Bilkent University
Department of Computer Engineering

CS 491
Senior Design Project

Project Specification Report

Project Name:

Aura
- A Location-based Chat Engine-

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Project Website: http://auraproject.github.io/

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ABSTRACT

"Aura" is a location-based chat engine for the users who want to communicate people around them anonymously. It is a mobile application especially for the adults who want to socialize. Aura provides large wide of people to talk with, but in a game form. Details about Aura application will be given in the following parts of the report starting with an introduction, constraints and requirements that documents what Aura will need to be functional and achieve its goal.

Keywords: Word blocker, heat level, Aura, focusing a user, silencing a user, rating (See in Appendix A).

1. INTRODUCTION

After the huge success of the Facebook, social applications started to gain acceleration. The success of Facebook proved that people want to interact and talk to each other frequently which lead the others to create more social applications such as Twitter and Whatsapp. Today, these application are well known by the billions and the profit of these apps can be measured in millions of dollars each month. Knowing these facts, the AURA, the name of the application, will be a social application where people in a certain small area, such as cafes and bars, will be able to talk each other anonymously.

The AURA is a unique application since there is no application that covers the concept of chatting with others in a specified area anonymously. The user sees the area in his/her mobile phone as a 3D virtual chat room. People are placed on a virtual ground with an icon and their auras. The user can change his/her aura color, can type a message that contains specified amount of characters and can send other people some special kind of requests like mini games. The AURA will allow its user to chat with various people and find new friends through different places. The AURA is going to have an eye-pleasing and user friendly GUI it will be easy to use it and can be used by everyone.

The user can communicate with any people that enable group discussion for individuals in a common location. Mobile user can turn-on and run the client application, basically. The client application gets the physical location by checking GPS modules. When the mobile user wants to communicate with other users, client application sends the location and relevant parameters from mobile device to server to register the communication that is within a valid common area. After the communication is successfully registered, a confirmation request is sent from server back to the mobile device [1].

In addition, AURA has an option to turn on-off the GPS usage of users' mobile phones. It provides user privacy and ability to choose option when they want to use the application AURA. Therefore, Barkhuus indicates that location-based services should enable short-term deactivation. What worried the participants are also specific situations of shorter time-span. Mobile users may be requested to have a service that was only available in certain situations such as when she/he get bored with real-people in current location. One way of making sure users will accept these services is than to make sure it is possible to turn off and inform the user when it is turned on or off [2].

AURA is a social application provides user private or group conversation within a valid common area by mobile android phone users in a 3D virtual chat room. It enables turn on and off option to its users so that user should allow the GPS usage of their mobile phone. The rest of the report is organized as follows: Section 1 clarifies the application with its constraints and professional and ethical issues within an application. Section 2 describes the functional and non-functional requirements in software development and finally Section 3 concludes the specifications of application.

1.1. DESCRIPTION

This part has been designed for clarifications of the project. The project's name is AURA and aims to bring new perspective to social media. AURA is a mobile android application that uses GPS (Global Positioning System) of their users. User allows the GPS access when they want to use the application and see whom the locations are almost same with them, which means they stay in same café, restaurants or even street. The target users of application may spread everywhere among the adults.

When users open the application and make their status "available", application accesses their location and allows users to talk to each other. When one of members in conversation leaves the current location, which provides communication, they can no longer see each other in this application.

Features:

- User may or may not allow GPS access by changing their status in application.
- User may or may not indicate their actual self.
- User can have group conversation with available people. It enables them making plan or discussion about something in current position.
- Application allows conversation in application if users are in close-range while proper threshold between users' locations is decided by the application.

