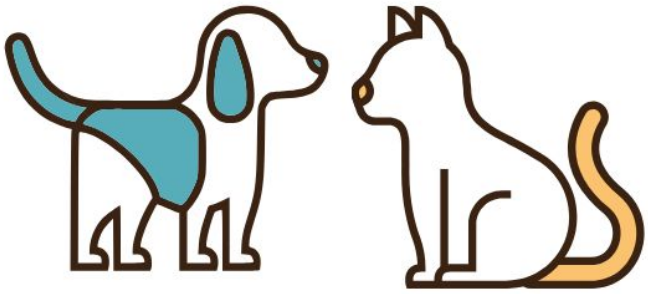
KitBit



A healthy and happy life
for your pet

KitBit App Final Report

Group #42
Ali Hassam, Mariella Nalepa, Jose Orellana,
David Roberts, and Jasmine Roebuck

Introduction

For our project we prototyped a mobile app called KitBit. It is designed to connect to a (hypothetical) collar-mounted physical device, known as a 'KitBit', that is equipped with GPS and a step counter. The KitBit app is an all-around health tracker for pets that aims to help pet owners monitor their pet's weight, food intake, location, and physical activity, and offers advice if the animal is trending too far above or below their ideal weight range.

Design Problem

Our goal for this project was to design an easy-to-use and aesthetically pleasing app that would help users monitor the health of their pets through a number of health-related metrics. Obesity is an epidemic that affects domestic pets as equally as human beings at present. As pet owners, we wanted a simple and fun way to help keep our companions in good health in order to maximize their quality of life and longevity. Our app would enable syncing of a hypothetical KitBit device with a pet's profile. The device would collect data on step count and GPS location, and relay this information to the app, where it would be visualized to the pet owner. The app would also feature manual user input of a pet's food intake and weight through time. Using the user-defined data, the app would then provide a simple, high-level analysis on the overall health condition of the pet, as well as recommendations for adjusting food intake (or possibly a vet visit) if the pet is outside of the ideal body condition range.

User Research and Findings

We chose 3 of the IDEO methods to conduct our user research: Expert Interview with an experienced veterinarian, Try It Yourself with the Fitbit app, and Secondary Research with two activity-tracking apps similar to our own, but geared towards dogs, Whistle and FitBark.

Expert Interview

We felt it was critical to consult a pet health professional when it came to designing the functionality of our app, since our aim was to give reliable health advice to users about their pets. We conducted an hour-long phone interview with Dr. Madonna Mesher, who has 40 years of veterinary medicine experience. The most important information obtained from the interview was the universal standard for clinical pet weight assessment, the Body Condition Score (BCS), initially developed by researchers at the Nestlé Purina PetCare Center. We also received general guidance for pet health care, such as suggestions for weigh-in and feeding frequency, nutrition, physical activity, in addition to educational resources on pet health.

Secondary Research

FitBark is a pet health monitoring device catering to dog owners. The key idea of FitBark is to encourage dog owners to stay healthy with their dogs as it allows for much of the same

functionality as that of which we envisioned for our system (setting health goals, participating in community challenges, and syncing with a monitoring device). One interesting feature of FitBark is that users are able to share their pet's profile with other users (e.g., vets, dog-sitters, etc.).

Whistle is a collar-mounted GPS tracker for dogs and cats. The main features are related to its tracking functionality, enabled by GPS and cellular coverage. In addition to its tracking features, Whistle also facilitates activity monitoring (estimated minutes of activity) and progress tracking of user-customized activity goals.

Both of these competitor apps required the pairing of a proprietary device before being able to interactively explore, or even view, the app's features. Because of this, our secondary research was limited to what information was available via their websites. In the end, this inspired our motivation to be different to the competitors: we wanted our users to be able to experience our system before having to purchase the pairing device. Further, some users may be strictly interested in the manual input features, such as weight and calorie tracking.

Try It Yourself

Since one of the members of our teams owns a Fitbit device, we decided to do a firsthand investigation of a fitness tracking app in order to gain insight into its functionality and the metrics it tracked. The app gave us ideas about which health and fitness metrics could be transferred and adapted to a pet subject, such as distance travelled, weight, and nutrition. Fitbit also has a sleek, user-friendly design that was a key inspiration for our visual design. The use of tiles on the dashboard, with icons and metric summaries, as well as graphs and logs for data visualization, became integral to our own design.

