Smart Wear Mobile Based App

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Final Year Project Report submitted in partial fulfilment of the requirements for the Degree of BCS (Honors)

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Certificate of Approval

I, certify that I have read the report titled: **Smart Wear Mobile Based App**, by **M.Shaheer, M.Salman and M.Uzair Afridi**, and in my opinion, this work meets the criteria for approving the report submitted in partial fulfilment of the requirements for BCS (Hons.) at Institute of Management Sciences, Peshawar.

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Declaration

I, **M.Salman, M.Shaheer and M.Uzair Afridi**, hereby declare that the Final Year Project Report titled: **Smart Wear Mobile Based App** submitted to R&DD by me is my own original work. I am aware of the fact that in case, my work is found to be plagiarized or not genuine, R&DD has the full authority to cancel my Final Year Project and I will be liable to penal action.

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Session: 2019-2023

Dedication

I dedicate this Final Year Project to my parents and teachers who have always supported and helped me in every aspect of life.

Acknowledgement

All the praise to Allah that induced the man with intelligence, knowledge and wisdom. Peace and blessing of Allah be upon the Holy Prophet who exhort his followers to seek for knowledge from cradle to grave.

Foremost, I would like to express my sincere gratitude to my supervisor Mr. Omar Bin Samin for his continuous support, patience, motivation, enthusiasm, and immense knowledge. His guidance helped me throughout the project. Last but not the least, I would like to thank my parents for supporting me morally and spiritually throughout my life.

Abstract

The internet has changed the way we shop. It has given us the opportunity to find and buy items from all over the world, at any time of day. Online shopping is a global phenomenon. It's convenient, it's fast, and it's easy to do. There are many different ways you can shop online: through your local retailer, through an online retailer based in another country, or by purchasing an item from a third-party seller on an online marketplace like eBay or Amazon.

Online shopping is changing the way we buy clothes. With VR technology, you can try on clothes virtually, before you purchase them. This means that you don't have to worry about buying something that doesn't fit properly or doesn't look good on you.

The future of online shopping will be shaped by virtual reality clothing and AI assistants. These technologies will help us find and purchase the right clothes in a faster and more efficient way. This technology allows users to view clothing in a virtual environment and then virtually try on those clothes to see how they look

Virtual Reality Clothes have been a topic of interest for many years. However, they have not yet made it to the mainstream market due to the high cost, lack of content and hardware limitations. This technology is still in its early stages, but it has a lot of potential for both customers and retailers.

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Chapter 1

Introduction

This chapter contains the brief introduction of the project.

1.1 Vision

Our vision is to facilitate the customers to try clothes without physically in contact and will recommend clothes colors to those who are lacking in decision making.

1.2 Overview

Smart Wear enables users to try on clothes without physically touching them, so they can check the size, style, and fit of the product (clothes) they are buying. Using virtual reality the user will experience that they can try different kinds of garments on themselves to check how he/she looks like in the selected garments. Moreover the app will recommend the garments to customer who can't decide whether which type of garment color will suit on them.

By lunching or clicking on the app icon the very first splash screen will be visible to the user. After the splash screen, the main activity of the app will be shown in which the user will have the option to login to the app and he/she can also skip that option. After that the user will be on the home screen of the app where he can see different functionalities. If the user creates his/her account than he/she will have the option of saving his favourite list of different shirts and garments and can also see the history that which items he/she have used recently.

By clicking on the "Recommend outfit" button the user will get different shirts and garments color according to his skin color.

1.3 Problem Statement

In real life people need to visit the shop to buy the things of their choice. Walking over to a physical changing room and swapping their clothing is inconvenient. It cost them time. Nowadays everyone is searching for saving their time in order to utilize that time in other activities.

Considering this fact, now-a-days most of the world's work (buying and selling goods) is done online and because of this, people's time is also being saved. But buying things like garments online can't be touched or try to check whether it will look good on them or not, which cost the customer time and money. Moreover some customers don't have their choice to select a suitable garment for himself/herself.

Therefore, we will make a mobile based clothes recommended system to easily avoid the struggle of choosing the clothes. User can try clothes virtually and can easily decide their choice of garment.

1.4 Scope

The Smart Wear app will provide a facility of trying clothes virtually on their phone camera using the Augmented Reality technique, so that the customer can view how they look in these clothes. The application will provide convenient to the user to select the color combination of wearable.

The application will recommend the shirt color to user by detecting their skin tone using AI Algorithms. Moreover the user can add the shirts to their favourite lists.

The Smart Wear app will not provide a facility buying the garments from app. There will be no functionality of trying on shoes as it will only provide facility of trying-on clothes. The app will not recommend the size of shirt as it will recommend only the shirt color.

1.5 Objectives

By allowing clients to virtually try on things to confirm the sizing, fitting, appearance, and how they seem in the item, the major goals of the proposed solution are to increase consumer satisfaction with clothes suiting.

Customers can do this by using their cellphones to browse for and try on their favorite apparel anytime and everywhere they desire.

- To establish an Augmented Reality to detect and extract joint locations based on human body.
- To establish an Augmented Reality model to map the clothes according to the shape and size of user.
- To establish a recommender system that will recommend the clothes color according to the skin.
- To upload the app to Google Play store.

1.6 Use Case Diagram

The use Case diagram is below the Tools.

1.7 Tools

The proposed mobile application is build on the following technologies.

- **VS Code**

  Visual Studio Code (VS Code) is a free and open-source code editor developed by Microsoft. It supports multiple programming languages and has a wide range of features, including debugging, source control, and integrated terminal support. It is available for Windows, macOS, and Linux, and can be easily extended with plugins and extensions. VS Code has become a popular choice among developers due to its speed, flexibility, and customization options.

  Visual Studio Code (VS Code) is a great choice for writing and testing our Smart Wear app project. It is a powerful and flexible code editor that offers a wide range of features and tools to help with writing and debugging the code. Additionally, we can use the built-in terminal and install various extensions to enhance your development workflow. With VS Code, we can easily write, test and debug our smart wear app in one place.

- **Android Studio**

  Android Studio is the official Integrated Development Environment (IDE) for developing Android apps. It is a free and open-source tool developed by Google and based on the IntelliJ IDEA platform. It provides a wide range of features for building, testing and debugging Android apps, including a visual layout editor, a code editor, and a built-in emulator. It also integrates with the Android SDK, allowing developers to easily access the latest APIs and tools. Additionally, Android Studio has built-in support for version control systems like Git, making it easy to collaborate with other developers.

