OwlMe

An Android Application for online correspondence, cultural exchange, and learning foreign languages with meeting new people

Alper Ozaydin, Ahmet Eroglu
Computer and Information Science
University of Konstanz
Konstanz, Germany
{alper.ozaydin, ahmet.eroglu}@uni-konstanz.de

Patrick Datko, Ralf Seepold
Ubiquitous Computing Laboratory
Department of Computer Science
University of Applied Sciences Konstanz
{Patrick.Datko, Ralf.Seepold}@htwg-konstanz.de

Abstract— Learning a foreign language is an important aspect in our lives, although it does require time to acquire the skills. However, this learning process can be very tedious and time-consuming, and most of the time boring. We are learning languages for many purposes like getting jobs and making money or for cultural exchange and meeting with new people to expand our horizons. The usage of standardized and traditional approaches in language learning process are generally limited and do not provide fun and interactive ways to users. This paper represents language learning android mobile application in an interactive way with other people around the world and also finds a solution to make learning languages much fun and interactive way by using social media technology. The main purpose of OwlMe application is gathering up people who would like to learn foreign languages with native speakers in educational, reliable, secure, interactive and user-friendly environment.

Keywords—*android; mobile application, learning foreign language, interactive chat, online cultural exchange, social media*

I. INTRODUCTION

After the first multi-touch smartphone is released by Apple in 2007 [1], our life is begun to change. People started to spend time on their mobile phones rather than computers and laptops and nowadays, there are more than 2.5 million [2] different kind of mobile applications only in Google Play Store for Android operating system. There are also almost that amount of number application in Apple Store. This huge amount of variety of applications caused people to get attached their smart phones and it is getting increased as the time going by.

One of the main reasons of why people are using smart phones and mobile applications rather than computers and books is mainly because of accessibility and reaching out the information in a rapid way. With the internet, people prefer to search things that they would like to get some deep information on internet rather than books and nowadays, people do not even bother with computers because they have smart phones which can almost do the same job for most of the purposes. People use smart phones not only for social media but for playing games, sending e-mails, editing documents and presentations and etc.

By becoming learning foreign languages popular, people are looking for new novel and interactive approaches rather than traditional methods. In both public and private schools or in troop schools, teachers use different methods and give conflicting advices. Some absorb vocabulary by memorizing huge word lists, others learn it naturally by reading texts and books regarding your language level. Some teachers concentrate on the listening part first, others prefer to improve their pronunciation as they go along and some swear by grammar drills [4]. Although these techniques have considerable effects on learning foreign languages, they are generally tedious and time-consuming.

One of the surveys from The Guardian [5] shows that the most encouraged ways to learn foreign language are school exchange abroad (35%), speaking to native speakers (32%), more help with grammars (31%), interactive lessons (29%), language apps (27%). Therefore, learning foreign language in interactive way is the key to adapt to that language like talking with real people rather than practicing with non-native speakers and teachers. OwlMe app brings a solution to that problem by providing expanded search and chat feature with native speakers. Rather than providing study materials, OwlMe provides conversations with multi-lingual people around the world.

In section II, current related work is explained. Then, in the section III, system architecture, user interface design, and features of app are presented. In section IV, possible future work are discussed and lastly, the paper ends up with general discussion and conclusion.

II. RELATED WORK

There are bunch of different mobile applications in both Google Play and Apple Store regarding to statista.com [2]. As a learning foreign language, there are some popular apps that provide fun and interactive ways to let people learn languages such as Babbel [6], Duolingo [7], Memrise [8], Busuu [9], Rosetta Stone [10], Clozemaster [11], Lingvist [12]. All of

these applications provide interactive ways to learn languages with some study materials in different methods. Memrise uses game-style learning of users desired language in the form of training users. Babbel uses science-backed learning methodologies to help users grasp new language. Duolingo provides its service on both website and smart phones & tablets. It is a huge platform for users who would like to learn foreign language and also practice their speaking and listening. Busuu starts with some basic training and then proceeds with advance level learning techniques. Rosetta Stone provides a large scaled foreign language training sessions. It is on both computers and smart phones. Clozemaster provides some basic study materials such as "fill in the blanks" and "yes or no" type questions for users. Lingvist uses some scientific approaches to teach languages. They provide vocabularies with actual conversation for the chosen language.

