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Project Summary

Lil Library



## Problem Statement

If you've ever wandered around Ann Arbor with a keen eye, you might have noticed a tiny library filled with books in a person's front yard. These tiny libraries are part of the Little Free Library, a non-profit organization that encourages homeowners to build and maintain their own repository of books that can be freely exchanged by anybody in the community. These libraries help foster community outreach and engagement, allowing citizens of all stripes to engage with each other when they normally might not, but I think there's the potential to take this concept even further using modern information technology. Currently, there are over 75,000 people who have their own little free library, and none of them can be found using a mobile application.

## Target Audience

The primary audience of this project is people of all ages who love to read. These individuals will need to be comfortable using modern technology through a smartphone app to help engage with the Little Free Library network and all of its users. Demographically, US citizens aged 18-29 have a higher likelihood to read a book in the past 12 months (1). Due to the community sharing concept behind Little Free Library, I also believe my project will attract thrifty and low-income individuals who want access to books without purchasing them.

## Solution Overview

My solution, Lil Library, is a mobile app that's built from the ground-up using crowdsourced data who are already engaging in the current Little Free Library infrastructure. With Lil Library, users will be able to find a wide array of information that's not currently accessible using the Little Free Library's current website map. Lil Library lets users search for the closest Little Free Library in their area and view its inventory, check-in and check-out books, or request new books. You can even view your rental history and get suggestions for other book titles they might enjoy.

## Finalized Design

Lil Library's interface is centered around two critical components: A search bar and a map. Using these two elements, users can easily find the closest Little Free Library in their vicinity within seconds of launching the app. Looking for a specific book, author, or genre? Just use the search bar and the information is at your fingertips. Want to get directions to the closest lil library near you? Find one on the map.

Once the user has found a lil library or book they want information on, that's where the fun begins. Users can easily get step-by-step directions to the closest Little Free Library, along with the books are currently available. Users can then check in or check out, and follow or unfollow, any book.

Users also have access to their search history, personal data (My Bookshelf), and Notifications.

### Functionality: Finding and Getting Directions to the Nearest Little Free Library

To improve access to Little Free Library's in your vicinity, users can easily utilize the map on the home screen of Lil Library to see what libraries around them. Just like Google Maps, users of Lil Library can get detailed information about the Little Free Librarys around them, including inventory and directions.

### Functionality: Using My Bookshelf

Users can access their digital bookshelf and see what books they've previously rented in the past, along with what books they currently have checked out. Users can even favorite their favorite Lil Libraries so it can be more readily accessible to them. If a user follows a specific book they're looking to borrow, they can follow it and receive notifications that it's available, and unfollow it from their Bookshelf page.



If a user selects the “Book Club” icon at a Little Library, they will be paired with other users in the area so they can begin a hybrid digital and physical book club, which would be integrated into the My Bookshelf section at a later time.

### **Functionality: Interacting with an Author and Book Detail Pages**

When a user goes to a Little Free Library’s page, or searches for a book title or author, they can easily piece of information’s corresponding page. In the book detail page, users can see where a book is available, similar titles, along with the ability to check-in, check-out, follow, and unfollow a book. Following and unfollowing a title will give you a notification when that specific book is made available locally. A popup message is displayed due to the importance of selecting these options within the app.

### **Sketching Techniques & Approaches**

This project is the first time I’ve ever utilized sketching as a tool for brainstorming. While I have little graphic design experience, I’ve been lucky enough to take a graphic design class during this project, which has significantly helped me during my high fidelity prototype stage.

For my low-fidelity and high-fidelity prototypes, I utilized a new prototyping application called **Figma** for my overall design layout and interactive elements for my app. Figma allows a user to easily get up and running with a low fidelity prototype. While Figma lacks advanced interactivity and animations, it allows the user to get up and running with a prototype quickly and efficiently.