An intuitive sketch of Aura can be found below:
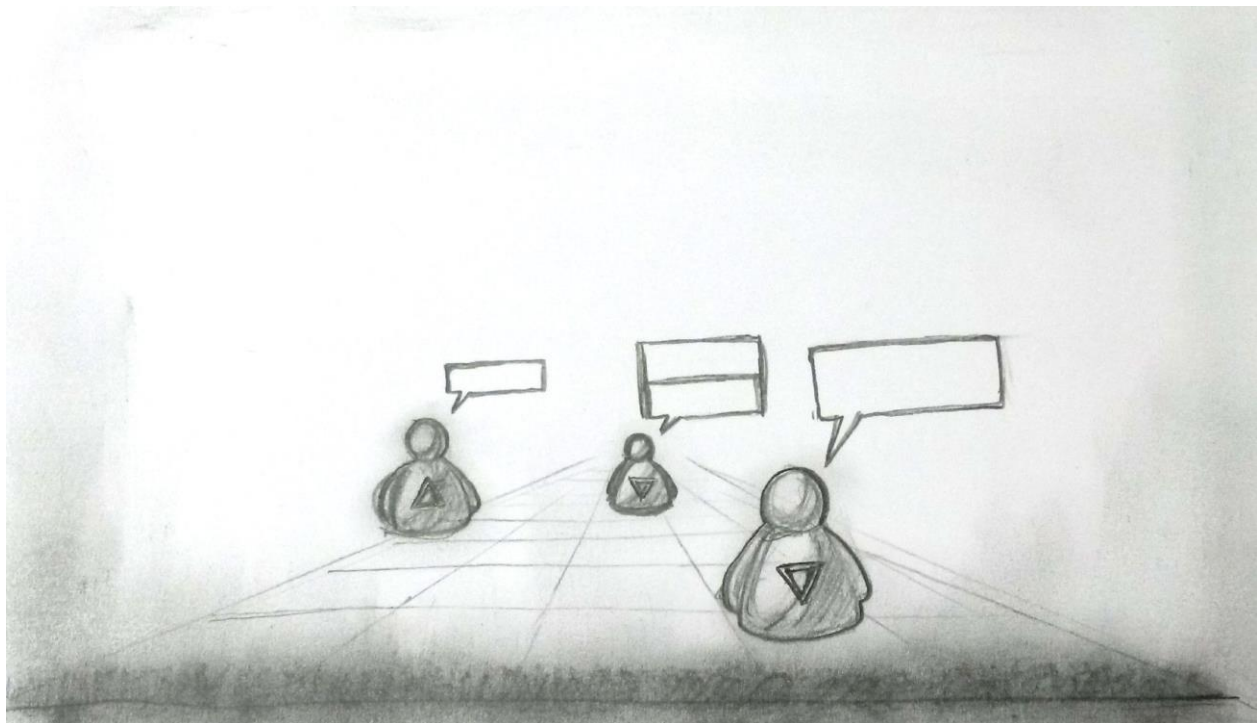
Figure 1. Intuitive sketch of Aura's main screen.

1.2. CONSTRAINTS

1.2.1. Implementation Constraints

- The implementation language will be Java.
- The system will use MySQL database.
- The system will be available for mobile platforms with Android OS.
- Unity will be used to made 3D graphics needed in the system.

- GitHub will be used as the subversion control system during the development of Aura.

1.2.2. Economic Constraints

We will have a website for Aura, therefore, we need to pay for its domain name. Another expense is going to be for the private repository from GitHub for subversion control and report sharing. Most probably the last version of Aura will be available on market via Google Play, so we have to pay for its account.

At the beginning Aura will be totally free to use. There will be neither in-app purchases nor advertisements. It is also free to download. However, we can consider to add annual membership fee like 1 TL after two years of free usage, in order to maintain the application.

1.2.3. Ethical Constraints

The main idea behind Aura is to be "free", "nobody" and/or "anonymous" to the world. Therefore, people will talk, say whatever they want without being ashamed. That is why there will be no profile pictures so that people will not be able recognize the person talking in Aura in the real world. Similarly there will be no obligation for using real names, instead people will use nick names.

Another ethical concern is that the users of Aura must be older than eighteen since some users can try to manipulate or trick teenagers or kids.

1.2.4. Sustainability Constraints

In order for Aura to be efficient and useful we will need enough amount of users as the first step. Thus, we will advertise Aura in clubs, bars, and pubs using flyers or posters, since, those are the most suitable places where people can use Aura.

As a second step we will gather feedbacks from Google Play in order to release update and upgrades accordingly.

1.2.5. Social Constraints

The main of purpose of Aura is to encourage people who do not have the courage to meet new people or go out in public since they do not have social friends. Also Aura encourage people who do not have courage to say their opinions freely, since, they afraid of being criticized hardly.

1.2.6. Technical Constraints

Aura will be available only for Android devices whose version is higher than 2.3.3. After the Beta version is released İOS compatibility of Aura will be handled.

1.2.7. Language Constraints

Since we want Aura to be used all around the world, there will be only one common language available which is English.

1.2.8. Legal Constraints

We will take all precautions regarding to professional and ethical issues as discussed in the next section. Therefore, we are not responsible for any action caused by the users of Aura.

