

Neighborhood Connect

Senior Project

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Purpose

The goal of this project is to create an app that fosters community engagement by allowing members to organize and participate in custom events, such as parties, cookouts, book clubs, and more. Designed for local use, the app restricts group and event participation to users within the same zip code, encouraging neighbors and nearby communities to connect and share experiences they might not have considered before. This feature aims to bring people together, strengthening community bonds and promoting a sense of belonging among local residents. It essentially serves as a digital town square, providing tools for community building and local engagement in an increasingly disconnected world.

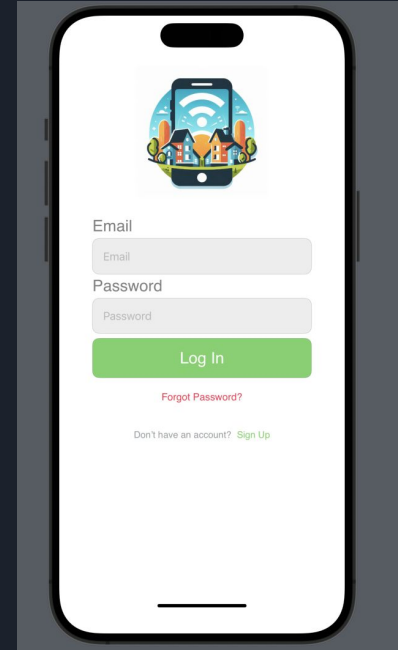


Introduction

Neighborhood Connect is a SwiftUI application designed to foster community engagement. Neighborhood Connect serves as your digital bridge to the local community. By leveraging location-based social networking, we create a platform that connects you with your immediate surroundings. Our app allows users to join interest-specific neighborhood groups, making it easy to find and connect with locals who share your passions. Whether you're looking to organize a community garden, start a book club, or simply find a jogging buddy, Neighborhood Connect provides the tools to make it happen.

Users can easily register and securely log in to create or join neighborhood groups tailored to their interests. The app facilitates the organization of local events, from block parties to charity drives, and allows users to discover and participate in activities happening nearby. Our moderated group discussions ensure a positive environment for community interaction, while a robust search function helps users find relevant groups and activities with ease.

At the core of Neighborhood Connect's robust infrastructure is Firebase, a comprehensive development platform provided by Google. Firebase offers a suite of tools that enable us to build a secure, scalable, and responsive application. For authentication, we leverage Firebase Authentication, which provides a seamless and secure sign-up and login process. This system supports various authentication methods, including email/password, phone numbers, and popular third-party providers like Google and Facebook, ensuring a flexible and user-friendly onboarding experience. Although in our case we use used email and password authentication.

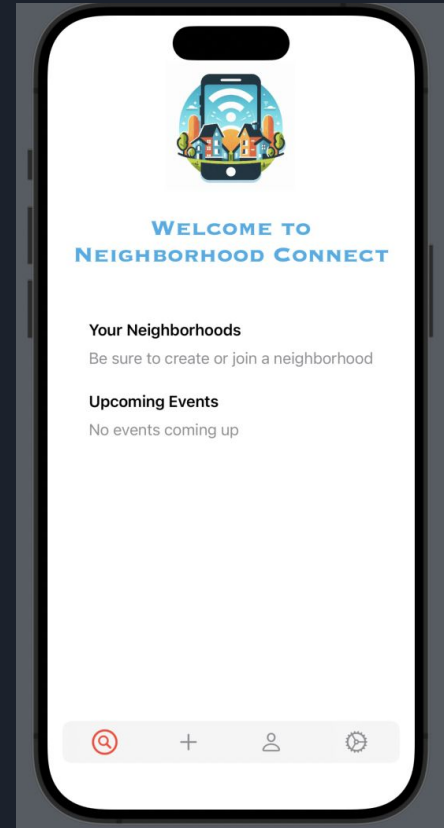


Home Page

HomeView.swift: The main screen displaying user's neighborhoods and events.