### **Unimplemented Ideas**

Overall, the basic functionality of Lil Library has been implemented with dozens of interactions, but there’s still many different sections that could be fully prototyped and evaluated with user testing. Advanced user profiles could let users interact with each other in a new community-driven section that features private messages, forums, and chatrooms.

### **Design Process**

The design for Lil Library changed drastically from my early sketches and brainstorming sessions. Originally, my idea for “Lil Library” emphasized more social features that would let users interact with their local community through chat rooms, forums, and messages. The app was structured to have 5 icons at the bottom of the screen that would represent 5 sections of the app, including a user’s profile, search, messages, notifications, and an “everything-else” section. As I began to research and plan this structure within my app, I discovered many problems involving navigating between these areas of the program in relation to the core functionality of the app - searching and finding a Little Free Library.

Typography-wise, I attempted to mimic iOS 12’s typography guidelines - I primarily used SF Pro Text for any text under 20 px, or SF Pro Display if the text is over 20 px. I used a font sizes ranging from 10 to 17, with varying levels of thickness - Regular, Medium, Semibold, and Bold.

While my app’s bottom navigation icons created an app that had equal emphasis of each section with an icon at the bottom of the app, I still wanted the app’s focal point to be the search functionality. In my early low fidelity prototypes, I tried accomplishing this by making the magnifying glass search icon bigger and a different color than the other icons so it would standout and catch the attention of the user.

During my low and medium fidelity user testing, I found my process involving the search functionality, along with individual library, author, and book pages, proved difficult to navigate - initially, I attempted to avoid using the back button in order to simplify the app’s navigation controls, but users had trouble navigating from a book or author detail page back to the little library they were visiting’s page. After the first round of testing, I quickly added a Back button to book, library, and author pages.



Originally, I had an onboarding process, along with a walkthrough process, but I was able to simplify and consolidate both sections into one combined section. These initial 3-4 frames have a user sign up for an account, along with being shown a small explanation of the overall layout of Lil Library.

Another issue I quickly discovered during my user testing of low and medium fidelity prototypes was the amount of information and data being displayed. Even though Little Free Libraries are small wooden boxes, they can still contain dozens of books. In my original design, the list of books had a lot of padding and big buttons. As group members critiqued my design, they suggested adding a way to filter or search the list, or have a list-view that could be selected. I made numerous changes to address this issue, including adding a search/filter bar for each library page, along with simplifying and reducing the each book's listing on the page.

As I attempted to simplify my app and make the search and map functionality the most polished, I began looking at examples of how map-based apps approached search functionality and business listing pages. I looked at web-based maps, like Bing Maps and Google Maps, along with mobile apps like Google Maps, Waze, and Apple Maps. As I studied these apps, I quickly realized that the focus of their app was the map, and the map alone - none of them had a bottom row of icons. Even though it would require more work, I decided to adapt their approach to my design - instead of navigation icons, I would create an overlay that would display certain details over the map section of my app.

When Lil Library is opened, users are presented with a giant map and search bar overlay at the bottom. If the user swipes up on the search bar overlay, what used to be presented as icons in the bottom bar is now listed in the search overlay. These options now include "My Bookshelf", "Favorites", "Notifications", and a running list of the user's past search history. These sections are exclusively displayed in the search bar overlay - the user always has access to the central map section of Lil Library by swiping down on the overlay.

When a user searches for an author, book title, or library, the information is displayed in that search bar overlay. The overlay can be resized to any size vertically, or the back button can be used to go back to your original search settings.

Lastly, I simplified the number of actions on certain sections within the app so I could attempt to prevent the app's navigation from getting too convoluted and complicated. For example, instead of allowing the user to both buy and get info on an author's specific book from the "Author" section, they now have to click on the specific book to reach the book page, where they can choose to buy the book.

## Design Reflection

Overall, my philosophy as a designer revolved around two central things - putting the most important information right at the user's fingertips, and encouraging users to utilize the Little Free Library network more than they typically do.