Design and Justification

For our design, we decided to follow the high-level structure of the Fitbit app: a main dashboard with large tiles that would lead to more detailed menus on different health metrics. The dashboard would display a large round portrait of the current pet at the top and center (with the option to choose another pet if the user has more than one), and each tile would display an updating icon that would allow the user to see at a glance the most important metric under that tile. We chose a teal and orange color scheme, and we also found a simple vector graphics icon pack that had various pet-related images. In this iteration of our prototype, we focussed on cat owners, with a view to extend to dog-specific features and graphics in the future.

For system tasks, our four main tasks, represented by tiles on the dashboard, would be: weight tracking, food tracking, GPS tracking, and step tracking. Weight tracking and food tracking were absolutely necessary as core features, as we wouldn't be able to make recommendations on a pet's health without them. These two tracking features also have a number of subtasks that could be fleshed out in prototype. The GPS and step tracking would be key features when paired with the physical KitBit device, so it was important to include those as well. Other trackable metrics, such as sleep and water intake, could not be reliably measured, and so were omitted.

We also decided to include some peripheral features, such as the many-in-one signup, pet profile creation, and device pairing workflow, a (human, owner) user profile, a social tab for users

to connect to a community of others with similar interests, and a badges tab where users could set and achieve goals related to their pet's health.

Heuristic Evaluation and Findings

Our heuristic evaluation focussed on four main heuristics: user control and freedom, consistency and standards, recognition over recall, and aesthetic and minimalist design.

For user control and freedom, we received recommendations to implement a data deletion and/or edit function so that users could delete or modify previously input data, such as weight and calorie consumption. It was suggested that the GPS feature be improved by adding an address search bar, so that users could choose to either manually type their home address to set it, or visually select it from a map. Finally, our evaluators desired a home button on all the pages so they could quickly navigate back to main by a single click rather than clicking 'back' multiple times. Our team updated our prototype to reflect these recommendations.

In terms of consistency and standards, it was noted that our app featured a visually appealing color palette and overall consistency in design standards. One minor consistency issue that was mentioned was the presence of hyperlinks in the 'Create Pet Profile' section rather than buttons for the 'Add Photo' and 'Take Photo' functions. Since these functions do not redirect to external resources, as our other hyperlinks do, it was identified as an inconsistency in design. Our team quickly rectified this issue and updated our prototype to have buttons instead of hyperlinks.

The main feedback given for the recognition over recall heuristic was that some of our icons were confusing in their symbolism. For example, we originally had a pill symbol for Body Condition Score, but we later updated it to a stethoscope to make it clear that it was a health measurement.

Overall, our heuristic evaluation revealed that we had followed minimalist design principles and made appropriate compromises between style and communication. The only notable exception to this was the weight menu. If a pet was obese or emaciated, both very dangerous conditions, the BCS score was not displayed in a manner than communicated the urgency of the result. To rectify this issue, the team changed this color to red, in order for the information to stand out to the user as high priority. For a full list of changes made based on our heuristic evaluation, see Summary of Updates in Response to our Heuristic Evaluation.

User Testing and Findings

For user testing, we required users to complete three tasks: (1) Add a new pet profile, (2) Add a weigh-in and view the graph OR add a meal and view the graph, and (3) Complete the body condition score OR add a pet feeding plan. To gain insight into the user's mental state while executing the tasks, we implemented a think-aloud protocol wherein users were encouraged to verbalize their thoughts while interacting with the prototype.

The mains issues identified by users fall into two categories: (1) System learnability, and mismatch between the user's mental model and the system image, and (2) Experimental artificiality. In terms of learnability, a recurring theme was that users often expected swipe gestures to be implemented where only tap was available. For example, to get to the next pet profile, some users expected to swipe rather than click on the next pet icon. Others desired for the Body

Condition Score scale to be swipeable (it should be noted that this feature was envisioned as a sliding scale, but in Adobe XD its navigation was implemented by discrete clicks). This may be a transfer effect from modern app usage, where swipe is a common design navigation feature.

There was also some difficulty among users in finding the 'Add Pet' feature: some users were unable to find it, while others were eventually able to arrive as it through exploration and discovery. More than one user expressed a desire to be able to access the 'Add Pet' function immediately, perhaps through an 'Add Pet' icon at the top bar of the main dashboard. To tend to these learnability issues, a skippable "Guided Tour" was introduced for first time users to familiarize them with the features of the different submenus.