1.3. PROFESSIONAL AND ETHICAL ISSUES

While using Aura, you have the opportunity of speaking to anyone that enters your aura, which means starting a conversation with a complete stranger most of the time. To avoid unpleasant conversations, words or sometimes harassments; a word blocker will censor every word that is considered insulting or inappropriate. The word blocker will also block abbreviations of insulting words. The database of the word blocker will be kept by us and it will be updated regularly.

Another ethical issue of Aura is the heat level of a user. The heat level of a user shows how often he/she uses words that are censored by the word blocker. Each use of a word that is censored by the word blocker will increase the heat level of that user. When the heat level reaches a certain threshold, all conversations of that user will be dropped and that user will not able to communicate with anyone for a certain amount of time. This is done to avoid violence and keep the environment of Aura pleasant.

Aura is strictly for the use of adults. People can only start using this application after a confirmation of date of birth. Any user below the age of eighteen will not be able to use Aura. The reason behind this is that some people might try to manipulate teenagers or kids to do their bidding, or even worse. To avoid this, only adults will be able to use Aura.

When you are having a conversation with someone else, during or after the conversation you can rate the person that you are having a conversation with. A five star for example will indicate that the person you are having a conversation with is polite and friendly. A single star on the other hand will indicate that the person you are talking to is rude and he/she is making you feel uncomfortable. The rating of each user will be public, therefore you have the opportunity to select a user to start a conversation according to his/her rating. This is done to provide a somewhat safer and trustworthy environment.

2. REQUIREMENTS

2.1. Functional Requirements

- The users will be rated by other users based on their politeness and friendliness.
- A user can ignore another user to block all messages sent by that user.
- There will be a single type of user, which is the regular user.
- The system will detect and censor abusive, insulting and inappropriate words using the word blocker. The database of the word blocker will be updated regularly.
- Ratings of user will be publicly displayed.
- Users will need to fill a date of birth confirmation form before starting to use Aura.

2.2. Non-Functional Requirements

- Aura is a mobile application that works on Android.
- The application needs Internet connection to work.
- Either Bluetooth or GPS will be required. (This decision will be made later on)
- A smooth, simple and fast user interface will be designed.
- The application will not include any advertisement.

3. CONCLUSION

This Project Specification Report is written in order to give a brief information about location-based chat program, called "Aura". Our report consists of two main parts:

Constraints and requirements. For requirement specification and constraint parts, we examined the possible problems and needs for our application. In our project design, we will care to include all these functional and nonfunctional requirements. Requirement specification will help us to move on system model part. After deciding the requirements, it is not so difficult to design it properly.

Briefly, we tried to create a comprehensive specification report which will guide us in our design and implementation process. Not to face with problems in the future, we need to design our system carefully.

REFERENCES

[1] Huang, Sheng Chao. Li, Ho Yin. "*Location-Based Networking*". May 23, 2011.

[2] Barkhuus, Louise. "*Privacy in Location-Based Services, Concern vs. Coolness*" Department of Design and Use of IT. Copenhagen: 2004.

APPENDIX A

Word Blocker: A class (will be written by us) that scans a conversation and censors each word that is registered in its database. The database of the word blocker will be created and maintained by us. The purpose of this class is to censor out insulting and inappropriate words and to help calculate the heat level of a user.

Heat Level: Heat level of a user indicates how often that user uses words that are registered in the word blocker's database. Every time a restricted word is used, the heat level will increase by some amount. After reaching a certain threshold, that user will not be able to chat with anyone for a limited amount of time. Note that the heat level of a user will start to cool down if that user does not use a restricted word.

Aura: Aura refers to the available chat range of a user (in other words, that user's aura). We are planning to set the radius of an aura to 12 meters (approximately 432m^2). In other words, a user will be restricted to chat with other users that are inside that users aura (432m^2).

Focusing a User: User A can focus user B who is inside the aura of user A to remove everyone from his/her aura except user B, starting a private conversation.

Silencing a User: User A can silence user B to block any messages that is written by user B.

Rating: User A can rate user B based on how polite user B was to user A. The average rating of each user will be publicly displayed, giving a rough description of how polite each user is.

APPENDIX B

Important Deadlines:

- Project Specifications

  Monday, Oct. 5, 2015

- Analysis Report

  Monday, Nov. 2, 2015

- High-Level Design Report

  Thursday, Dec. 24, 2015

- Low-Level Design Report

  Monday, Feb. 15, 2016

- Final Report

  Thursday, Apr. 21, 2016

- Presentations & Demonstrations:

  Apr. 25 - 29, 2016 *To be announced*