

# Wingtip — Fornacis

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In this document, we present a final version of our WingTip app interface. This version represents the final version of our application after taking into account and implementing all the feedback we have received throughout the design process. While obviously not a complete application, a user would have an experience nearly identical on the complete

## KEYWORDS

Prototype, Usability, Improvements, Design

## 1. Introduction

WingTip is a mobile app meant to be a reference guide and social media platform for bird watchers. Users can locate information on species through a Wiki, connect with one another through social media features, compete with one another with daily challenges and leaderboards, and share photos of all the various birds of which they captured photos. The target users of this application include all types of bird watchers. This includes beginners who only have a casual interest in bird watching, along with experienced bird watchers with many years of experience under their belt. We hope this will serve as a tool for anyone who wants to participate in the hobby, regardless of their level of experience.

## 2. Prototypes & Workflows

The workflows for this app may be found in Appendix A. A link to the final interactive prototype may be found there as well.

## 3. Design Philosophy

We had a number of design goals when building this app. In this section you will find a discussion on those design principles, along with reasoning behind implementing the features we have implemented.

### A. Interactivity and usability

At the beginning of our design process, as early as the first prototypes we developed, we wanted to model our interface to be reminiscent of existing social media platforms. We went in this direction because we want our application to be something that all birdwatching enthusiasts can find use in. In other words, we didn't want this to be something that only hyper-experienced hobbyists would find useful. By making the interface similar to existing social media applications, users would have a much easier time understanding both the functionality and utility of the system without the need for knowledge of birdwatching-specific terminology. In essence, by incorporating social media aspects into our design, we hope to have greatly increased the learnability of the end product.

Possibly the most obvious of these design cues is the addition of the "Bird Feed," which is analogous to the content feed one might experience when using apps such as Facebook and Instagram. This feed acts as a central hub, so to speak, of the whole application. Users are immediately presented with a rundown of activity just as with the aforementioned social media

applications. Thus, they don't have to wonder about the intention of the app. It is not *just* a bird-watching reference guide, but also an interactive experience in which they can participate in group activities, such as the daily challenges.

We also wanted our users to have a reason to return to the app. We thought the best way of doing this would be to “gamify” the app, which will incentivize users to return on a regular basis. We expect users would find inherent pleasure in completing presented challenges, as well as in accumulating points and badges to be displayed on their profile. Implementing these systems also provide feedback to the user on the state of the application: when conditions are met to earn rewards, those rewards appear on their profile. If this were not the case, users would have to keep track of their own achievements and accolades, which detracts significantly from the usability of the system as a whole.

The Birdpedia serves as an all-in-one reference guide for location information about a known species, or finding candidates from an unknown species. Having this resource is of great importance to both experienced and inexperienced bird watchers alike. Rather than carry around physical guidebooks that take up a significant amount of space and are limited to only a certain region's worth of information, the Birdpedia contains all the information one might need for the majority of identification and reference activities. However, it does not overload the user with information: the information must be sought out by the user. This adheres to the principle of minimal design by only showing the user what is strictly necessary and desired by the user at any given time.

The bird sighting map likewise incentivizes participation in the community. We believe that users will post their sightings just for the sake of having other people view it, even if they gain an additional reward in the form of a badge on top of that. Generally, the greater degree of interactivity users share with one another, the higher chance they have of willingly participating in that system.

By incorporating all these design features which encourage participation, we indirectly add to the usability of the app. By having more users using the app for longer times, the amount of user-generated reference content will grow in tandem with the user base and with time. This makes it easier for new users coming on to appreciate the function of the app, as they can reference more material and more knowledge about birds than any one source could provide them. Therefore, the app will have an increasing amount of utility towards the user as time goes on. This also assists in the usability of those who maintain the application, as they would not need to work as hard to “flesh out” the content of the app — rather, users will generate that necessary content, and maintainers would only need to trim it from time to time to prevent spam, incorrect information, etc.

## B. Visual Design and Metaphors

From the get-go, we wanted this interface to accomplish two separate, yet interconnected goals. Since we want our target audience to be birdwatchers of any amount of experience, we needed to both make the interface easy to navigate so as to not confuse (and therefore turn away) new users, but to appeal to experienced bird watchers as well.

