

Wander

Team 27 - Product Backlog

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Problem Statement

Everyday, people walk past each other, possibly multiple times per day, without ever realizing that they crossed paths. Wander is a mobile app designed to utilize location data of its user's daily routes and "match" people who cross paths every day. After the app matches two people who have crossed paths a certain number of times and who have similar interests, the app notifies them of a match and allows them to chat with one another. Along with this, the app will keep track of long term anonymous data for certain areas (where many people go, for how long, etc.) and generate a heatmap of popular locations in certain areas. This app will work based on user consent when sharing location data and will allow the user to specify when he or she wants information to be shared and for how long.

Background Information

Problem

The problem we are trying to solve with our app is simple. When people are in a rush to get from one place to another, they are not paying attention to their surroundings. Our app hopes to connect people that cross paths on a regular to semi-regular basis that do not realize the connections that they have missed.

Domain

The domain is smartphone applications.

Target Audience

Our product is targeted towards adventurous individuals who want to meet someone new, whether it is for dating, finding new friends, or talking to people with similar interests. Due to the nature of our app it is more beneficial for users that are active and are often outside, near areas with plenty of foot traffic.

Similar Platforms

Other applications such as *Happn* or *Match* have the capability of pairing you up with people you have crossed paths with. However, these apps are marketed as dating services and target a different demographic.

Limitations

In contrast with the aforementioned dating apps, our app is not as restrictive and allows users to mutually match up with anyone they crossed paths with for any number of reasons, whether they be professional, romantic or platonic.

One major limitation of similar apps are the “pay to chat” features. For example, *Happn* charges a steep monthly fee in order to enable chatting functionality after matching with other users. This may deter a large number of users who do not have the luxury or desire to pay to meet new people. On the other hand, our application will be free to use and will not charge monthly for fundamental components of the service such as chatting.

Another limitation of similar apps is the issue of matching with too many people in crowded locations. Our application deals with this issue by allowing the user to toggle the radius within which the user wishes to match with other people. In addition to this, our app will also give the option to dynamically resize the radius of matches based on the number of Wander users in the immediate vicinity. To prevent spam notifications, we will also aggregate the matches over the course of a day to display at a user specified time.

Functional Requirements

1. As a user, I would like to be able to register an account.
2. As a user, I would like to be able to log in and out of my account.
3. As a user, I would like to be able to link an email to my account.
4. As a user, I would like to be able to modify account information.
5. As a user I would like to be able to change my linked email.
6. As a user, I would like to be able to reset my password.
7. As a user, I would like to be able to register and sign in via my Google account.
8. As a user, I would like to be able to register and sign in via my Facebook account.
9. As a user, I would like a map that shows my current location.
10. As a user, I would like to be able to view locations that I have been to.
11. As a user, I would like to view individuals that I have crossed paths with.
12. As a user, I would like to approve of an individual I have crossed paths with before I start chatting with him/her.
13. As a user, I would like to chat with other users I agree to connect with.

14. As a user, I would like to see popular locations via a heatmap.
15. As a user, I would like to be prompted to go places to meet more people.
16. As a user, I would like to be able to set a radius for individuals I match with.
17. As a user, I would like to have a dynamic match radius based on the density of nearby users.
18. As a user, I would like to be able to toggle when the application uses my location information.
19. As a user, I would like to be able to maintain a profile with my interests.
20. As a user, I would like to be able to import Facebook data into my profile
21. As a user, I would like to be able to import LinkedIn data into my profile.
22. As a user, I would like to receive notifications about the individuals I have crossed paths with at the end of the day.
23. As a user, I would like to be notified if I cross paths again with an individual I have already connected with..
24. As a user, I would like to be able to keep track of the number of times I have crossed paths with someone.
25. As a user, I would like to be able to block users who I would not like to be connected with again.
26. As a user, I would like to be able to report other users.
27. As a user, I would like to be able to delete my account.
28. As a user, I would like to be notified about interests I share with individuals I connect with.
29. As a user, I would like my personal data to be securely stored.
30. As a user, I do not want to be matched if I am moving too quickly (such as when I am in a vehicle).
31. As a user, I do not want to be matched if I am not moving.
32. As a user, I would like to be able to limit the number of matches I receive per day.
33. As a user, I would like to be able to set a schedule for times I want the matching to be turned off.
34. If time allows, I would like to be notified of popular restaurants or stores that other people have visited.
35. If time allows, I would like to be able to tag locations on a map and share my opinions about any given location (park, restaurant, etc).
36. If time allows, I would like to be able to use Wander cross platform (iOS).
37. If time allows, I would like to be able to receive push notifications.
38. If time allows, I would like to be able to disable notifications from within the app.

Non-Functional Requirements

Performance

Since the focus point of our application is connecting users who have crossed paths with one another, the accuracy of our matching algorithm is very important. We only want to connect two individuals if they walk within a user-specified distance from the other. The United States government claims that GPS-enabled smartphones are typically accurate to within 4.9 m when the user is not close to buildings, bridges, or trees, so we would ideally want to have an average matching accuracy within $\pm 50\%$ of that assessment, or around 7.35 m. This value will vary based on proximity to buildings and other obstacles.

We would also like to utilize a client-server architecture to separate the computations necessary for identifying whether or not two users have crossed paths from the actual recording of data. This also serves as a security measure to prevent user location information from being sent directly to other smartphones. Instead, a user's individual data will be stored locally and sent to the server for crossing paths calculations and heatmap generation. The server will only store any given user's data for one to two days for the purposes of verifying crossed paths and will be deleted immediately after.

Since our main product will be an android application, the frontend of the app will be developed using Java and formatted using XML. The backend will likely use Java, Python, PHP, and other languages to compute calculations and manage user data. A database such as MySQL or MongoDB will be used to store user account and location information.

In addition to the aforementioned performance features, we want our chat functionality to be "instant" (relying only on the time required to physically transport data via TCP/IP protocols to the other user) and be available 24/7 for users.

Usability

The UI should be intuitive and the learning curve should be very low. We want a simplistic application that can easily be picked up without having to spend hours figuring out how to use its features. Ideally, a user would be familiar with the basic use of the application with 5 minutes of installing it.

Security

Due to the nature of Wander, security is very important to both us and our users. Users will have the option of either signing up using their Facebook, Google, LinkedIn, or Twitter accounts, or will be able to create an account using their email address and a password. Their password will be properly salted and hashed using an existing key derivation function such as PBKDF2, bcrypt, or scrypt. In addition to this, sensitive data such as user frequent location data and personal information will be encrypted in our database to minimize risk to our users and to us in the event of a data breach.

Platforms/Hosting

The main way users will interact with Wander will be through an Android app. We will also develop an iOS app if we have time, and a basic website that will contain information about Wander such as features of the app, support information, privacy and other legal information, and instructions for downloading the app. The back end functionality will be hosted on either a physical Linux server or VPS.