Uses SwiftUI's NavigationStack for smooth navigation.

Displays a welcome message, user's neighborhoods, and upcoming events.





Key Features

At the heart of Neighborhood Connect is a robust and user-friendly registration and login system, powered by FirebaseAuth. We've designed the process to be both secure and straightforward, ensuring that users can quickly join our community while maintaining the highest standards of data protection.

When new users sign up, they're asked to provide four key pieces of information: their email address, a secure password, their ZIP code, and a unique user ID. The email and password combination forms the basis of their secure account, while the ZIP code is crucial for connecting users with their local community. The user ID adds a personal touch, allowing members to create a unique identity within the Neighborhood Connect community.

FirebaseAuth provides state-of-the-art security features, including encrypted password storage, protection against common attack vectors, and optional two-factor authentication for users who want an extra layer of security. It also allows for seamless password reset and account recovery processes, ensuring that users always have access to their community connections.

Once registered, users can easily log in to access all of Neighborhood Connect features. The login process is quick and secure, with options for remembering devices to make repeated access even more convenient. With this solid foundation of user authentication, we ensure that Neighborhood Connect remains a trusted platform for building real, local connections.

- **User Registration & Login:**
 - Secure authentication using FirebaseAuth.
 - Simple sign-up process with email, password, ZIP code, and user ID.
- **Neighborhood Groups:**
 - Create and join neighborhood groups based on location and interests.
 - Group chat functionality to stay connected.
- **Events:**
 - Create, view, and sign up for local events.
 - Manage and keep track of upcoming events.



Key Features

- **Users creating their own group chats:**
 - When a user navigates through the tab bar on the homepage, they have the option to create a group chat and can choose what they want the groupchat to be about, their zip code so users nearby can join, and an age range
 - The data entered by the creator of the chat that was given will be saved on firebase real-time database so we can see who creates the groupchat, users who have joined, zip code groupchat is based off, age-range, and saving the chats between users.
- **Joining a neighborhood group chat:**
 - Not only will users have the option to create group chats but they will also be allowed to join group chats that have the same zip-code, and the age of the user trying to join the group chat is in the age range that the creator chose.. Once the user clicks the button to find the group chats, they will see a list of group chats that are based off the zip code and age the user entered.
 - If the user decides to join a group chat, they can see the group chats they've joined in the chatsview.

