Wing: The In-Person Dating App

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ABSTRACT

With the ubiquity of mobile dating apps among young adults in America, many social interactions that were once in person now occur remotely, leading to judgments made solely based on photos and quick bits of information. To remedy this superficial process, I am developing a new dating app in which the first interaction is face-to-face. Instead of swiping through profiles in the user's general area, if they walk near a compatible match, users get notifications and are encouraged to meet one another. I created the application with React-Native for the frontend which is served data by a Postgres database via a Flask API. I am hosting all these services on AWS; I use a relational database service to store the user data, a simple storage service bucket for user profile pictures, and an elastic compute cloud instance for hosting the API. To enable connecting with nearby users, I will use the same Bluetooth managing package utilized by Covid tracking apps. The goal of this product is to foster more personal interactions in a world of remote connections. Currently, the groundwork for the user interface, account creation/login, and profile updating is completed and running with AWS. My next steps are to integrate Bluetooth connectivity, write out the matching algorithm, then publish on app stores.

1. INTRODUCTION

Have you ever felt dissatisfied using a dating app? Do you feel like meeting people online is too impersonal? I am developing the first dating app where all interactions are in person to change the user's experience for the better. Other dating apps supply a seemingly unlimited feed of partner options that can be accepted or rejected at the swipe of a finger. Wing has no feed and no swiping. It is an on-the-go tool to help the user make connections with potential partners.

Wing alleviates the problem of user dissatisfaction with the status quo for dating apps. According to a study by the PEW research center, "45% of current or recent users of dating sites or apps say using these platforms made them feel frustrated" (Anderson, 2020). These feelings stem from the shallow process of attracting partners with photos of themselves. Wing removes the judgment of others by photos, as it focuses on promoting in-person conversation. According to Anderson, another common problem with online dating is that users often lie to appear more desirable. Users either provide false personal information or inaccurate photos misleading their matches. Wing solves this problem, as there is no profile information to lie about and if users provide an inaccurate photo, they will not be able to find each other.

2. RELATED WORKS

The leading dating app on the market now is Tinder. Tinder started the trend of swiping on potential matches. Now many employ the same gamification of partner searching. Regarding swiping over match candidates, Tinder cofounder Jonathon Badeen stated in a 2017 interview: "People end up having fun doing something that they would have otherwise considered laborious work" (CNBC, 2017). This highlights how Tinder prioritizes user time on the app. Many users are dissatisfied with swiping mindlessly through dozens of images. This led me to believe that a better app could reduce online actions, resulting in more in-person interactions.

During the Covid19 pandemic, developers made new apps to track the spread of the virus. Many Covid-tracing apps, such as COVIDWISE, rely on Bluetooth connections to trace others that users have been in contact with (Virginia Department of Health, 2023). With Wing, I mirrored the Bluetooth connection technology from Covid-tracing apps. Connecting nearby phones with Bluetooth is an innovative way to share information and I wanted to use this technology to address the problems of dating apps.

3. PROJECT DESIGN

The project has an intentionally simple user experience, a frontend/backend for the architecture, and a few key requirements.

3.1 User Experience

The user experience is simple and focuses on in-person interactions over time on the app. After creating an account, the user is taken to the home screen where they can turn on Wing, which activates Bluetooth low energy (BLE) scanning and advertising. This allows the user's device to search for nearby users' devices. After a connection is made, their user ID is shared via BLE. The server gathers user information—age, gender preferences and answers to personality questions. If the match is compatible, it notifies each user to meet the other. The users see a profile photo of their match, so they know whom to look for. Each user will be given the option to decline a match before their picture is shared. Users should only accept a match if they are in a safe/public space to meet a stranger. A sample of the home page UI is shown in figure 1.

Figure 1: User Interface Sample

3.2 System Architecture

My project is broken up into two main workflows: frontend and backend. The frontend is the part of the app that the user interfaces with. It is a downloadable mobile app built with React Native. I use Expo to help manage packages and dependencies. With this workflow, I designed the project using JavaScript for both IOS and Android devices.