  In our project, we will be using Android Studio to build the Smart Wear app for the Android platform. With its intuitive interface and robust feature set, Android Studio makes it easy for us to design, test, and debug our app, and ensures that we can deliver a high-quality and functional product to our users.

- **Flutter**

  Flutter is an open-source, free mobile app development framework created by Google. It uses the Dart programming language and allows for the creation of high-performance, visually attractive apps for both iOS and Android. Flutter's main advantage is its "Hot Reload" feature, which allows developers to see the changes they made in the code immediately in the app, without the need for a full rebuild. This makes the development process faster and more efficient.

  Flutter also has a rich set of customizable widgets and a reactive programming model. This provides a smooth and responsive experience to the users. In addition, it has a growing and supportive community, which provides a lot of packages, plugins and tutorials to help developers. This makes it easy to add functionality to your app, such as integrating with Firebase or adding animations.

In our project, we will be using Flutter as the framework for building the Smart Wear app, as it enables us to develop a high-quality and functional app that can be deployed on both Android and iOS devices.

- **Dart**

  Dart is an open-source, object-oriented programming language developed by Google. It was designed to be easy to learn and use, with a syntax similar to that of other popular programming languages such as Java and JavaScript. Dart is used primarily for building web, mobile, and desktop applications.

  One of the main advantages of Dart is its support for both client-side and server-side development. It can be used to build web apps with AngularDart and Flutter, which is a mobile app development framework. Additionally, Dart can be transpiled to JavaScript, allowing developers to write code that can run on both the client and the server.

  Dart will be used as the back-end programming language for the Smart Wear app in our project because it allows us to write clean and efficient code that is optimised for performance and scalability. Dart is well-suited for building robust and responsive mobile apps due to its strong support for object-oriented programming, asynchronous programming, and reactive programming.

- **Firebase**

  Firebase is a Backend-as-a-Service (BaaS) platform developed by Google. It provides a wide range of tools and services for building mobile and web applications. Firebase offers functionality such as real-time databases, authentication, hosting, storage, and cloud functions, which makes it easy to build apps without having to manage servers.

  In our project, Firebase will serve as the back-end platform for the Smart Wear app. We can easily store and sync data, authenticate users, and track analytics with Firebase, all from a single platform. We can ensure that our app has a scalable and reliable back-end that can handle the demands of a large user base by using Firebase. Furthermore, Firebase provides a variety of integration options, making it simple for us to integrate our app with other services and platforms.

- **Git and GitHub**

  Git is a version control system for developers that allows them to track and manage changes to their codebase. It is a commonly used tool that is required for collaborative software development. It allows multiple developers to collaborate on the same codebase while keeping track of their changes. GitHub is a platform for developers that offers Git hosting and collaboration tools. It enables developers to host code repositories, track issues and feature requests, and collaborate on projects with others.

  In our project, we will be using Git and GitHub to manage the codebase for the Smart Wear app. We will use Git to track and manage changes to the code, and we will use GitHub to host the code repository and facilitate collaboration with other team members. By using Git and GitHub, we can ensure that our codebase is well-organized, easy to maintain, and easy to collaborate on.

- **Adobe Illustrator**
  Adobe Illustrator is a vector graphics editor developed and marketed by Adobe Inc. It is primarily used for creating logos, illustrations, and graphics for print and digital media. Illustrator allows users to create vector-based graphics, which are resolution-independent and can be easily scaled without losing quality. It also has a wide range of tools for creating and editing vector shapes, including pen tools, shape tools, and brushes.

  In our project, we will be using Adobe illustrator to create different shirts design for virtual Try on.

- **Ms Visio**
  Microsoft Visio is a diagramming and vector graphics application developed by Microsoft. It is primarily used for creating flowcharts, network diagrams, org charts, floor plans, and other diagrams. Visio has a wide range of pre-built shapes and stencils, as well as a variety of formatting and customization options, making it easy to create professional-looking diagrams.

  We will be using Visio in our project to create Flowcharts, Use case diagrams, sequence diagram and Data flow diagrams etc for the Smart Wear app. By using this tool, we can create clear and accurate diagrams that help us to communicate complex concepts to our team.

- **Figma (UI/UX)**
  Figma is a cloud-based vector graphics editor and prototyping tool. It allows users to design and collaborate on user interface and user experience (UI/UX) projects in real-time. It is primarily used for creating wireframes, mockups, and interactive prototypes for web and mobile applications.

  We will be using Figma to design the UI and UX of our app. Figma will help us to create a visually appealing and user-friendly app that meets the needs of our users.

- **Jira**
  Jira is a project management and issue tracking software developed by Atlassian. It is primarily used for agile software development, but can also be used for managing any type of project. Jira allows teams to plan, track, and release software, as well as manage and prioritize tasks and bugs.

  In our project, we will be using Jira to manage the development process for the Smart Wear app. By using Jira, we can ensure that our project stays on track and that we deliver a high-quality and functional app to our users.