In terms of experimental artificiality, all users expressed confusion over the limited functionality of the Adobe XDprototype. Users were frustrated over being unable to enter/select input and have the app respond to that input. These issues could be rectified by prototyping with a tool that focuses on responsive design in addition to visual design (e.g., Axure).

For a full list of changes made in response to user testing, see Summary of Updates in Response to User Testing.

Recommendations for the Next Iteration of Design

For the next iteration, we would like to finish prototyping the features that we were unable to complete up to present. These include: the Step Counting menu, the User Profile and Settings, and the entirety of the Challenges and Community dashboards. To be relevant to a wider pet-owning audience, we would also like to expand our features to be representative of dogs by including dog-specific graphics. We may also wish to offer a selection of breed-specific imagery for the canine BCS as dogs exhibit greater variation in body plan than do cats.

Overall, we identified that it would be highly beneficial to develop our next prototype using a responsive prototyping tool such as Axure, or to go for full functionality with a backend. Simulating certain user interactions is not feasible in Adobe XD as it would require tens to hundreds of prototype boards. There are many improvements that could be made with improved interactivity. For example, for the BCS chart, we envisioned a sliding scale with continuous, dynamic body resize. Such a function would allow the user to "customize" the body shape and size to their perception of their pet's body condition rather than forcing them to choose a static image.

Conclusions

We believe that we have been successful in prototyping a fun and useful tool for pet owners to monitor their pets' health. The IDEO Expert Interview gave us a pet health knowledge base to guide our development, Secondary Research inspired system features to elevate it beyond current offerings, and Try It Yourself granted us direct insight into the metrics our app should include. Heuristic evaluation and user testing allowed us to identify points in our design that could be improved, modified, or omitted to improve the user experience and bring it closer to satisfying the needs and desires of our target audience. We enjoyed the experience of applying the iterative design cycle to our project and hope to carry over what we've learned to future projects.

Appendix

KitBit Heuristic Evaluation - Completed by Group 420

User Control and Freedom

Positive Feedback:

- Navigation through the app is easy. Cancelling an action is as simple as pressing back and going to the previous screen.

Considerations:

- Should include an obvious way to delete data entry points, such as calorie statistics.
- Allow manual input if an address for the home range point along with the current method.
- Add a way for users to return instantly to the dashboard rather than pressing 'back' several times when they've travelled deep into a menu.

Consistency and Standards

Positive Feedback:

- The consistent color scheme throughout the entire app.

Considerations:

- There is a filter feature for searching products within a pet food brand, but no filter for searching the pet food brands themselves. There could also be a search function here.
- The 'Add Photo' and 'Take Photo' options should be buttons rather than hyperlinks.

Recognition Rather than Recall

Positive Feedback:

- Great choices of icons for the tiles on the homepage.

Considerations:

- The icons in the weight sub-menu are not congruent with their function. Ex. a calendar for adding a weigh-in, and a pill for the body condition score.
- The icons in the food sub-menu have a similar problem: the calendar icon might be better for the Feeding Plan button rather than the Add Meal button.

Flexibility and Efficiency of Use

Positive Feedback:

- The home range is able to be resized using a finger gesture.

Considerations:

- The app could give information to the user about finger shortcuts (ex. A three finger tap to go back to the home menu).

Error Prevention

Positive Feedback:

- Dialogue boxes restrict the user into putting in only valid input.

Aesthetic and Minimalist Design

Positive Feedback:

- Nice choice of gradient color.
- Very easy to switch between the pet profiles.
- All the main functions are easily accessible from the main page.

Considerations:

- When completing the BCS and the user is informed their pet is emaciated or obese and needs medical attention, the text doesn't stand out and is the same font as the rest of the page.

Help and Documentation

Positive Feedback:

- Documentation before the body condition score is informative and gives them the opportunity to get further instruction on a website.

Considerations:

- 'Add Device' in the pet profile can be vague as there's no explanation of what it means for people who are only using the app to manually track their data.