Regarding choice of icons, we wanted the icons to match the metaphors that experienced bird watchers are already familiar with. The “Birdpedia” is represented by a book because, as we learned from our user research at the beginning of the term, many bird watchers use real, paper books to identify birds. These already act like encyclopedias of bird species, which naturally pairs with the title given to this section of the application. The map is represented by a flat plane with a pin, which matches the method that bird watchers use when referencing maps. Namely, they experience it as a flat plane, with points of interest marked with pins, pencils, or fingers. This icon pulls double duty in that it's very similar to the industry standard map icon, further aiding in the learnability of the app. The binoculars bring up a search window, which mirrors the experience of bird watchers using binoculars to search the visual field.

Regarding color choice, we chose to keep the interface as clean and as free from visual clutter as possible. When using the application to reference information during a bird watching activity, users definitely do not want to spend any more time than necessary parsing through the interface trying to figure out what is relevant and what is not. We therefore kept the background a plain white, with elements that involve user interaction non-white or with borders. This makes it easy to

determine if a piece of text is a piece of static text, or whether that element may be tapped to advance any action the user wants to take.

In addition, we did not want to bog the user down with any pieces of unnecessary information. Save from the few icons that appear on the home screen, the user must actively search out what they intend to find, and don't receive any information they didn't specifically seek out. This adheres to the principle of minimal design.

In conclusion, we designed our interface with the usability in relation to our target audience at every step to the greatest degree we could. We hope that no potential user would come to our app and decide that it was too complex or too confusing to use.

## 4. Design Change Iterations

Our team has made a number of modifications to our interface through the design process. These include issues that were brought to our attention both through internal evaluations, interviews with representative users, and feedback from our peers through comments on discussion posts. A complete list of design changes since design gallery #2 can be found in Appendix B.

### A. Learnability and Recognizability Changes

Our efforts uncovered a number of issues which inhibited both the learnability and usability of our application. One of these issues was a lack of visual indication on award icons, such that users were not aware that these elements were clickable. Of course, it is better if elements of the interface with which a user may interact are indicated to be as such. With the award icons, we intended to make use of the surprise-explain-reward design strategy to drive engagement with the app. Users would be surprised by the appearance of the award icons on profile pages and therefore tap on them to learn more. The award description would then pop up and explain how the award was earned, rewarding the user with the knowledge of how they can get the award for themselves. However, since some users were unaware that the award icons were clickable, the process was interrupted. To remedy this, we modified the visual presentation of the award icons on users' profiles to indicate their interactivity. When users now tap on these icons, they are presented with a small popup explaining the criteria required to have earned that reward.

Based on design gallery feedback, we modified the popups to also gray out the rest of the screen around it, giving a visual indication to the user that the elements behind the layer are non-interactive until the popup is closed. In addition, this makes the pop-up contents more easily visible by reducing the amount of the user's attention taken up by the other screen contents. It also serves to demonstrate to the user that the popup is, in a sense, laying on top of the rest of the interface rather than being a new element within. This design metaphor more closely matches the experience of users interacting with objects such as sheets of paper in the real world.

The daily challenge presented on the home page now indicates an associated point value. This makes it clear to the user how points are accumulated by users for the purpose of the leaderboard feature. We noticed this was an issue during our empirical evaluations when test users were confused as to what the points on the leaderboard referred to, which at the time was not explained. With this change, users may make an immediate connection between the point value associated with the daily challenge and the point count shown on the leaderboard. Users therefore are able to learn the correlation without the need for explicit explanation by the interface.

The native range map in the "Birdpedia" now has a color key, giving an explanation as to what the different colors on the map indicate. Without a color key, users would have no reference as to what the colors represented, which would be confusing. This change avoids that issue. If a user is to ask themselves, "What do the colors mean?", the answer is now immediately obvious. This avoids a layer of frustration that could be off-putting to new users which could otherwise discourage them from interacting with the app.

## B. Feature Expansion:

Our first few sets of prototypes were feature-incomplete. That is to say, we had not finished implementing the full set of features of which we intended our final prototype to consist. We have now implemented all core features of our app concept.

One feature that we found lacking during our heuristic evaluation (and one user noted the same during the empirical evaluations) was a way for users to search for other users. Previously, users could only view another user's profile page if they found a link to it on another page, such as a post by that user in the feed on the home page. Since this app is meant to serve as a social platform for bird watchers, in addition to an informational resource, we felt it was important to have a reliable way for users to connect. Therefore, we created a user search feature accessible from the navigation bar, which allows users to search for and navigate to the profile page of other users.