Physically, the design of my app puts everything at the user's fingertips using the information overlay that slides from the bottom section of the app. Unlike most map-based apps like Google maps, the search-bar is located in this overlay and allows the user to easily interact with the search bar. Keeping all of this information in the overlay also allows users to resize the overlay to any size they want.

Encouraging Little Free Library occurs by just having a mobile version of the network at user's fingertips, but adding functionality such as real-time inventory encourages users to actively go to a Little Free Library. The ability to follow and request books also encourages users to use Lil Library. I value information being readily available to all of our citizens, and I think Little Free Library, and as an extension, Lil Library, encourages this freedom of information in our society.

## Societal Impact

Lil Library might seem like a simple information-based app that makes it easier for people to find and borrow the books they're looking for, but it represents a shift toward a more

sharing-inspired culture within our community. Instead of encouraging spending and consumerism through book ownership, Lil Library gives users the tools to find free books on the Little Free Library network. From an environmental perspective alone, Lil Library could help prevent additional books from eventually filling our landfills.

Socially, this revitalized system links the little library concept to modern-day social processes and interaction. Users will be able to check in and report that they visited a little library, showing a timeline of their activity. As features are expanded within the app, users will have the ability to communicate with each other, furthering engagement in the local community. An online message board could link like-minded readers who live in the same proximity and help them set-up book clubs. Local suggestions could also be offered to users who checkout specific books.

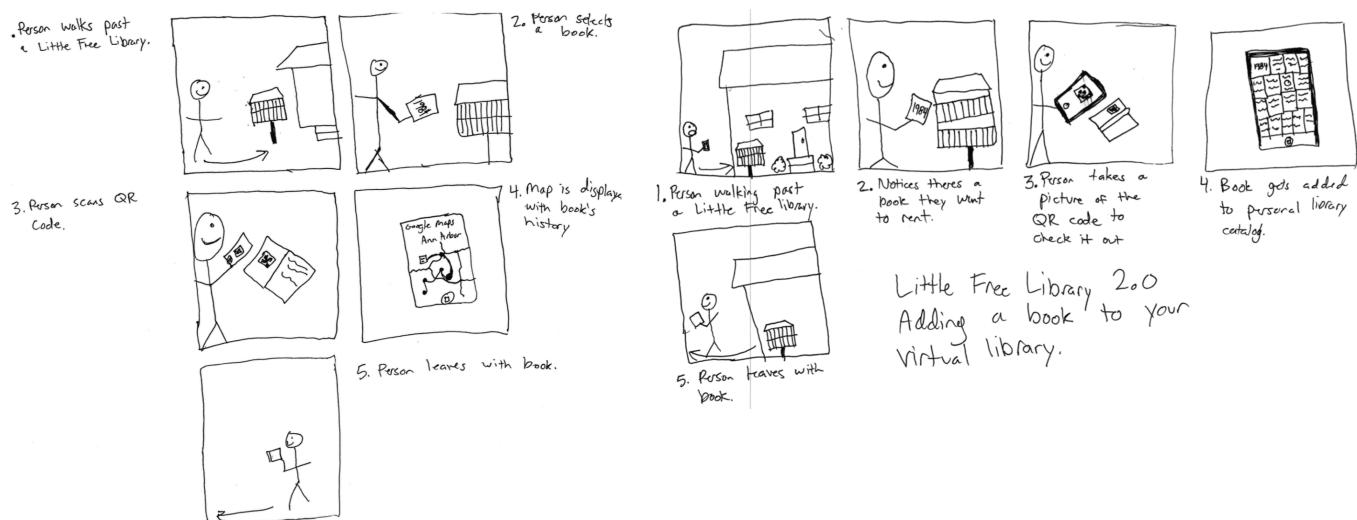
## References:

LittleFreeLibrary's website  
<https://littlefreelibrary.org>

## Statistical Facts About Readers in the United States

<https://www.statista.com/statistics/249787/book-reading-population-in-the-us-by-age/>