Summary of Updates in Response to our Heuristic Evaluation

- Made text on Weight Menu for Body Condition Score (BCS) red to indicate dangerous results (severely underweight or overweight, requiring medical attention)
- Added Home icon to top navigation bar of every page to make it easier to navigate back to the main dashboard on deep trees (rather than needing to hit back repeatedly)
- Replaced the icon on the 'Body Condition Score' tile/button with a stethoscope to indicate it was a health measurement
- Converted 'Add Photo' and 'Take Photo' hyperlinks in 'Edit Pet Profile' to buttons since they do not redirect to external resources
- Added search bar to 'Select Pet Food' page to allow searching of listed pet foods
- Added manual entry/search of home address on 'GPS Tracking' page (in addition to being able to select location by clicking on map)
- Enabled users to be able to click on weight progress/calorie intake data logs to enter a menu for editing or deleting the data point

IEIM Heuristic Evaluation - Completed by Group 42 (our team)

User Control and Freedom

- It looks as though a user can click on a student's name, which would lead to a profile, but instead, it takes the user to an investment profile. Being able to see a standalone profile, perhaps with a history of how this student has performed before, would be useful.

Consistency and Standards

- There is teal text on the profile and the comment submission button is teal, which looks out of place with the other colors.
- The submit button on Current Inventory is green, which again looks out of place. Could keep red and green to the up and down market indicators, maybe keep button colors to be the blue and orange of the graphs
- There are rounded corners on the transparent frame on the home page, but the transparent frame on the profile has no rounded corners

Error Prevention

- Good error dialogues on invalid inputs.

Recognition Rather than Recall

- Move the Transaction Type dropdown to the top of the page to make it more clear what the Inventory pane is for
- Speculation could also be moved right under Transaction Type
    - Then the flow of that pane works better > Choose to buy or sell, choose true or false, then choose quantity and price. Choosing quantity and price before buying or selling means student is choosing price and quantity before knowing whether they want to be spending or earning credits.

Aesthetic and Minimalist Design

- Increase the font size of the graph titles, maybe move them to the top
- On Investment profile, there is a lot of space between the red and green arrows and their corresponding numbers. It looks like the arrows for volume might be associated with the price numbers. Maybe move the arrows much closer to their respective numbers (same goes for arrows under 'Cumulative Data')
- A more cohesive color palette could be chosen, perhaps incorporating colors from the background image
- Graphs look right out of MS Word or Excel, these could have a more elegant design

- There is no separation between the title and the comments in the Community Feedback pane, font, color, and size is the same.

Help and Documentation

- Doesn’t display what IEIM stands for
- An intro video or some info popups about how the site works would be helpful
- On dashboard, vertical graph axes should be labelled as it isn’t clear what is being graphed
- Be able to enter a date when creating an investment

User Testing Report

Jasmine (User: Spouse)

1. **Add pet profile**
    - Kept trying to swipe through pages, particularly when changing the pet profiles, then got confused because all the pages were obviously not in any order to be swiped through.
    - Kept trying to enter data on the input pages until I told him to just pretend. Then he pretended to tap different parts of the screen and made 'boop boop' noises.
    - No option to select 'unknown' when setting birthday for pet profile.
    - Least favourite part was having to tap to the end of the pet profiles before being able to add a new one.

2. **Add a weigh-in and view graph**
    - Absolutely no issues with this task.

3. **Go through BCS**
    - Didn't know what a Body Condition Score was, so I only told him it was those fatness charts and left him to find it from the dashboard. Found it pretty easily after that.
    - When doing the BCS, the outline toggle was not obvious to him (he didn't know he could press the circle to turn off the outline) so I needed to point it out.
    - In the BCS, when looking at the top-down view between 'thin' and 'normal', both cats look the same when the outline is on (i.e. the outline hides the differences).
    - When starting the BCS, the button says 'Proceed To', he felt like it should just say 'Proceed'.

    Overall feedback:
    - When entering a feeding plan, he felt there should be an option to cancel at the very end, instead of only having 'Save Feeding Plan'.
    - Felt the graph of food intake was unnecessary since once you have the feeding plan, their daily calorie intake doesn't really change.
    - On the calorie graph, should we choose to keep it, he said he wanted the graph to be fixed in place when scrolling to see the data so it is always visible.

- Liked the option to enter an address in the GPS function, and said the option to drag the map felt potentially less accurate and that he wouldn't use that option.
- The back arrow on the food graph page is not hooked up.
- He really loved all the icons and graphics, said they were cute.

David (User: Parent)

1. **Add pet profile**
    - Was unable to find the "Add Pet" icon.
    - Thought she needed to delete a profile to add a new one.
    - Ended up editing an existing profile.
    - Was able to navigate through the edit page without issue.

2. **Add a weigh-in and view graph**
    - No issues whatsoever.