During our empirical research, we received feedback indicating that the fields on the Birdpedia search form were not necessarily useful for casual bird watchers who may not be highly knowledgeable about birds. For instance, they may not necessarily know the name or diet of the species they want to search for. To make the search more accessible for these users, we added additional fields that allow them to search by the color or size of the bird. This way, even if the user knew nothing about the bird other than its appearance and where they saw it, they would have enough information for a search that should return a reasonably small number of results.

The 'Bird Feed' now has several options for users when they submit a new post. A post can take one of three broad types. The first of these is a comment. A comment consists of a text post where users may start a discussion, ask a question, or announce something. Other users would be able to reply to these comments with their own, thus facilitating conversation. The second type of post is a 'Sighting,' in which users may share information about recent sightings they experienced. These can include information about the time, location, date, and species spotted during the sighting, along with photos of the sighting itself. Sightings are automatically correlated with the Wiki pages, and sights can be accessed either from the 'Bird Feed' or in the Wiki page corresponding to the species of that particular sighting. Finally, users may post an 'Event,' which broadly encompasses birding events. These may be either formal or informal events related to bird watching, but users may share tangentially related events as well (think: group hikes, outings, etc.).

In order to manage the attention investment of the user and help to ensure that they are able to locate information relevant to their current needs or interests, we implemented filters for both the Bird Feed on the home page, as well as the Sightings Map accessible from the navigation bar. The Bird Feed filters allow users to show/hide different types of posts on the feed: sightings, events, and comments. The map filters allow them to filter out sighting markers on the map based upon how recent they are. These filters allow users to reduce the amount of content displayed on these pages that competes for their attention with the content that they are actually interested in.

Another feature that has been added is the presentation of an award upon posting a new sighting. When the user posts a sighting, either from the home page or from the Birdpedia, a popup is shown to the user indicating the award they have earned. The award would then appear on the user's profile. This acts as a way to introduce the user to the way in which awards can be earned.

## C. Visual Improvements

We have also adjusted a few items in our interface to aid the readability of the app as well as make some design elements more distinct.

We received user feedback stating that the text on the Birdpedia search results was too small to read comfortably. As this is intended to be a mobile app, very small text is not suitable for the given screen size. Therefore, the font size has been increased to be more legible. Similarly, we received feedback that the stylized font used for the main body of text on the Birdpedia species page was difficult to read, so we changed it to a more simplistic font. This prevents a degree of difficulty when parsing through blocks of text. These changes also make the app better conform with the standards that users have come to expect in regard to text size and font choices within

mobile apps. We hope that this will make using the app an easier and more comfortable experience.

During one of the design galleries, users stated that it was difficult to quickly pick out the names of the birds on the Birdpedia search results page. To remedy this, we increased the contrast between the bird name and bird description by making the name larger and bold so that it stands out more. We have also adjusted the boxes that contain the search results to improve contrast and visual clarity, to better differentiate visual elements from one another. This will assist the user in distinguishing pieces of information from one another that could otherwise be mistaken for being two parts of a connected piece of information.

We received feedback from an instructor on the week 8 prototype that the spacing around some of the buttons was too narrow. Specifically, the “follow” and “edit bio” buttons on profile pages were too close to the text of the bio. To fix this and make them more comfortable to use, we moved them down to increase the padding around them. The instructor had also previously suggested that the contrast of some of the buttons was too low, making them difficult to see. We made the color of these buttons darker so that they stand out more from the white background, making them easier for the user to locate and use.

The instructor also asked whether there was a leaderboard section that was always accessible or if it was only accessible through a daily challenge. This indicated to us that it was not clear that the daily challenge was separate from the rest of the feed on the home page and would always be present at the top of the page. In order to make this more clear, we changed the background color and added a thicker, darker border around the daily challenge to show that it was not a normal entry in the feed. We also added a pin icon in the corner to clarify that it always appears at the top of the feed.

