into a mid-to-high fidelity prototype.
We kept to our weekly deadlines and were able to discuss deliverables in a timely manner. In future, we should allow for more time to test higher-fidelity prototypes in order to properly refine our ideas.

Appendix

Competitor’s virtual pet snapshots

Moshi Monsters

Tamagotchi

Nintendogs


Dog's Status
Izzy
Miniature Dachshund
Trainer
Chris
Time Together
0:22
Coat
Clean(Long Hair)
Hunger
Full
Thirst
Quenched
Things Eaten
Canned Dog Food
Trick List
Contest Results

Paper prototype 1 user testing; thematic analysis

Watch

Found navigation unintuitive

Expected to touch character to customise it

Alison Soutar

Thought main navigation method was to swipe screen, not to use side button

Alison Soutar

Wasn't sure what the different menu icons were

Alison Soutar

She's more accustomed to words

Alison Soutar

Understood the icons and navigation used.

Knew what the status bars (bunny) indicated.

Alison Soutar

Knew what the status bars (bunny) indicated.

Alison Soutar

Had no issues finding the menu. Knew to press side button.

Alison Soutar

Had no problems finding the trade button.

Alison Soutar

Knew that the colour pallet was to change colourrs.

Alison Soutar

Had no issues with trading. Navigated various menus with little problems.

Alison Soutar

Understood that the bow meant customise.

Alison Soutar

Eventually realised pressing buttons opened the menu.

Alison Soutar

Understood that the bow meant customise.

Alison Soutar

Wasn't sure how to play the game

Wasn't sure what the game was about, thought there was no apparent theme/likeness between icons
(First game draft: Battle scenario)

Alison Soutar

Farming simulating game was enjoyable.

Knew what to do, enjoyed it.

Alison Soutar

Enjoyed the concept, wasn't sure how to navigate.

Alison Soutar

Incorrect assumption of (customisation) controls.

Pressed on clothing options rather than swiping.

Alison Soutar

Pressed on clothing options rather than swiping.

Alison Soutar

Swiped first to access menu.

Alison Soutar

Usability Testing transcripts

Christian

App:

You want to look at the profile of another child. what do you think you'll need to press on?

Presses on progress first because he assumed that is where the most amount of info will be stored. Then felt he was wrong and went back to the dashboard. He pondered for a while and then saw the three dots and decided to try swiping left and right. Found the other profiles.

Where would you go to check your child's current heart rate?

Pressed the navigation heart rate button and found the heart rate, but did not consider pressing on the dashboard option itself.

How would you add a new GPS zone?

Pressed on the dropped pin in navigation, and had to ask what the icon was. Then pressed on manage under the GPS page.

Set a new task for your child.

Was very confused had no idea, played around, and ended up on the hamburger menu. Then pressed manage tasks.

Add a new watch to your account.

From his current location on the app, he found the 'manage watches' option in the hamburger bar easily.

Said the app was cool but felt a bit all over the place.

Watch:

Find a way to customize your character.

Pressed the side button for menu and from there pressed the clothing icon. Tried to tap the clothing pieces not swipe on them. Enjoyed the idea and said it reminded him of his childhood.

Trade with a friend.

Pressed the menu button again. Pressed on the trade button. Pressed on Jesse. Pressed on the bee. Found these actions fairly easily, with no confusion.

Find the game. What do you think the game is about? How would you play it? (I used the garden idea)

Pressed the menu button again and then on the game icon. Played with watering and harvesting. Thought it felt like a mini-plants vs zombies. He enjoyed it.

(Show Home Screen) What do the status bars indicate?

They indicate hunger and thirst.

On a scale of 1-5, 1 being easy and 5 being difficult, how did you find this test? Why?

4. The watch was super easy and very self-explanatory. The app was a bit confusing in terms of finding things but once I worked my way through it made better sense. Overall I really enjoyed the concept and would've loved it as a child.

Lauren

App:

You want to look at the profile of another child. what do you think you'll need to press on?

Pressed on the burger bar and didn't see anything and then pressed on the bunny but nothing happened. Focused for a bit and saw the three dots and realized she can swipe left and right.
Where would you go to check your child's current heart rate?
Pressed on the dashboard option.
How would you add a new GPS zone?
Pressed on the dashboard GPS and then saw the manage option.
Set a new task for your child.
Went straight to the burger bar because she remembered she saw something about that and then pressed manage tasks.
Add a new watch to your account.
Again, was easy to find as she was already quite close to it.

Watch:
Find a way to customize your character.
Swiped right and left for the menu first and then played around with the buttons to see if they take her to the menu. Found the menu and then pressed on the clothing item. Was super happy at the idea and said it was cute. Struggled to navigate between colours and clothing. Thought the clothing button was a part of the dress-up option.
Trade with a friend.
Pressed the menu button and went to the menu. Pressed on the trade button. Pressed on a friend and selected an item. Did mention that it all happened quite quickly and that she was surprised.
Find the game. What do you think the game is about? How would you play it? (I used the garden idea)
Went to the menu again. Pressed the game button. Didn't really understand how to navigate the game but really liked the idea.
(Show Home Screen) What do the status bars indicate?
How much food and water you've had.
On a scale of 1-5, 1 being easy and 5 being difficult, how did you find this test? Why?
4. She found both applications fairly easy to navigate but did get confused and a few stages.

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Last updated: June 02, 2022

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If any provision of this Agreement is held to be unenforceable or invalid, such provision will be changed and interpreted to accomplish the objectives of such provision to the greatest extent possible under applicable law and the remaining provisions will continue in full force and effect.

Waiver

Except as provided herein, the failure to exercise a right or to require performance of an obligation under this Agreement shall not effect a party's ability to exercise such right or require such performance at any time thereafter nor shall the waiver of a breach constitute a waiver of any subsequent breach.

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Contact Us

If you have any questions about this Agreement, You can contact Us:

- By email: help@habbit.com

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