3. **Add a feeding plan**
    - Thought she needed to add a meal first so completed "add meal" task without issue.
    - The feeding plan directed her to complete the BCS so she followed that and completed the BCS first. (It actually directs to the BCS and two places and she almost went back to the BCS a second time).
    - Didn't notice the OR and so she entered pet food type and calorie count.

Overall feedback:

- Found the fact that displayed data didn't change to be the most confusing.
- Thought the app looked good.
- After being shown where the "Add Pet" icon was, she still had confusion as to how she needed to add a pet.

Jose (User: Roommate)

1. **Add pet profile**
    - Took a second to find where to add pet profile, but eventually did find it.
    - Thought the GUI looks cute and intuitive.
    - Knew where to edit a profile right away also, thanks to the universal pen icon.

2. **Add a weigh-in and view graph**
    - Straightforward steps to add weight.
    - Graphs look readable and easy to understand.

3. **Go through BCS**
    - Doesn’t like the BCS bar for body shape, would like dragging mechanic (tried to explain that it was really hard to implement in adobe xd).
    - Read what BCS is, “too much text” (not a pet owner).

- Thought the body shape images looked really well thought of.

Ali (User: Designer)

1. **Add pet profile**
    - Had no trouble finding this, worked as he expected it to.

2. **Add weigh-in and view graph**
    - No trouble with this really, found it immediately.
    - Thought this part was also intuitive to use.

3. **Go through BCS**
    - Had trouble finding this menu.
    - Kept looking in the "create profile section" for the BCS.
    - Once he actually found it he had no problems.

Overall feedback:

- Found it simple to edit a profile.
- Understood the scroll bars were impossible in Adobe XD but understood how they would work in real life.
- Didn't like how our 4 tiles didn't have labels on them.
- Felt like the cal counter on the tiles were an overload on information.

Mariella (User: Spouse)

1. **Add pet profile**
    - Tried to slide for pet access.
    - Expected dropdown for Breed, ‘Add Photo’ message or something to simulate the experience.
    - Would like either an ‘Add Pet’ button at the top of the dashboard or a swipe to add pet at end of pets (rather than clicking add icon).

2. **Add a meal**
    - No dropdown as expected for ‘Enter Portion’ unit (show cups), for ‘Enter Calorie Count’.
    - Couldn’t click off the pop-up calendar.
    - Food intake graph – can’t get back to the main menu, can’t push back, can’t click on top buttons – problem with prototype linking, or problem with Samsung phone?
    - Can’t go past ‘Pick Pet Food’ menu – trouble with links?

3. **Go through BCS**
    - Expected to slide the bar on the BCS workflow.
    - No final message for a workflow that doesn’t end in ‘7 – Overweight’.

Overall feedback:

- It appears some links are not active (e.g., dropdowns, date ranges on charts), or haven't been implemented consistently across similar chart/form features.
- Most confusion stemmed from lack of true functionality of at least signalling for some features (e.g., Add Photo in Pet Profile).
- Expected swiping when only clicking was available to scroll through some pages, such as the BCS chart, changing Pet Profiles – possible to emulate in Adobe XD?
- Was able to easily find Add Pet Profile, although thought that swiping (rather than clicking) and/or an 'Add Pet' icon should be present at the top of the dashboard.

Summary of Updates in Response to User Testing

- Added dropdown on 'Add Pet Profile' page for pet breeds to imitate functionality expected by users.
- Added dropdown for portion unit on 'Add Meal' and 'Edit Meal' pages.
- Added 'Discard' button to end of 'Feeding Plan' flow should the user not wish to save the feeding plan they have just created.
- Made default of Body Condition Score (BCS) chart image *without* ideal body type outline so user can clearly see the body profiles, which sometimes have small changes from one shape to another than can be obscured by the ideal outline.
- Added the ability to feeding and weight graphs to allow users to scroll through data while still viewing the graphs.
- Added an additional "Add Pet" icon to the top of the main dashboard.
- Changed scrolling to no longer reset position when an option is selected on the "Add Pet" pages.
- Added a guided tour for first time users to help familiarize users with navigation through the app
- Repaired broken links identified by user testing.

Attachments

Lo-Fi Prototype

File: https://drive.google.com/open?id=1N_qR88Sxt7BvacU0kG9hQVqhNsV5WxNw

PDF: https://drive.google.com/file/d/1tSTvQIZMmT-l-84StyUI6Vhai8M8imAW/view?usp=sharing

Hi-Fi Prototype

https://xd.adobe.com/view/d204e721-69a3-422e-5a10-9eddb30fda9b-a435/