CS 491 Senior Design Project I
Project Specifications Report

Project short-name: Tattoo'd

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tattood.github.io

Progress Report

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1. Introduction

Getting a tattoo is important decision since it is an irrevocable process. However, people still would like to get them, whether it is related to something important and meaningful to them or it just looks aesthetic. Yet, not everyone is getting happy after they got it, since there is no chance to make a precise decision which tattoo to get and where to get before seeing it.

When somebody has decided to get a tattoo to a decided place, it is drawn to her/his body temporarily. After that, the person who'll get the tattoo, decides whether he/she wants it. Since, this process is time-consuming and not repeatable for the people who are irresolute, we wanted to make it easier for the person and for the tattoo artist, by making it repeatable to see any tattoo, anywhere, anytime by just looking through the augmented reality camera.

1.1. Description

Tattoo'd is an Augmented Reality based Android application project, which is aimed at people who would like to get a tattoo; however could not make a decision on which one, where to get or how it would look like. It will allow users to see the tattoo they like, on their own body by looking through the camera.

The application will have three main fundamentals; it will have the augmented reality camera, user's own page and the discover page.

User's own page will include his/her own designs and uploads. Uploading is one of the most important features of the project. It will work with image analysis algorithms to extract the design from the background and will be able to tag the design automatically for the searches. The uploaded tattoos will have the option of being published or being private and they will be grouped accordingly. The user can change this option for a design any time he/she wants. If the tattoo is a private design, other users will not be able to see it. If it is not private, it will appear in the searches that users do according to the tags it has and also the other users will be able to see it if they visit the page of the user who published it. Also, the user will be able to view the tattoos that he/she up-voted as a separate list on his/ her own page.

Augmented Reality camera page will allow the users to choose a design from their page, whether from his/her own designs or from someone else's (published/private designs of their own and up-voted tattoos of other users). The design will appear on the camera as another layer and the user will be able to arrange the size of it and stable it to where he/she would likes. Using the augmented reality, the user can view the tattoo on his/her body as if it was real. The camera will also be able to shoot to save the photograph to the gallery of the mobile phone and have the option to share it on other social media platforms as Instagram and Facebook.

Discover page, will include most recent and most popular designs and also a search option. Search feature will give results according to the keyword that is searched and the tags that tattoos have. They also will be grouped as most recent ones and most popular ones. Thus, tattoo artists and tattoo shops or just a regular user will be able to share their own designs with many users and see

the ones that are popular. User can look through the designs of others in this page and also like them to save it and try.

1.2. Constraints

1.2.1. Implementation Constraints

- We are developing this software for the Android mobile devices therefore the programming language we use will be Java.
- Python programming language will be used for server side and database interaction of the software.
- Matlab will be used for image analysis in the server side.
- If required some graphical libraries will be used for the augmented reality.

1.2.2. Economic Constraints

- We need a server for holding the data we need for the social aspects of the app and for the image processing.
- App will be free to download for all users.

1.2.3. Ethical Constraints

- Users may put some improper photographs using the augmented reality tattoo tool. We can prevent this kind of behaviours with a report functionality.
- Users can sign up with their Facebook accounts or they can fill a form to be a member of Tattoo'd. Since they give us their personal information we will keep their privacy confidential and will not shared with third parties.

1.2.4. Sustainability Constraints

- We can develop and add new features with the users' feedback after launching the app.
- Data is important for our application so we need to maintain and provide the security of our data.

1.2.5. Social Constraints

- Our application is also a social media platform for the tattoo lovers so we want it to encourage to share and unite these people in our software.

1.2.6. Technical Constraints

- The iOS version of the app can't be developed because of development environment issues but it will developed if the issues will be solved.
- The app must be very responsive for augmented reality graphics and image processing.

1.2.7. Language Constraints

- Default language for the application will be English at launch.
- Other languages will be added according to the user profiles.

1.2.8. Legal Constraints

- Users' personal information should be well protected for privacy issues.
- We are not responsible for any action caused by the users.

1.3. Professional and Ethical Issues

As a project team, each member is responsible for the project and the division of work will be done equally. Although we will do a work distribution, we will always keep in contact to make the integration of the parts easier.

Users will be able to upload and share their own designs, however we will be careful to protect the intellectual property and take actions accordingly as ACM Code of Ethics and Professional Conduct suggests [1].

We may allow Tattoo shops to open a company account and share their information, but we will add a verification step to not put the users in dangerous situations.

Additionally, based on the research that our project team made, there is a similar application on the market that is recently added to the market, called Inkhunter [2]. However, this application is not running properly and doesn't have many features as our project. We will take the ethical issues into consideration and based on those our project will have significant differences and functionalities.

Moreover, we will also be respectful for the user's privacy to not share any personal information and keep the private designs away from other users. We will also allow users to make their designs private or remove them completely.

2. Requirements

2.1. Functional Requirements

- Users will be able to register and login to the system by their Facebook accounts or by sign-up.
- The user's profile can be seen by everyone.
- The user will be able to upload his/her designs.
- The user's public designs can be seen by everyone but his/her private designs cannot be seen by other users.
- The user will be able to see the tattoo design on his/her body using augmented reality camera.
- The user will be able to shoot and save the photograph on the android device if he/she likes on the augmented reality camera.
- The user will be able to share the photograph on other social media platforms as Instagram and Facebook.
- The user will be able to view all publicly published tattoo designs on the discover page.
- The user will be able to up-vote a design.

2.2. Non-Functional Requirements

- The system will be a mobile application.
- The application will be develop on the Android platform.
- The application will require internet access.
- The application will be user friendly.
- The application will be reliable.

3. References

[1] "ACM Code of Ethics and Professional Conduct", Acm.org, 2016. [Online]. Available: https://www.acm.org/about-acm/acm-code-of-ethics-and-professional-conduct. [Accessed: 08-Oct-2016].

[2] "INKHUNTER", *inkhunter.tattoo*, 2016. [Online]. Available: http://inkhunter.tattoo. [Accessed: 10- Oct- 2016].