## Appendix: Storyboard Sketches

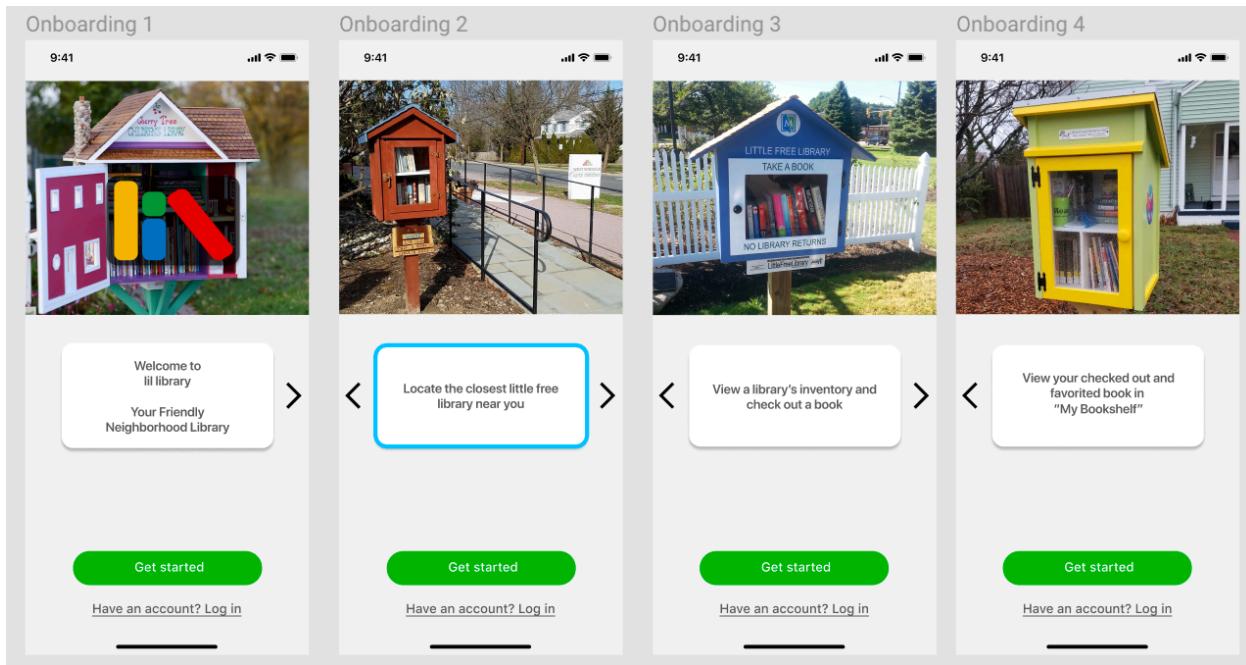


Little Free Library 2.0  
Tracking a book's rental history.