Despite all these apps provide interactive and entertaining methods to teach foreign languages, the key of learning is practicing with native speakers. There are also applications to meet with new people all around the world such as Hinge [13], Tinder [14], Badoo [15], Lovoo [16], LoveScout [17], Bumble [18], Coffee Meets Bagel [19], Happn [20]. These mobile applications provide users to meet with other people. However, these applications do not aim to teach any foreign languages or provide cultural exchange. They mostly aim for meeting new people around user's area and dating purposes.

This project combines these two different kinds of apps which are language learning and dating apps and bring a new solution which is learning foreign language in online correspondence by meeting new people not around your area but all over the world.

III. Fundamental Components of the Application

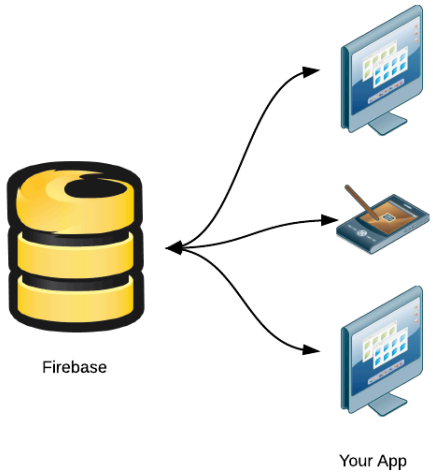
In this section of the paper, system architecture, user interface design, and features of the app are explained.

A. System Architecture

Owlme mobile application is developed by using Java for Android smart phones in Android Studio. In this application, Firebase development platform is used as a backend service. This novel platform is developed by Firebase Inc. in 2011 and then acquired by Google in 2014 [21]. Firebase provides several features such as Firebase analytics which shows usage analytics with simplified user interface [23], Firebase cloud messaging for real-time chatting and notification on both Android and iOS [22], Real-time Database which allows all application data can be sync across clients and store on Firebase cloud [24], Firebase storage for secure download and upload any text and media files [25], Firebase hosting which is a static and dynamic web service since 2014. Alongside supporting CSS, HTML, and JavaScript files, it also supports other files like dynamic Node.js files [26], Firebase test lab for Android which is a test lab that provides cloud-based infrastructure for testing purposes [27], and Firebase crash reporting for detailed reports of errors, fails, warnings, and bugs on the application [28].

There are also some other features that Firebase platform supports. These are notifications, app indexing, dynamic links, invites, remote configuration, and adwords [29].

Figure 1: Firebase System Architecture [33]

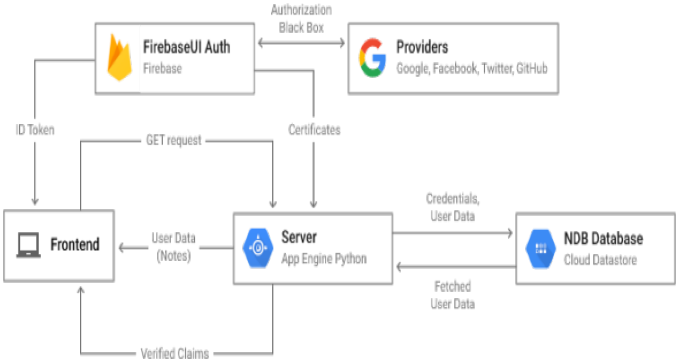


As is seen in Figure 1, one of the biggest advantages of Firebase is Firebase handles most of the things for the developers only with couple line of codes and configurations. Real-time Database storage, authentications APIs, data transfers, authentication, remote configuring, crash reporting, cloud messaging and so on, Firebase handles all of them and give a nice user-friendly interface to developers to track and analyze all the changes in the code for the application itself.

There are 2 main back-end features of Firebase that are used in the project. These are Firebase Authentication, Firebase Real-time Database.

Authentication is the key if the app needs to identify a user. User identification allows an app to store its data securely in database. Authentication SDK supports password, phone number, popular providers such as Google, Facebook, Twitter authentications. As seen in Figure 2, the front-end configures the sign-in interface and retrieves the authentication ID. Back-end verifies the user's authentication and returns the required information. The application stores all credentials in Cloud Database [31].