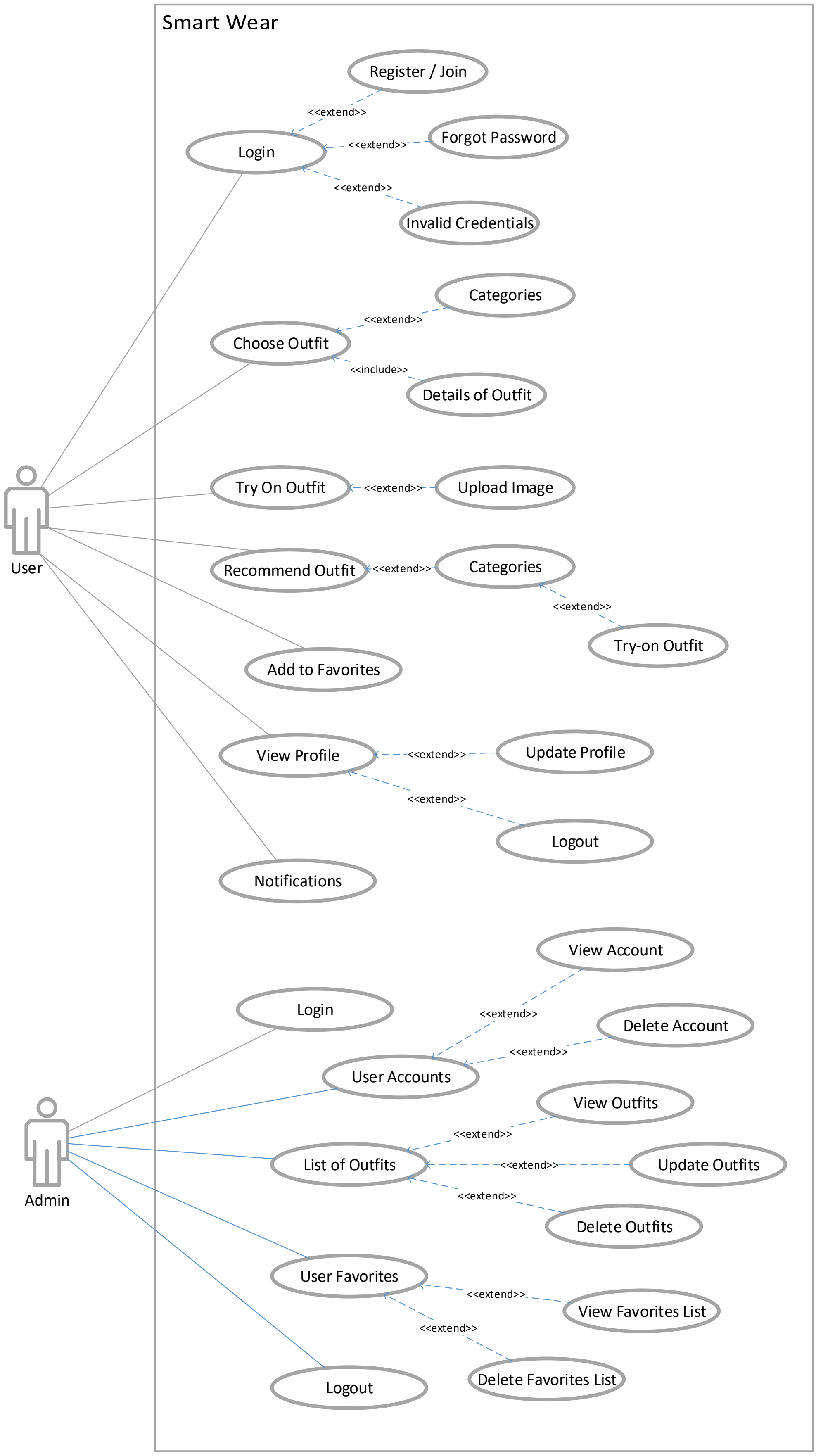


Figure 1.1: Use Case for Smart Wear App

Chapter 2

Background Study

2.1 Kinect for Windows Retail Clothing Scenario

Since the launch of Kinect in 2010, Microsoft Kinect has grown from a gaming console to landing in retail market or sales of goods. As a result of the program's integration of Kinect and Styku, a "virtual fitting room," resulting in an interactive lifelike experience of 3-D avatars that can turn, move, and grab objects.

A virtual mirror (see figure 3.1), by Windows Kinect shows a person actual image on mirror, also called a smart mirror. The virtual mirror provide two functionalities to users that is by providing a virtual changing room which is the augmented reality and second by integrating radio-frequency identification (RFID) which give functionality of changing the clothes by voice command.

Users will view putting on virtual clothing for their moving items in this way as a more beneficial process and will save time rather than physically changing the outfits. This interactive virtual mirror is included in most clothing stores' in-store changing rooms. You might want to try a shirt in a variety of colors, match it with your body and skin tone, take a photo of yourself and allowing to buy all of the clothes you want. Figure 3.1 shows a virtual mirror user tries on garments in store.

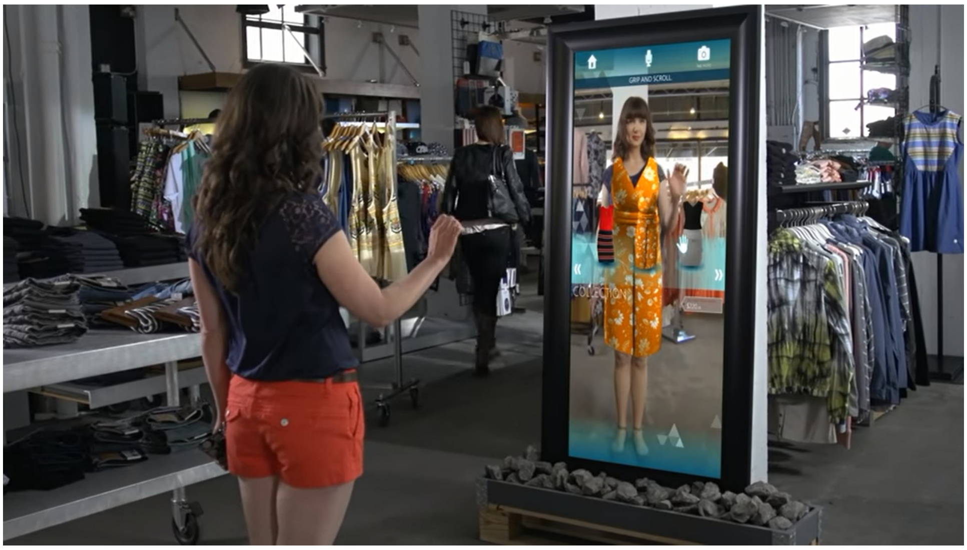
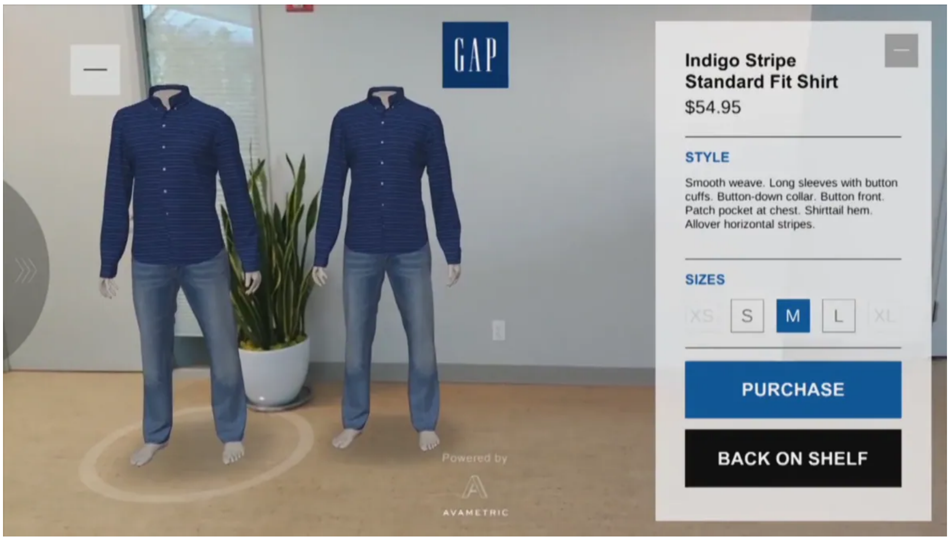


Figure 2.1: A Woman Using Kinetic Virtual Try On Mirror [1]

2.2 Gap Dressing Room

Together with Google and the San Francisco-based business Avametric, Gap has created a brand-new software prototype dubbed The Dressing Room. It is an augmented reality app for smartphones that is only compatible with Google Tango gadgets. According to Alvarez (2017), who cites numan 2017 gap, the program enables users to try on virtual clothing on many of five avatar body categories based on their height and weight. If customers like the garments, they can place an immediate order for them on the app.



