

<Hair-For-Your-Face> Product Requirements Document

Version 1.1

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Revision History

Date	Version	Description	Author
3/25/2020	1.0	Initial Documentation	Spectre
5/6/20	1.1	Updated Information regarding UI and Database Implementation	Spectre

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Section 1: Goals

1.1 Intro & Purpose:

Our goal of this project is to build a product that is capable of making haircut recommendations based on their user's face shape and their preferences.

1.2 Problems our product solve:

1. People want to discover great hairstyles that are most suitable to them.
2. People want to change their hairstyle to achieve a new look.
3. People who have difficulty communicating their hairstyle expectation to the hairstylists

1.3 Improvement on current process:

1. Most of the competing products out there do not offer hairstyle recommendations but only the ability for the user to try on different hairstyles whereas our product will offer personalized recommendation to the user.
2. Our product offers flexibility since our Machine Learning model can learn based on the user's changing preferences for their hairstyles.

1.4 Product Vision:

Hair-For-Your-Face will be an all-in-one hairstyle guide that offers the best hairstyle recommendation powered by AI that constantly learns to adapt to the changing tastes of the customers and enable the customers to discover new hairstyles that would be most suitable.

Section 2: User Personas

Varys Mormont

age: 39

residence: CA

education: MBA

occupation: Creative Director of Winner's Corp.

marital status: Married, 6 children



"I wish that there is an application that can recommend the hairstyles that would look fabulous on me with a click of button!"

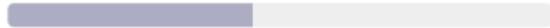
As a creative director of the Manhattan's most famous ad agency, Winner's Corp., I spent most of my days meeting new clients and attending conferences while working with existing clients. Therefore, it's very important that I always maintain the most presentable looks.

Comfort With Technology

INTERNET



SOFTWARE



MOBILE APPS



SOCIAL NETWORK



Criteria For Success:

Self-confidence in dealing with my customers

Needs

- I need the application to offer very good recommendation on hairstyles.

Wants

- It would be great feature if I can turn to hairstylist chat box that understands my needs and offer consultation.

Values

- It's important to take care of yourself by taking care of your body and appearance.

Fears

- I fear that if I am not on my best look, most notably my hairstyles, then it might negatively impact my confidence when I am interacting with my important clients at work.

Nidhi Agarwal

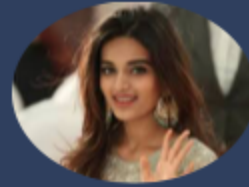
age: 26

residence: MA

education: MIT Graduate Student

occupation: Research in Quantum Computing

marital status: Dating



"I would love to look great on this memorable night. Where can I start with my hair?"

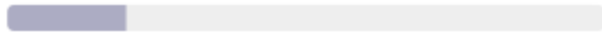
As an MIT graduate student who is very busy working on improving the quantum computers, I often do not have enough time to take care of my hair. Since Valentine's day is tomorrow, I was elated when my long-time boyfriend have suddenly asked me out for a dinner date in Paris and I could see it in his eyes that he is going to propose to me!

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INTERNET



SOFTWARE



MOBILE APPS



SOCIAL NETWORK



Criteria For Success:

Marry my long-time boyfriend who care a lot about me

Needs

- Since it's been a while that I get a proper hair over, I need to find a platform that can meet all my hair-styling needs.

Values

- To strive for balance between my busy academic life and taking care of my body.

Wants

- It would be great if I can virtually try on various looks before settling on the hairstyle that I like best.

Fears

- She fears that her current hairstyles is very bland and she wants to change it up to look more stunning.

Bryce Longe

age: Late 30's

residence: Washington, DC

education: Some College

occupation: Stay at Home Father

marital status: Single (Widowed) | 2 Children



I'd like a nice modern haircut that fits my face.

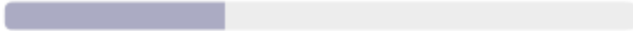
Bryce is a single stay at home Dad that picks up his kids up from school daily. His kids are old enough where he feels that he is able to begin dating again. Bryce would like a good haircut so he can meet potential partners and look good out and around town.

Comfort With Technology

INTERNET



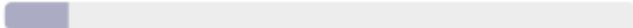
SOFTWARE



MOBILE APPS



SOCIAL NETWORK



Criteria For Success:

Meeting a new partner.

Needs

- A stylish haircut.

Values

- Family.
- Living a simple life.

Wants

- A life long partner.

Fears

- Getting a bad haircut.
- Being single for the remainder of his life.

Section 3: User Stories

- As a user, I would like to have multiple haircuts recommended to me so I have a variety of options.
- As a user, I would like my face shape determined by the app to get the most flattering recommendation possible
- As a user, I would like to save a history of recommendations so I can come back to them later.

- As a user, I would like to login with an email so that recommendations and face data are tied to my account.
- As a user, I would like to see potential haircuts overlaid on a picture or live feed of myself, so that I can see what they might look like.
- As a user, I want the app to take other physical features into account, such as hair color, to get a more personalized recommendation.
- As a developer I would like to see feedback from users to better tailor the machine learning model.

Section 4: Database Implementation (Firebase)

Our application will use a database that stores basic user information. This will include:

Login Information (This information will be stored using google firebase authentication)

- Email Address
- Password(Hashed & Salted)

User Data

- Previous face shape information
- Last used hairstyle

Further Data may or may not be stored as the project evolves. Our team is currently looking into implementing photos into the database if necessary as well as other resources the functional requirements might need.

Section 5: User Interface

Our user interface will be deployed onto an android application that allows a user to sign up for an account and get started taking or uploading pictures. The machine learning algorithm will be processed on a backend server which we would like to call using an API created by our team.

Section 6: Functional Requirements

- The application should be able to accept a photograph of a user.
- The machine learning model should be able to detect whether a face is within a picture.
- The machine learning model should be able to determine key facial points.
- The application should then be able to take measurements on those points.
 - Distance between points.
 - Angles between points.
- The application should be able to determine a face shape based on measurements made.
- The application should be able to use facial shape to provide a list of haircut or style options.

Section 7: Performance Requirements

1. Our Machine learning model takes no more than 5 seconds to generate a face shape.

2. Algorithm takes no more than 2 seconds, given face shape, complexion other attributes to generate a haircut recommendation.
3. Image processing is to be done on a device/server that has high processing power so as to not cause performance bottlenecks on low-performance devices.

Section 8: Future Iterations

It is our hope that if we can get a functioning machine learning model done, we will be able to supply more front end features to the users. For the time being our main focus is our neural network and face shape classification.

These features may include:

- User feedback
- Saving recommended haircuts
- Basic UI
- AR Technology