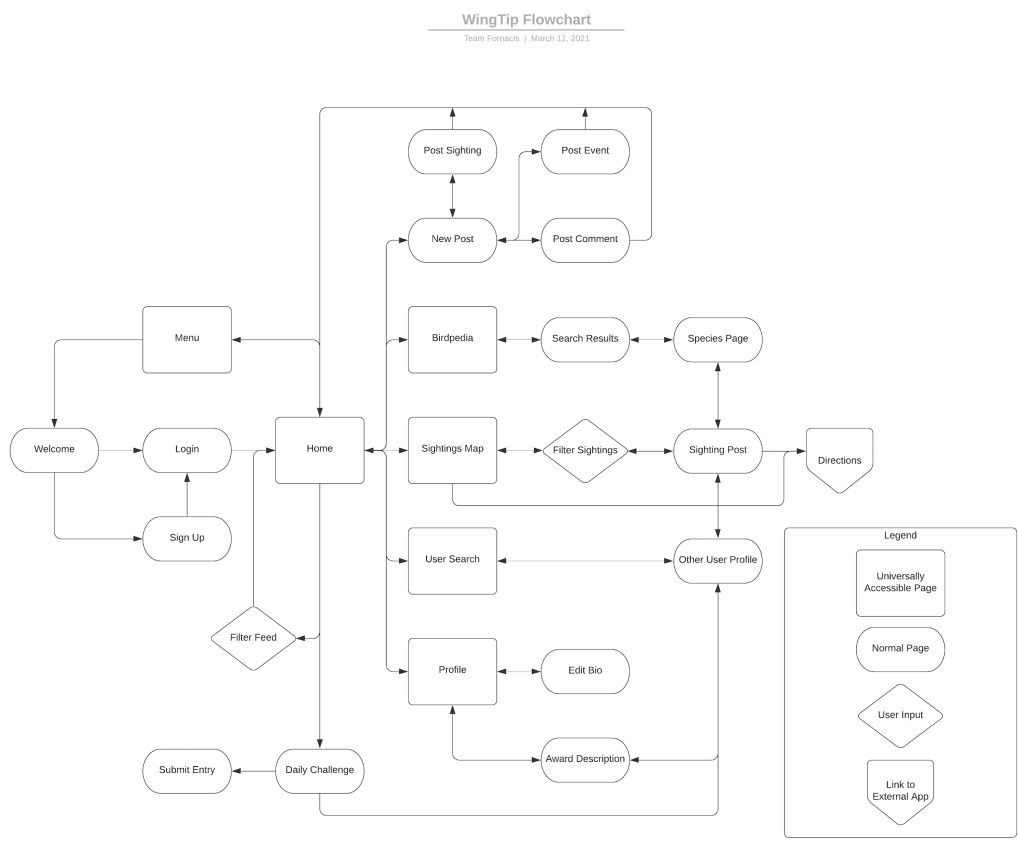
4. Appendices

A. Workflow

Prototype Link

<https://www.figma.com/proto/hkGtLYCnmh5dQQFYA16Uxt/Fornacis-WingTip?node-id=33%3A3&scaling=scale-down>

Flowchart



B. Changes Since Design Gallery #2

- Bird Feed now has post options. Users can post one of three varying types:
  - Comment - A text post where users can start a discussion, ask a question, or announce something.
  - Sighting - Users can post bird sightings to the feed which include information on the species, location, and time of the sighting.
    - This feature can also be accessed from a bird's wiki page in the birdpedia, to automatically fill in the sighting information related to the bird species.
  - Event - An event post indicating a scheduled event with an associated location and other details.

- Posting a bird sighting may grant the user a new award, as indicated by a pop-up. This new award will also be displayed on their profile.
- Bird Feed can now be filtered.
  - Added an additional user comment to all home screens (except where comments are filtered out) to better illustrate the effects of the filters.
- Added a menu screen with the ability to logout.
- Added a user search feature accessible from the binoculars button on the navigation bar.
- Map sightings can be filtered by how recent they are.
- Award icons have more pronounced visual presence to indicate to the user they may click on them.
- Award descriptions and other pop-ups obscure the background with a semi-opaque layer to indicate to the user the buttons and interactivity in the background are disabled until they close the popup.
- Daily Challenge now indicates a point value
  - Helps users to understand the implications of competitors' scores, and how they may boost their own score.
- The native range map in the Birdpedia now has a color key.
- Bird search results have improved contrast and visual clarity
- Font has been changed on compact text for readability
- Increased spacing around "follow" and "edit bio" buttons

Peer Evaluation

Member Name	Role	Responsibilities / Assigned Task	Task Completion Grade (0-5)
Wyatt Whiting	Management	-Abstract -Introduction -Design Philosophy -Design Change Iterations	5
Kyle Folk-Freund	Design	-Design Philosophy	5
Ethan Hirsch	Research / Communications	-Prototype Updates -Appendix B	5
Nicholas Minton	Design	-Flowchart	5
Joseph Tong	Writing / Documentation	-Prototype Updates -Flowchart Update -Design Change Iterations	5