Indigo Stripe Standard Fit Shirt
$54.95

Smooth weave. Long sleeves with button cuffs. Button-down collar. Button front. Patch pocket at chest. Shirttail hem. Allover horizontal stripes.

Figure 2.2: GAP Dressing Room, a virtual avatar wearing a virtual outfit [2]

An instantaneous virtual 3D representation of the avatar's body would be displayed on the phone's screen, tracking the motions of the camera, as shown in Figure 3.5. When the user selects a garment of their desired outfit, the virtual clothing will be applied to that character's body. The consumer can then try the garments on and see how they look in different clothes variations. Users can also try on apparel that is currently available in a wide range of sizes, colours, and styles.

2.3 Zeekit

Zeekit, is the virtual fitting room app created by one of the Israeli start-up to give customers a distinctive shopping experience. Users can see themselves by trying different clothes that is available on their websites by measuring the body structure and as well as picture without actually try on. Zeekit uses real-time image processing technology. It uses their similar spots, the analyzed person's images and clothing are returned together into finalized representation. The resulting simulations depicts a human digitally clothed while taking into account a number of factors, including body measurements, size, fit, and material of the apparel.

Customers first should provide a complete image of themselves wearing a tank top and appropriate pants or a short dress, as indicated in Figure 3.6, to ensure that their physical form is visible. The software scans the user's physique and transforms 2D images into 3D data in order to accurately depict how the garments look on them. After that, customers can touch any items they find online, in print, or in a store to upload a photo of themselves and see how it fits and how it appears on their body. Each outfit a customer tries on has the potential to be combined with others in their virtual wardrobe, shared with friends, or purchased using a link within the program.

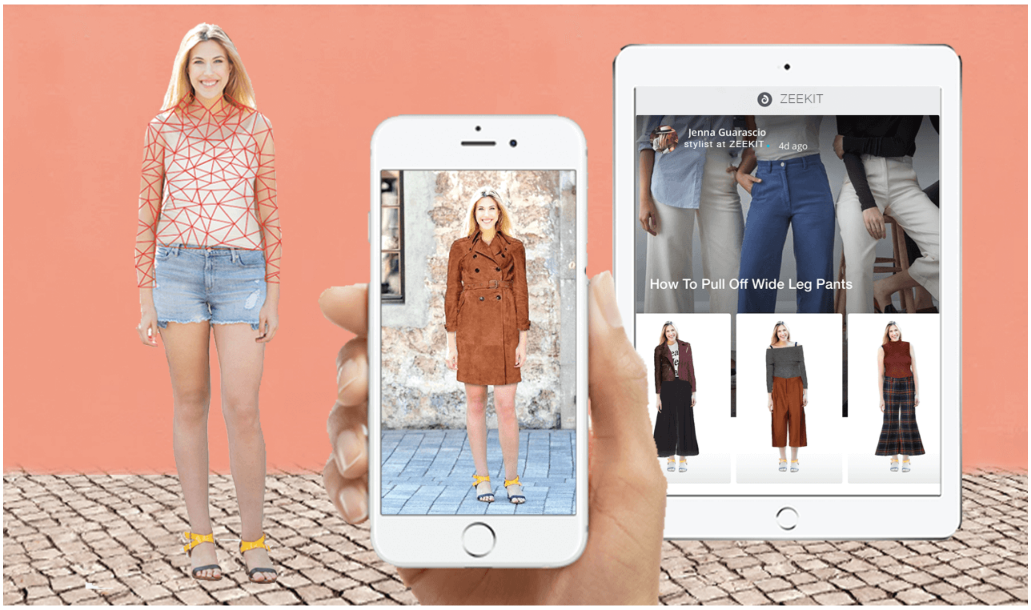


Figure 2.3: Zeekit virtual fitting room technology [3]

2.4 WebCam Social Shopper by Zugara

Zugara, a Los Angeles based software firm, released The Webcam Social Shopper (WSS) for retailers all over the world in 2009. With the help of the WSS software, customers can virtually try on clothing by using their webcam as a magic mirror. WSS offers simple integration of clothing assets and was created with retailers in mind. Zugara has produced two different types of versions for different platforms, an API for e-commerce platform integration and a Kinect equipped version named ”WSS For Kiosks” because the program supports 2D, 3D, and depth-sensing cameras.

A camera is turned into a real-time interactive mirror which provides virtual reality using WSS software, that enables users to try on clothes virtually so they can easily select the design and color of garments or clothes. It creates a representation which seems to be wearing clothing by projecting a stationary 2D image of virtual clothing over the actual body.

Sterling (2012) claims that users can attempt to launch the app by going to the website. Instead of updating your computer’s software or plugins, visit www.webcamsocialshopper.com. The user must grant the WSS software permission to access the camera and other devices, as shown in Figure 2.4. microphone. The software can use the camera to determine where the user is standing. and adjust the user’s body’s overlaid clothing to reflect the new position. To make sure, the user must go back 4 to 5 steps so that the program can perform operations correctly and successfully. Put your feet in front of the lens and remain still.