The backend serves data to the frontend. Whenever the user takes actions that require data—logging in, editing profile information, changing pictures, and matching with others—the frontend requests data from the backend. The backend consists of three main parts. The first is a Flask server running on an AWS elastic compute cloud (EC2) instance. This allows for any user to access the server at scale. The server handles the requests and gathers data from the appropriate storage location. The next two backend parts are AWS storage services. The relational database storage (RDS) stores the user's data: email, answers to questions, gender, age etc. Last, I use a simple storage service (S3) bucket to store user profile pictures. This whole process is represented by the system architecture diagram in figure 2.
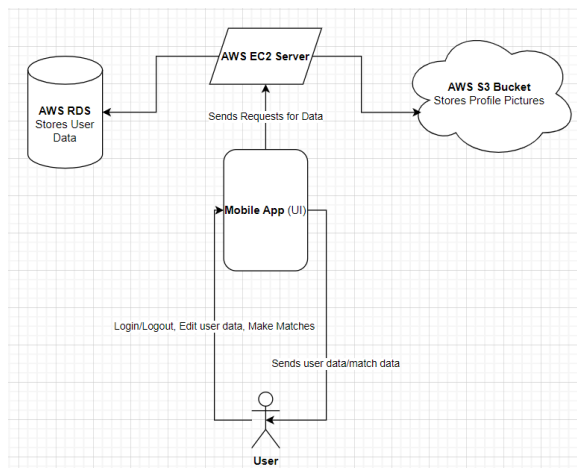

Figure 2: System Architecture Diagram

3.3 Key Components
My app has certain requirements needed for a minimum viable project. Each requirement introduces unique challenges.

3.3.1 Requirements
The minimum requirements for this project are to have an easily navigable user interface and a working Bluetooth connection workflow, and to publish my project to the app store and Google Play store. The interface must be intuitive. Users should be able to understand the controls with ease and navigate to each feature of the app. The Bluetooth workflow must be fully built out; two phones should be able to discover each other via BLE, gather data, and notify the users of a match. Once all is polished, I need to deploy the app for users to download.

3.3.2 Challenges
The first of many challenges was to learn how to write code for mobile apps. Soon after, I had to research the various services for hosting servers and data storage. This led to the tough task of implementing the AWS services I chose. My current challenge is to configure the app to work with the BLE advertiser package. Last, I will promote and advertise my app to build a user base.

3.3.3 Solutions
There is a plethora of resources online for learning to develop mobile apps. I chose to use React Native. I have experience with React for web apps, so it was easy to learn. Also, React Native allows development for IOS and android devices. AWS is a clear frontrunner in cloud computing. The only decision I needed to make was whether to use an EC2 instance instead of a Lambda which allows me to code my server in with Flask. I watched several online videos to learn how to configure each AWS service. The BLE package will work with Expo if I prebuild IOS and android native source code and use an Expo development build. I also should be able to publish a build to the app store as a deployment build.

4. ANTICIPATED RESULTS
Initially, Wing will be used by UVA college students. It will then spread to other colleges and then to big city residents. It won't replace other dating apps but will supplement them. Many users of regular dating apps will continue to use them while

at home but will use Wing while out and about. I think it won't be too hard to convince people to download the app. I have spoken to many friends about Wing, and they are all excited for the release.

5. CONCLUSION

Wing is a revolutionary concept that will bring people together. It will be exciting to use and satisfying when real connections are made. It emphasizes in person interactions over online communication which goes against current trends. It will bring back meeting significant others offline in a tasteful way. Working on this project has taught me a lot about full stack development, as well as product design. I am a better programmer because of it and look forward to a world with Wing.

6. FUTURE WORKS

I would love to turn this app idea into a business. Working on my app energizes me more than any other work I have done. My goal is to have a testable version ready by the end of November of 2023. I will use TestFlight to send the app to friends for beta testing. December of 2023 I will polish the UI, workflows, and performance. February 2024, I plan to publish it on app stores. I will then promote my app around grounds. I will host promotions at bars and fraternity events to get new users. Reusable cup company, Reup Cups, has agreed to put a logo for my app on their cups once I finish development. I will post homemade ads on Instagram and TikTok. If all goes well, I can pursue this idea full time.

REFERENCES

Anderson, Monica. "2. Users of Online Dating Platforms Experience Both Positive – and Negative – Aspects of Courtship on the Web." *Pew Research Center: Internet, Science & Tech*, Pew Research Center, 6 Feb. 2020, www.pewresearch.org/internet/2020/02/06/users-of-online-dating-platforms-experience-both-positive-and-negative-aspects-of-courtship-on-the-web/.

Clifford, Cat. "How a Tinder Founder Came up with Swiping and Changed Dating Forever." *CNBC*, CNBC, 6 Jan. 2017, www.cnbc.com/2017/01/06/how-a-tinder-founder-came-up-with-swiping-and-changed-dating-forever.html.

Godette, Patrick. "COVIDWISE Exposure Notifications App to Be Retired When the National Public Health Emergency Comes to an End." *Virginia Department of Health*, 8 May 2023, www.vdh.virginia.gov/blog/2023/05/08/covidwise-exposure-notifications-app-to-be-retired-when-the-national-public-health-emergency-comes-to-an-end/.