Figure 2: Front-end and back-end communication in Firebase [34]



Firebase Real-time Database lets developers to build a wide range of collaborative applications with secure access to the

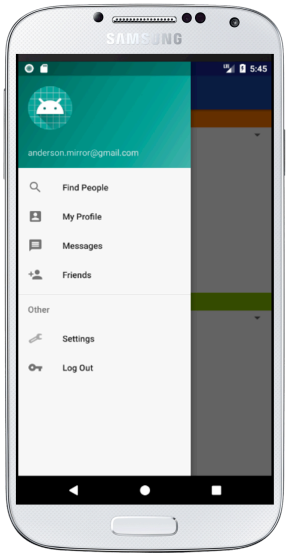
database directly from client-side code. It is a cloud hosted database system and all data is stored as JSON format in the database [32]. Real-time database is used not only to store user account information but messaging between users.

In chat section of the app, rather than Firebase cloud messaging, real-time database is preferred because it supports sustained bidirectional connection between the device and the server and it makes the message delivery fast.

B. User Interface Design

As a user interface, default android studio icons, buttons, text size and fonts, colors, shadow effects and etc. are used in the application. On the application, side menu bar is implemented as is seen from Figure 4.

Figure 4: Side menu bar on the application



C. Features of the App

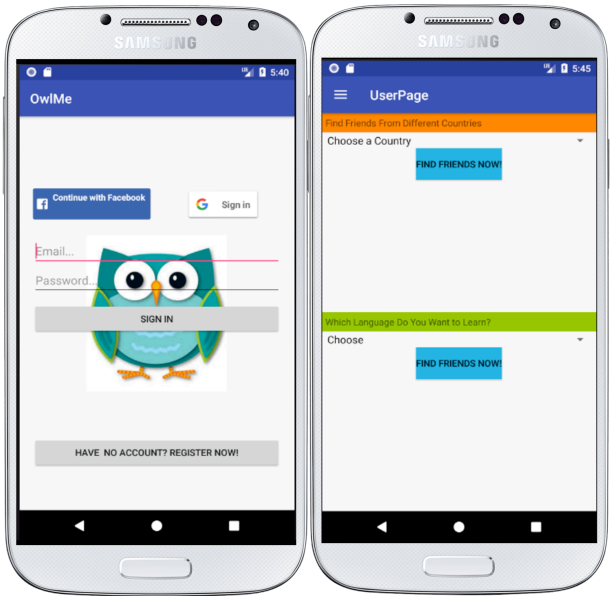
There are four main parts on the application which are Search feature, chat section, user profile part, and settings. Apart from these, there are also registration, login & logout, friends parts on the application.

Users can register either via e-mail address or popular providers which are Google and Facebook. As is seen in Figure 5, it is the startup screen of the app when the user run the application. Users can login if they have an account or they will need to register first to create an OwlMe account.

In search feature, figure 6, users can search other people regarding to language or country. It is the feature to find any level of speakers including natives for the desired language. Users can also make search by country if it is desired.

Chat section, figure 8, is the part for online correspondence and improving the language for users. Any user can start a chat with any person without adding that person to the friend list. Users get messages even if they are not online on the application.

Figure 5: Startup screen **Figure 6: Search People page**



In user profile part, figure 9, users can add or update any information about themselves such as age, name, languages, or language level.

Figure 7: User page **Figure 8: Chat section**

Settings page, figure 10, on the application provides some account changes for the users which are changing the password and deleting the account. When an account is deleted, it will be removed completely from the Firebase server.

Figure 9: User Profile **Figure 10: Settings page**

IV. Future Work

Some implementation can be added as future work. These are notification system, detailed filtering system in search people section on the app, and audio & video calls.

A. Notification System

Notification system has the priority for the next feature that can be implement to the app. With this feature, users can get general app notifications from developers, friend requests, and message notifications when they are not running the application.

B. Advanced Filtering on Search Page

Adding much more filtering feature on search section can help users to reach out more people as their specific desires. It can be language levels, ages, countries, or gender.

C. Audio and Video Calls

Audio and video call is another useful implementation for the OwlMe app. Messaging is generally not enough to improve the language. Speaking with people is one of the key points to improve listening and speaking at the same time. Audio and video chat dramatically helps users to improve their foreign languages.