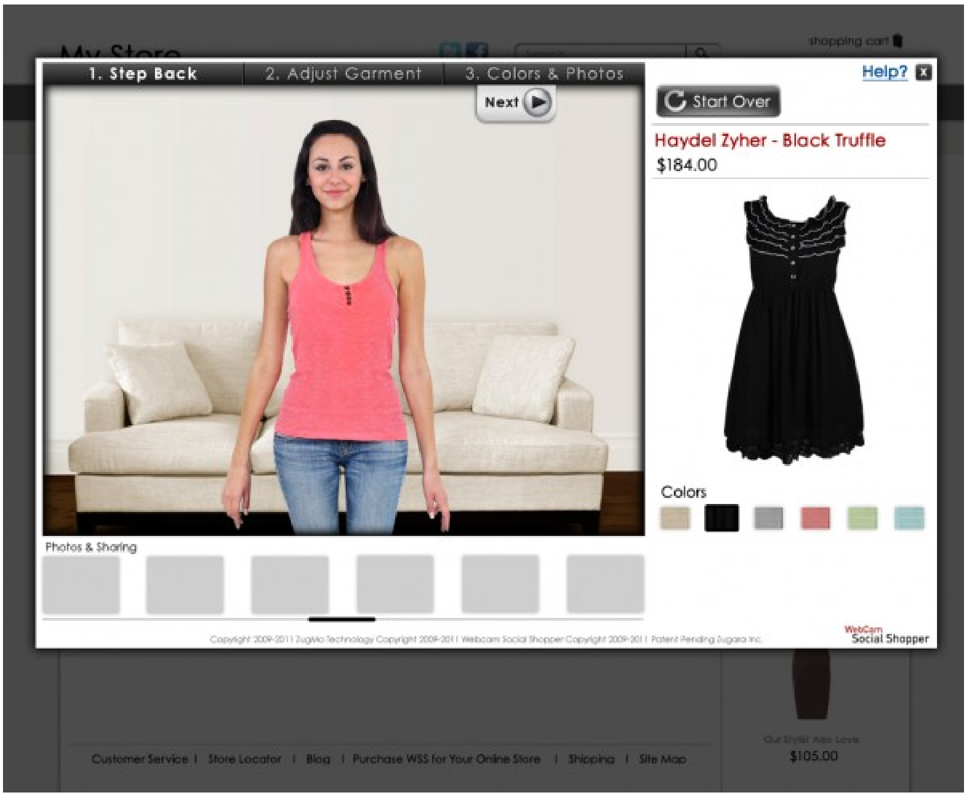

My Store
shopping cart
1. Step Back
2. Adjust Garment
3. Colors & Photos
Next
Help?
Start Over
Haydel Zyher - Black Truffle
$184.00
Colors
Photos & Sharing
Copyright 2009-2011 ZugMo Technology Copyright 2009-2011 Webcam Social Shopper Copyright 2009-2011 Patent Pending Zugara Inc.
WebCam
Social Shopper
Our Stylist Also Love
$105.00
Customer Service | Store Locator | Blog | Purchase WSS for Your Online Store | Shipping | Site Map

Figure 2.4: Webcam Social Shopper by Zugara [4]

Chapter 3

System Requirements, Architecture and Design

This chapter elaborates functional, non-functional requirements, architecture and design.

3.1 Functional Requirements

Here are some functional requirements for a smart wear virtual try-on app.

Table 3.1: Functional Requirements

Functional Requirements No	**Functional Requirements Description**
FR-01	A user should be able to login/register himself/herself.
FR-02	The system shall not allow the user to register using Username. The user can only register using his Email Address.
FR-03	A user should be able to recover his forgotten password.
FR-04	The app should allow users to create and manage their own account, including the ability to save favorite items.
FR-05	The app should allow users to virtually try on different garments and see how they look on their own body.
FR-06	The app should recommend garments to users based on their preferences.
FR-07	The app should allow users to add the garments to their favorite list.
FR-08	The app should allow the admin to add, delete, and update products.
FR-09	The app should provide the admin with tools to ensure the security of the app, including the ability to set passwords and manage user access.
FR-10	The app should allow the admin to add and delete user accounts, as well as view and manage user privileges.

3.2 Non-Functional Requirements

Here are some non functional requirements for a smart wear virtual try-on app.

Table 3.2: Non-Functional Requirements

Non-Functional Requirements No	**Non-Functional Requirements Description**
NFR-01	The app should be responsive and have a smooth user experience, with fast load times and minimal lag when navigating between screens.
NFR-02	The app should be able to handle a large number of users and a large amount of data without crashing or experiencing any degradation in performance.
NFR-03	The app should protect user data and ensure that sensitive information is encrypted and secure.
NFR-04	The app should be compatible with a range of devices and operating systems, including both newer and older versions.
NFR-05	The app should be easy to maintain and update over time, with clear and organized code and an efficient deployment process.
NFR-06	The app should have a user-friendly interface that is intuitive and easy to navigate.

3.3 System Architecture and Design

This section may contains the following items:

3.3.1 Flow Chart

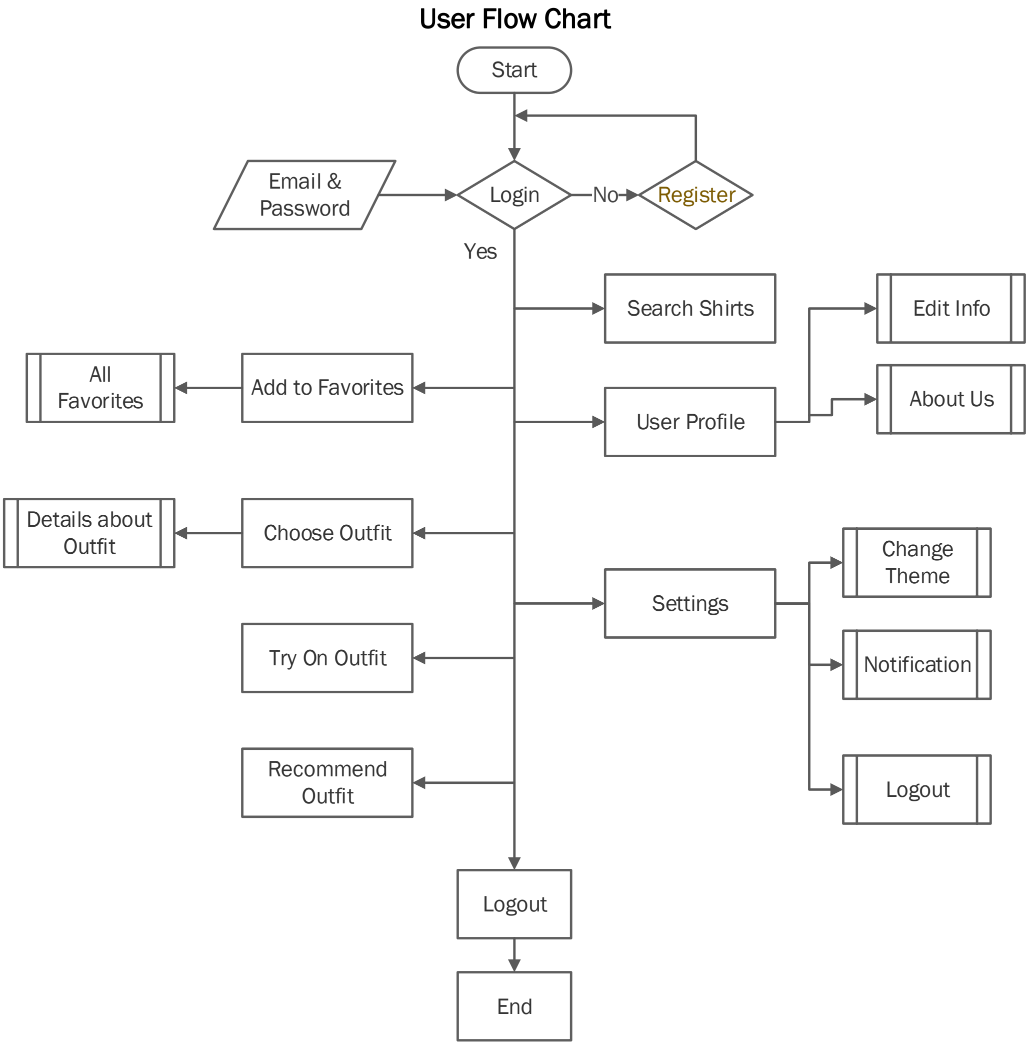


Figure 3.1: User Flow Chart of Smart Wear app

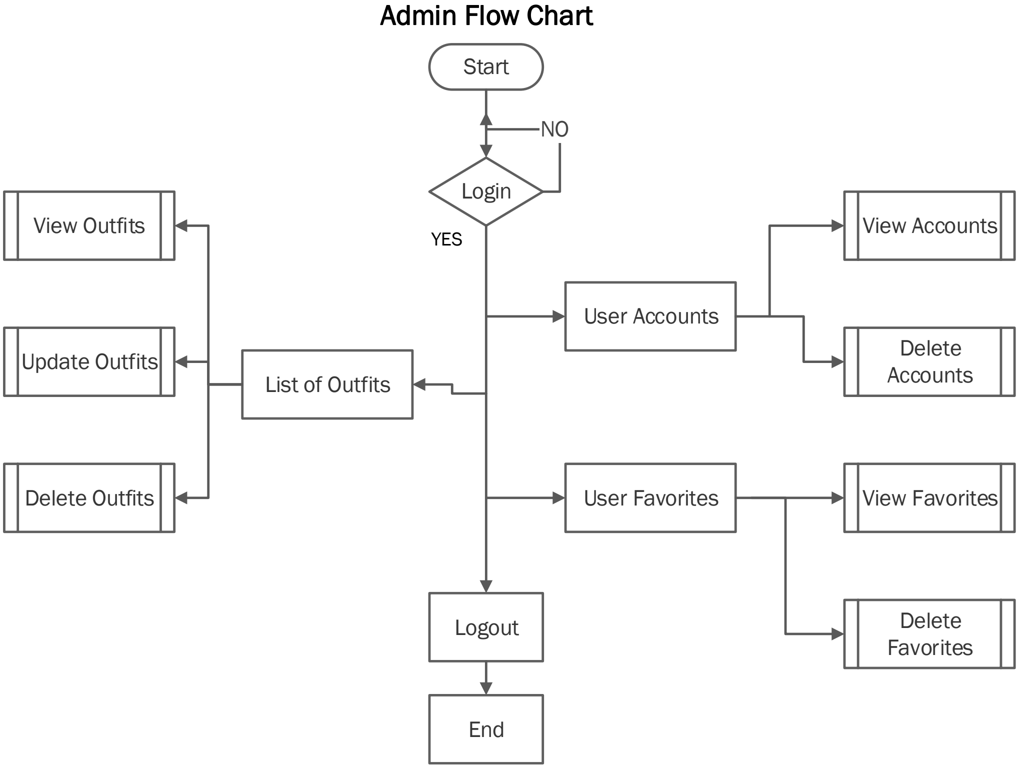


Figure 3.2: Admin Flow Chart of Smart Wear app

3.3.2 Use Cases

Use Case UC1: Register a new user
Scope: Login Module.
Level: User goal.
Primary Actor: User.
Stakeholders and Interest:

1. User wants to register himself/herself in application.
2. System wants to keep a personalized profile of a User.

Preconditions: None.
Trigger: The User taps the register button on Login Screen.
Success Guarantee: A user account is created and his/her credential saved in database.
Main Success Scenario:

1. User opens the application.
2. System shows the splash screen and then Login Screen.
3. User chooses register option to register themselves.
4. System navigate the user to Register Screen.
5. User enters the information which is required i.e Email.
6. User taps the Register button.
7. System shows registration completed notification.

8. System logged in the user and navigate the user to Home screen.

Post Condition:

1. The user has successfully created/registered a new account.
2. The user has logged into the app.

Extensions:
6a: If the user has already registered with the given email address.

1. The system displays an error message and prevents the user from creating again new account.
2. The system will redirect the User to Login Screen.

Alternative Scenario:

1. If the user decides not to create/register an account, then they can go back to Login Screen without creating any new account.

Cross Reference: FR-01 and FR-02.
Frequency of Occurrence: One user at a time.

Use Case UC2: Login a User
Scope: Smart Wear Application.
Level: Sub-function
Primary Actor: Registered User
Stakeholders and Interest:

1. Student wants to login to the app.
2. System will load the Main Screen to user with his personalized settings.

Preconditions:

1. The user must have a valid account on the app.
2. The user has entered his/her credentials (Email and Password) correctly.

Trigger: The user opens the app and tap on Login Button.
Success Guarantee: User login in to the app.
Main Success Scenario:

1. User opens the app.
2. System shows the splash screen and user tap on Get Started.
3. System navigate to Login Screen.
4. User enters his Email and Password in the required text fields.
5. System validate the Email and password.
6. System navigate the User to Home Screen.

Extensions:
5a: If the user enter wrong password or email.

1. The app displays an error that ”Wrong Email or Password entered”.

Alternative Flow:
User has forgotten the password.