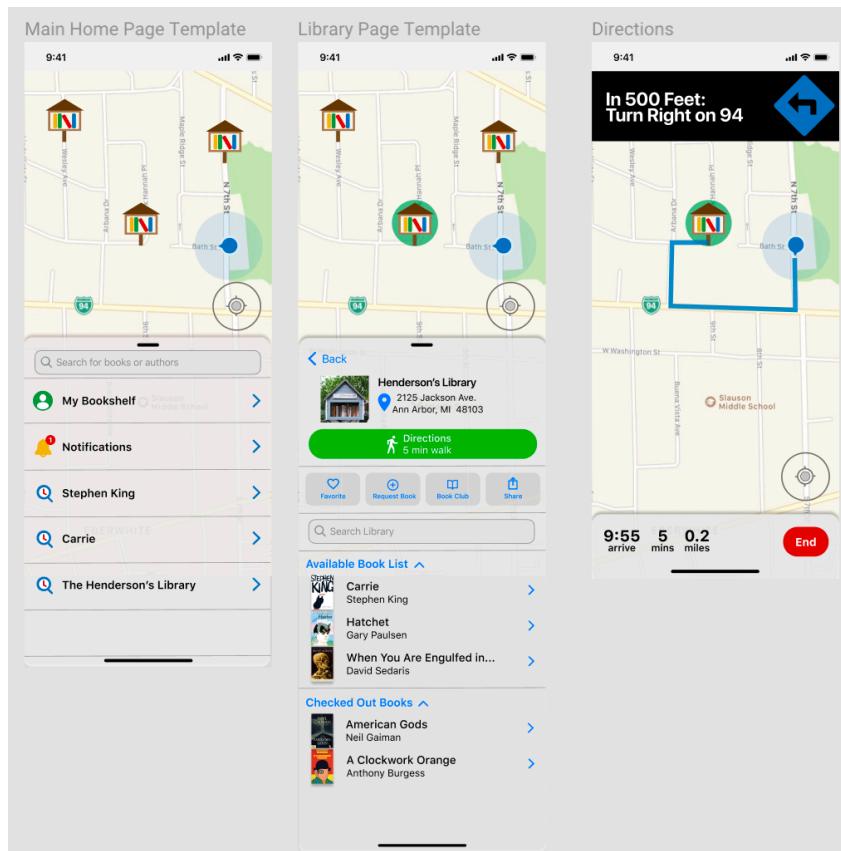
## Welcome/Onboarding Screens:

Users will view this set of screens when they install Lil Library for the first time. They are told about various features of Lil Library, and can sign-up and sign-in to their account.



## Finding a Little Free Library and Getting Directions

Users can easily zoom in and zoom out on the home screen of Lil Library's map, and see various markers showing the location of each Little Free Library. Selecting it and clicking "Directions" begins the turn-by-turn notifications:





## Checking-in, Checking-out, Following, and Unfollowing a Book

When a user goes to a Little Free Library's page, they can easily select a book title and view a book's detail page. In the book detail page, users can see where a book is available, similar titles, along with the ability to check-in, check-out, follow, and unfollow a book. Following and unfollowing a title will give you a notification when that specific book is made available locally. A popup message is displayed due to the importance of selecting these options within the app.

The screenshots illustrate the process of interacting with the book detail page for 'Carrie' by Stephen King:

- Screenshot 1:** Shows the book cover and basic details. Action buttons at the top include Check-out, Follow, Buy, and Share. Below are sections for Summary, Genre (Horror), Availability (Henderson's Library 5 Miles Away, Lil Library 5339 15 Miles Away), and Similar Titles (Cujo, IT, Pet Semetary).
- Screenshot 2:** Shows a confirmation message: "Carrie has been checked out. You will be notified to return the book every 7 days." with a green "Okay" button.
- Screenshot 3:** Shows a confirmation message: "Carrie has been checked in. Thank you for using LFL library." with a green "Okay" button.
- Screenshot 4:** Shows the book detail page again, but with the Follow button replaced by an Unfollow button, indicating the book is now followed.
- Screenshot 5:** Shows a confirmation message: "Carrie has been followed. When the book becomes available, you will be notified." with a green "Okay" button.
- Screenshot 6:** Shows a confirmation message: "Carrie has been unfollowed. You will no longer be notified when the book becomes available." with a green "Okay" button.