V. Conclusion

People learn foreign languages for schools, jobs, reaching more information on the internet, cultural exchange, meeting with new people, or just for fun. Learning process is not easy and most of the time, is tedious and time consuming. Because almost everybody uses smart phones, it is a good way to use these devices to practice and learn foreign languages. People use several mobile applications for language learning; however, even if these apps provides interactive study materials, users cannot go outside of the content that is provided by developers. OwlMe app brings a novel way to help people to improve their foreign languages. With OwlMe app, users can meet with native speakers around the world and chat with them to increase language learning process. They also can meet with new people and make new friends. OwlMe uses Firebase platform as back-end and default Android user interfaces as front-end. More than 99% of the smart phones which runs Android operation system can run the application.

References

[1] Jobs, S.P., Forstall, S., Christie, G., Lemay, S.O., Herz, S., Van Os, M., Ording, B., Novick, G., Westerman, W.C., Chaudhri, I. and Coffman, P.L., 2009. *Touch screen device, method, and graphical user interface for determining commands by applying heuristics*. U.S. Patent 7,479,949.

[2] Statista. https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/ Accessed. Jan. 2018.

[3] Babbel. https://www.babbel.com/en/magazine/how-many-people-speak-english-and-where-is-it-spoken Accessed. Jan. 2018.

[4] Fluentin. https://www.fluentin3months.com/best-way-to-learn-a-language/ Accessed. Jan. 2018.

[5] The Guardian. https://www.theguardian.com/education/2014/nov/07/-sp-do-young-people-care-about-learning-foreign-languages-data Accessed. Jan. 2018.

[6] Babbel. https://www.babbel.com/ Accessed. Jan. 2018.

[7] Duolingo. https://www.duolingo.com/ Accessed. Jan. 2018.

[8] Memrise. https://www.memrise.com/ Accessed. Jan. 2018.

[9] Busuu. https://www.busuu.com/ Accessed. Jan. 2018.

[10] Rosetta Stone. http://www.rosettastone.de/ Accessed. Jan. 2018.

[11] Clozemaster. https://www.clozemaster.com/ Accessed. Jan. 2018.

[12] Lingvist. https://lingvist.com/ Accessed. Jan. 2018.

[13] Hinge. https://hinge.co/ Accessed. Jan. 2018.

[14] Tinder. https://tinder.com/ Accessed. Jan. 2018.

[15] Badoo. https://badoo.com/ Accessed. Jan. 2018.

[16] Lovoo. https://www.lovoo.com/ Accessed. Jan. 2018.

[17] LoveScout. https://www.lovescout24.de/ Accessed. Jan. 2018.

[18] Bumble. https://bumble.com/ Accessed. Jan. 2018.

[19] Coffee Meets Bagel. https://coffeemeetsbagel.com/ Accessed. Jan. 2018.

[20] Happn. https://www.happn.com/ Accessed. Jan. 2018.

[21] Firebase. https://firebase.googleblog.com/2016/05/firebase-expands-to-become-unified-app-platform.html Accessed. Jan. 2018.

[22] Firebase. https://firebase.google.com/docs/cloud-messaging/ Accessed. Jan. 2018.

[23] Firebase. https://firebase.google.com/docs/analytics/ Accessed. Jan. 2018.

[24] Firebase. https://venturebeat.com/2013/02/13/firebases-backend-makes-it-ten-times-easier-to-build-apps/ Accessed. Jan. 2018

[25] Firebase. https://firebase.google.com/docs/storage/ Accessed. Jan. 2018

[26] Firebase. https://techcrunch.com/2014/05/13/firebase-adds-web-hosting-to-its-database-platform/ Accessed. Jan. 2018

[27] Firebase. https://firebase.google.com/docs/test-lab/ Accessed. Jan. 2018.

[28] Firebase. https://firebase.google.com/docs/crash/ Accessed. Jan. 2018.

[29] Firebase. https://firebase.google.com/docs/ Accessed. Jan. 2018.

[30] Firebase. https://firebase.google.com/docs/auth/ Accessed. Jan. 2018.

[31] Firebase. https://cloud.google.com/appengine/docs/standard/python/authenticating-users-firebase-appengine Accessed. Jan. 2018

[32] Firebase. https://firebase.google.com/docs/database/ Accessed. Jan. 2018

[33] Mazarin blog. https://blog.mazarin.lk/firebase/ Accessed. Jan. 2018

[34] Bawi labs. https://labs.bawi.io/firebase-authentication-on-google-app-engine-bf17e3adffe5 Accessed. Jan. 2018