1. User clicks on forgotten password.
2. The app navigate to forgot password screen.
3. The user enters their registered email address.
4. The user taps the forgot password button.
5. System sends the code to user email inbox.
6. User enters the code and then can update the password.
7. User tap on save password and the system navigate the user to Login Screen.
8. User can enter their email and updated password.
9. If the email and password is correct, and system validate it then the app will navigate the user to Home Screen.

Extensions:
6a: User enters the wrong code which was sent to them in email address

1. The app displays an error that ”OTP provided is incorrect”.

Post Condition:

1. The user logged in to the app.
2. The user access the Home Screen of app.

Cross Reference: FR-02, FR-03
Frequency of Occurrence: Once per session.

Use Case UC3: Choose Outfit
Scope: Smart Wear App
Level: Sub-function
Primary Actor: Registered User
Stakeholders and Interest:

1. User want to choose the outfit.
2. After choosing the outfit he/she can see the details related to that outfit.

Preconditions: The user must be login to the app in order to choose the outfit.
Trigger: The user has to click on the image of the outfit in order to choose it and can see the details of the outfit.
Success Guarantee: User can choose the outfit after clicking on the image of the outfit on the screen.
Main Success Scenario:

1. User opens the app.

2. App navigate the User to Home Screen.
3. User will see different options on the Home Screen.
4. User has to click on the image of the outfit in order to choose the outfit.
5. After clicking on the image of outfit he can see the details of the outfit.

Extensions:
2a: If the user session has been expired, then the app will navigate the user to Login Screen.
Alternative Scenario:
Extensions:
Post Condition: The user has chose outfit for them.
Cross Reference: FR-05
Frequency of Occurrence: Until session expired.

Use Case UC4: Try on Outfit
Scope: Smart Wear App
Level: Sub-function
Primary Actor: Registered User
Stakeholders and Interest:

1. User want to try on outfit.
2. The user picture will be captured.
3. Once the user picture is captured and he/she choose the outfit then he will be able to try on that outfit.

Preconditions:

1. The user must be login into the app.
2. The user will allow the app to use the camera of the phone.
3. User will choose the outfit first then he can try on that outfit.

Trigger: User will select the outfit first after that he can try on that outfit.
Success Guarantee: User can try on outfit after clicking on the try outfit button on the screen.
Main Success Scenario:

1. User opens the app.
2. User will see different options on the Home Screen.
3. User has to tap on the image of the outfit in order to choose the outfit.
4. After tapping on the image of outfit he/she can see the details of the outfit.
5. User has to tap on the try on outfit button then and after tapping on the outfit button the camera of the phone will be open and the picture of the user will be captured.
6. After that User can try on that outfit which he/she wants to try on.

Extensions:
5a: If the camera doesn't open, then the app will show error that ”Camera is not responding”.
5b: The app will ask to give permission to access the camera.

Alternative Scenario:
User camera is not working or the system is not able to recognize the image of the user.

1. User clicks on Upload image.
2. The app will ask permission for the storage.
3. After getting access the user can now upload the picture from gallery.
4. System will check whether the picture is in the correct format.
5. User can try on clothes on that image that he/she has uploaded.

Extensions:
4a: User provides wrong image or format of the image is not correct.

1. The system will display a message of ”Wrong image or Wrong format”.

Post Condition: The user has try-on the outfit.
Cross Reference: FR-05
Frequency of Occurrence: Until the session expired.

Use Case UC5: Recommend Outfit
Scope: Smart Wear App
Level: Sub-function **Primary Actor:** Registered User **Stakeholders and Interest:**
Preconditions:
Trigger:
Success Guarantee:
Main Success Scenario:
Extensions:
Alternative Scenario:
Extensions:
Post Condition:
Cross Reference:
Frequency of Occurrence:

Use Case UC6: Add to Favorites
Scope: Smart Wear App
Level: sub-function
Primary Actor: User
Stakeholders and Interest:

1. User navigating to shirts design.
2. If the user like the shirt design then they can add it to favorites list.

Preconditions:

1. The user must be login into the app.

2. The user tap on any outfit.

3. If the user like it then they can add it to favorites.

Trigger: User has to tap on heart icon to add it to favorites.

Success Guarantee: User can add the shirt design to favorites after tapping on the heart button.

Main Success Scenario:

1. User opens the app.

2. User will see different outfits.

3. User has to tap on heart icon in order to add it to favorites list.

4. The user can see the favourite item by tapping on the favourite list button.

Extensions:

Alternative Scenario:

Extensions:

Post Condition:

Cross Reference:

Frequency of Occurrence:

3.3.3 System Sequence Diagram

An interaction diagram known as a sequence diagram describes how operations are carried out, including when messages are sent. Sequence diagrams are arranged chronologically.