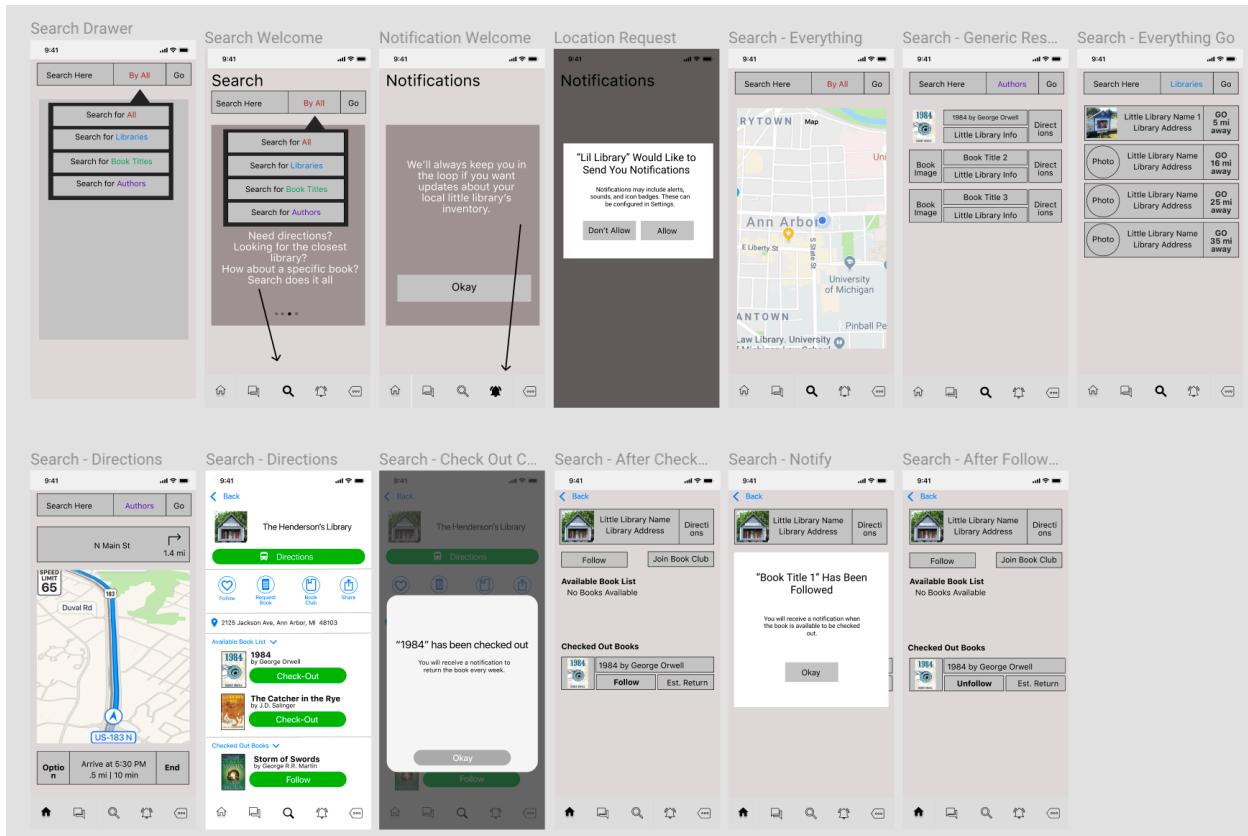
## “My Bookshelf” & “Notifications”

My bookshelf is a central hub for all information related to the books and Lil Libraries you visit. Stay informed with your favorite Lil Libraries in your area, or follow specific books you’re looking to borrow. Users can also see a list of any books they currently have checked out and check them back in, or view a history of their prior rentals. Notifications help improve this functionality by providing notifications of when a followed book becomes available, or when new books are available at your favorite Lil Library. You’ll also get notifications every week you have a book checked out.

The image displays four screenshots of a mobile application interface, likely for a library or book tracking service. The top navigation bar includes a back arrow, a user profile icon, and a search bar. The first screenshot shows the "Notifications" screen with sections for "This Week" and "Last Week", listing events like books being checked out or new books available. The second screenshot shows the "My Bookshelf" screen with sections for "Favorite Lil Libraries" (listing Henderson's Library and Lil Library 5339), "Checked Out" (listing books like "When You Are Engulfed in the Dark Tower"), "Following" (listing books like Carrie and Stephen King), and "Rental History" (listing books like American Gods and Animal Farm). The third screenshot is a modal window for a checked-in book, showing a message of thanks and a green "Okay" button. The fourth screenshot shows a zoomed-in view of the "Checked Out" section of the My Bookshelf screen.



## Low/Middle Fidelity Prototype



## Fidelity Prototype Map