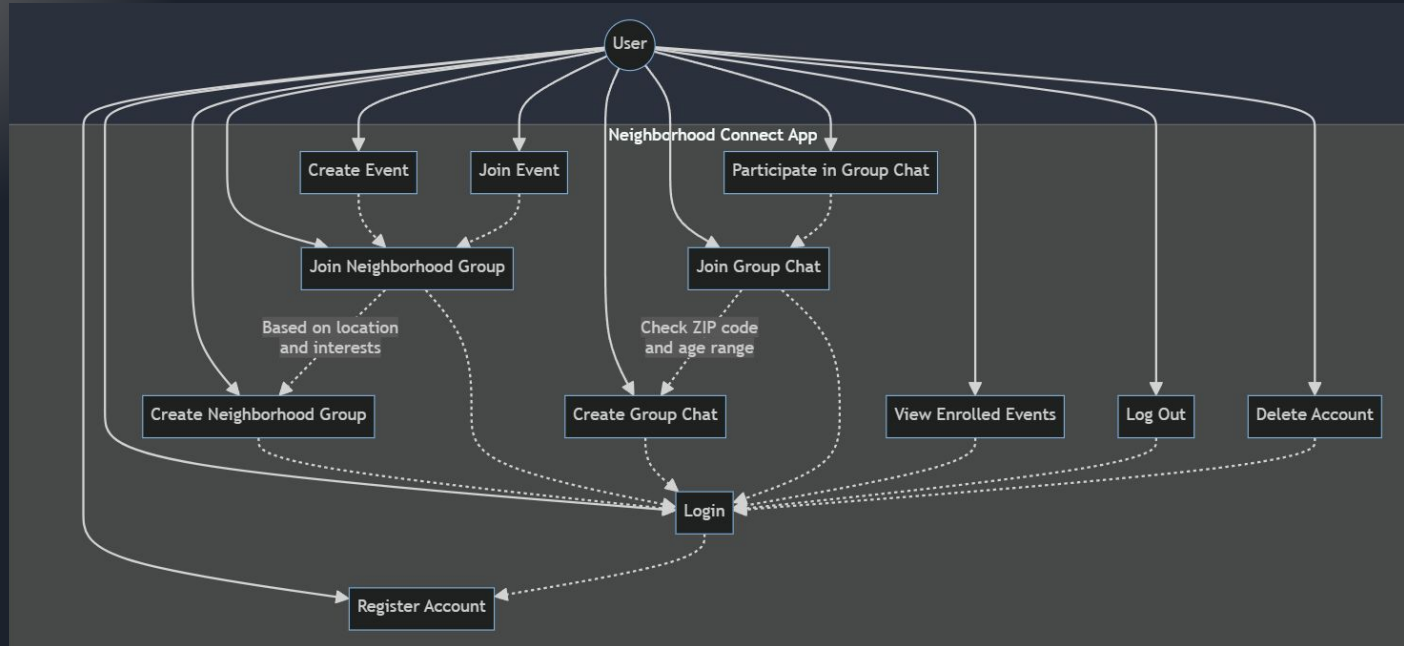


User Stories

1. As a new user, I want to register for an account with my email, password, ZIP code, and user ID so that I can access the app's features.
2. As a registered user, I want to login securely using FirebaseAuth so that I can access my account and use the app's features.
3. As a user, I want to create a neighborhood group based on my location and interests so that I can connect with like-minded people in my area.
4. As a user, I want to join existing neighborhood groups that match my location so that I can engage with my local community.
5. As a user, I want to join existing group chats that match my ZIP code and age range so that I can participate in discussions relevant to me.
6. As a group member, I want to create events for my neighborhood group so that I can organize local activities and gatherings.
7. As a user, I want to join existing events that are part of my neighborhood group so that I can participate in local activities.
8. As a user, I want to delete my account if needed so that I can remove my personal information from the app.
9. As a group admin, I want to moderate the content in my group chat so that I can maintain a positive and respectful environment.



Use Case





Sequence Diagram





Technological Stack

Front End

Swift UI



Backend

Firestore



Swift UI



Tools

XCode



Github



Figma





Architecture

The architecture of our Swift app that we've developed for the Neighborhood Watch project aimed at utilizing the principles of iOS development and the potential of Swift. iOS applications' layout is simplistic and efficient with high code modularity and a focus on user interface/ user experience designs. As for the next level of our application, the Swift coding was designed to be simple and efficient. Our app enables a user to sign up and sign in where the sign in process is authenticated through Google Firebase Database Authentication. Users authenticated can then join neighborhood groups in which they can chat in real time with neighbors; this is made possible by the use of Firebase real time database. Furthermore, within these neighborhood groups' users can schedule events and when an event is to be held it can be signed up for by the members of the group and the community can be encouraged to participate. This functionality was achieved through a proper layout of the user interface and the backend solutions of the created application that became the proper platform for neighborhood watch and community communication.



Summary

Purpose

- Bringing neighbors together through a user-friendly mobile platform

Key Features

- Secure user registration and login (FirebaseAuth)
- Create and join neighborhood groups
- Topic-based neighborhood groups with age and location filters
- Create, join, and manage local events
- Real-time messaging and updates (Firebase Realtime Database)

Technology

- Frontend: SwiftUI
- Backend: Firebase (Auth & Realtime Database)

Benefits

- Strengthens local communities
- Facilitates neighborhood communication
- Simplifies local event organization and discovery

User Experience

- Intuitive interface
- Seamless navigation
- Privacy and security focused