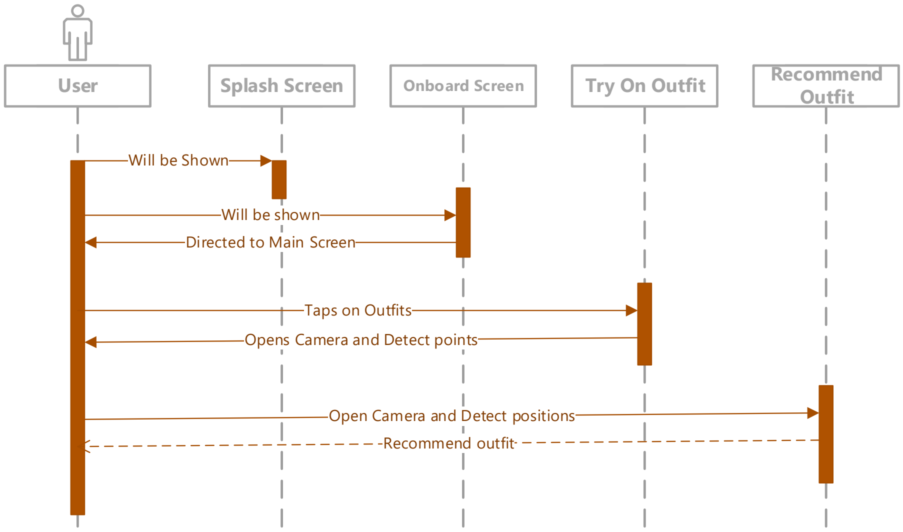


Figure 3.3: System Sequence Diagram - User

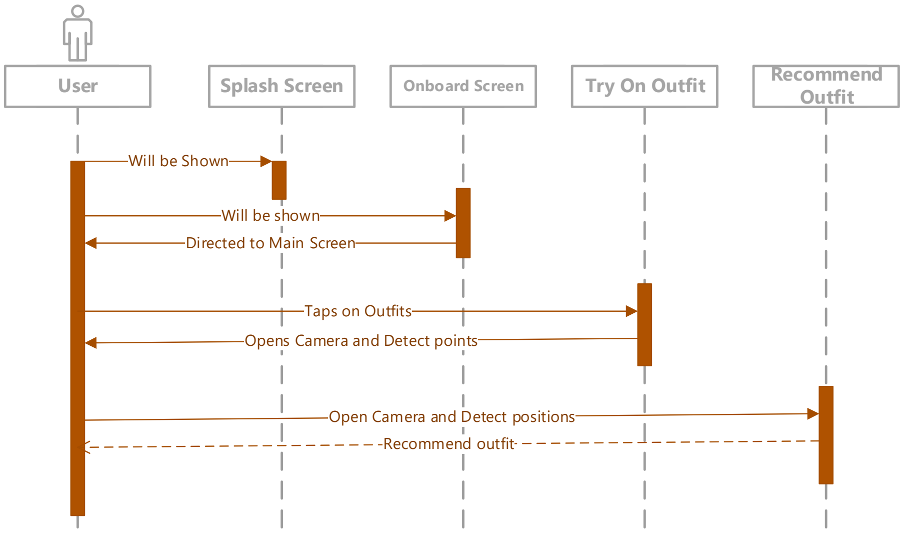


Figure 3.4: System Sequence Diagram - Admin

3.3.4 Data Flow Diagram (DFD)

It is also known as a Context Diagram. The structure is shown as a lone cycle with its link to external aspects in what is meant to be a deliberate viewpoint. Data and results are presented by impending or operating bolts, and the whole structure is treated as a single air pocket.

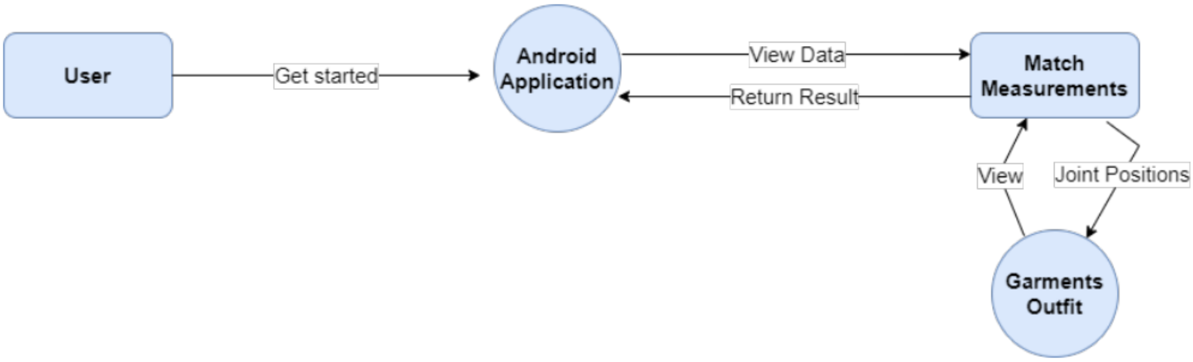


Figure 3.5: DFD Level 0

DFD Level 1

The context diagram is divided into many elements and activities in 1-level DFD. In this level, we emphasize the program's functionalities as well as dissect the high-level DFD task into smaller operations.

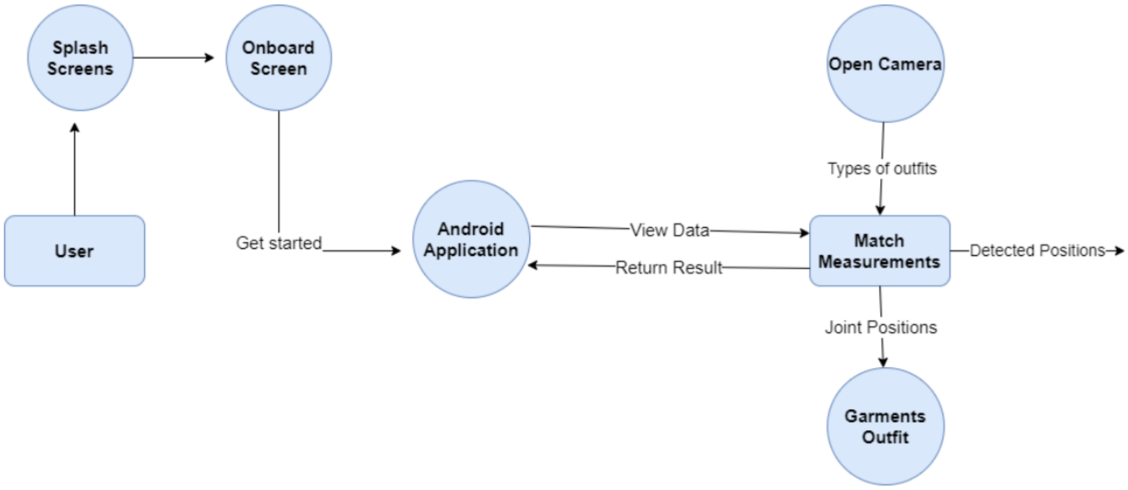


Figure 3.6: DFD Level 1

Chapter 4

Methodology

The chapter covers the methodology and implementation (software/ hardware) phase. It may include web/ application interfaces.

Chapter 5

Results and Discussions

This chapter covers the software/hardware testing and results.

Chapter 6

Conclusion

This chapter concludes the report.

Chapter 7

Future Work

This chapter discusses future modifications/ work (if any).

References

[1] I. Pachoulakis and K. Kapetanakis, “Augmented reality platforms for virtual fitting rooms,” *The International Journal of Multimedia & Its Applications*, vol. 4, no. 4, p. 35, 2012.

[2] S. B. Adikari, N. C. Ganegoda, R. G. Meegama, and I. L. Wanniarachchi, “Applicability of a single depth sensor in real-time 3d clothes simulation: augmented reality virtual dressing room using kinect sensor,” *Advances in Human-Computer Interaction*, vol. 2020, 2020.

[3] H. Lee, Y. Xu, and A. Porterfield, “Consumers’ adoption of ar-based virtual fitting rooms: From the perspective of theory of interactive media effects,” *Journal of Fashion Marketing and Management: An International Journal*, 2020.

[4] J.-Y. M. Kang, “Augmented reality and motion capture apparel e-shopping values and usage intention,” *International Journal of Clothing Science and Technology*, 2014.