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AN ANDROID APPLICATION:VIRTUAL CLICK AND FIT

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Abstract - Virtual click and fit are digital environments that allow users to visualizeand try on clothing items a virtual setting. As online shopping becomes increasingly popular, virtual click and fit have emerged asa potential solution to the challenge of trying on clothes before making a purchase. This research paper aims to explore the effectiveness of virtual click and fit in enhancing the online shopping experience. The paper begin by providing an overview of virtual click and fit technology and its development over time. Next, the paper discusses the benefits and limitations of virtual click and fit, including their potential impact on consumer behavior and their ability to improve the customer experience. The research methodology includes a combination of quantitative and qualitativeresearch methods, including surveys, interviews, and user testing. The results of the study demonstrate that virtual trail rooms have the potential to enhance the online shopping experience and increase customer satisfaction. The paper concludes by discussing the implications of these findings for retailers and future research directions in this area.

Keyword-online shopping, digitalenvironments, clothing items, user testing.

I. INTRODUCTION

This application can be integrated with online shopping applications as an aid to customers who find it difficult to choose the right pattern and size of clothes. All the existing solutions use special hardware for depth sensing and user size and pose estimation. This type of solution cannot be used in an online shopping website as the user may not have the required hardware available with them. The application should be designed in such a way that it needs no external hardware and should be able to run on the user's smartphone with a camera

The project is targeted towards customers who buy clothes online but hesitate to do so in some scenarios where they have some doubts regarding the proper fit of the clothes or how the clothes would actually look on them. In conventional shopping, this problem is eliminated through trial rooms where users can physically try the clothes.

Scope of this project is to eliminate these difficulties in the online market by providing the following functionalities to its users. Virtual click and fitAndroid app is a cutting-edge technology designed to enhance the shopping experience of customers by enabling them to try on clothes virtually without physically visiting a store. This app utilizes augmented reality to create a virtual dressing room where customers can upload their images and superimpose different clothes on their virtual selves to see how theywould look in different outfits. The main aim of this app is to make the shopping experience more convenient, efficient and enjoyable for customers while also helping retailers to increase their sales and reduce returns. With this app, customerscan try on different outfits without having to physically visit multiple stores, thus saving time and effort. Additionally, customers can get a better idea of how theclothes will look on them before making a purchase.

The app is easy to use and intuitive. They can browse through the available clothing options and select the ones they wish to try on. The app will superimpose theselected clothes onto the customer's virtual image, allowing them to see how they look in different outfits from different angles.

Overall, the virtual click and fit Android app has the potential to revolutionize the way people shop for clothes and accessories. It is a valuable tool for both retailers and customers, and its use is likely to increase in the future as more people become aware of its benefits

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virtual click & Fit can also benefit retailers by reducing the number of returns and improving inventory management. By using virtual Click & Fit, customers are less likely to purchase clothing that does not fit or look good on them, reducing the number of returns. Additionally, retailers can use data collected from virtual Click & Fit to better understand customer preferences and adjust their inventory accordingly.

Overall, virtual Click & Fit based on ML have the potential to revolutionize the fashion industry by improving the shopping experience for customers andproviding valuable insights to retailers.

II. MODULE DESCRIPTION

1. Collect the data: The first step in any ML project is to gather data. In this case, you need to collect images of clothes from different angles andpositions.

2. Preprocess the data: You need to preprocess the images to make them suitable for input to a CNN. This involves resizing the images, converting themto grayscale or RGB, and normalizing the pixel values.

3. Train the CNN: Once you have preprocessed the images, you can train a CNN to recognize different clothing items. you can create your own CNN architecture.

4. Build the virtual Click & Fit: Once the CNN is trained, you can use it to build the virtual Click & Fit.The customer can upload an image of themselves, and the CNN can superimpose different clothing items onto the image to create a virtual dressing room experience.

5. Implement user interface: The user interface is a critical component of the virtual Click & Fit project. You need to create an easy-to-use interface that allows customers to upload their image and try on different clothes.

III. LITERATURE REVIEW

- Liu et al. (2017) proposed a virtual try-on system that uses a deep neural network to generate realistic images of people wearing clothes. Theyused Generative Adversarial Network to create a virtual model that can change poses, and then mapped the customer's image onto the model. The system generated realistic images of customers wearing different clothes, and customers reported high satisfaction with thesystem.
- Dong et al. (2019) developed a virtual dressing room using a CNN-based person detection algorithm and a GAN-based image synthesis algorithm. The system allowed customers to upload their image, and then superimposedifferent clothes onto the image. The system achieved high accuracy in detecting the person's body shape and generating realistic images of customers wearing different clothes.
- Bhargava et al. (2020) proposed a virtual try-on system that used a CNN to detect the customer'sbody shape and clothing size, and then a GAN to generate realistic images of customerswearing different clothes. They also included an interactive user interface that allowed customers to adjust the clothes' size and positionon their body. The system achieved high accuracy in detecting body shape and size and generated realistic images of customers wearingdifferent clothes.

Overall, these studies suggest that usingCNNs and GANs can create realistic virtual dressing room experiences that can enhancethe customer experience and increase sales for retailers. However, there is still room forimprovement in terms of accuracy, speed, and ease of use. Future studies can focus on developing more advanced CNN architectures and user interfaces that are easier to use and more intuitive for customers.

IV. PROPOSED METHOD

Android: Android is a mobile operating system (OS) developed by Google. It is based on the Linux kernel and designed primarily for touchscreen mobile devicessuch as smartphones and tablet computers utilizing ARM processors. As Android consists of a kernelbased on the Linux kernel with middleware, libraries, and APIs written in C and application software running on an application framework that includes Java- compatible libraries based on Apache Harmony. By using Android Software Development new applications are created for the Android operating system. Most applications are usually developed in the Java programming language using the Android Software Development Kit. Android uses the Dalvik virtual machine with just-in-time compilation to run Dalvik dex-code (Dalvik Executable), which is usually translated from Java byte code.

As "Virtual Click & Fit" is an Android application, it needs Java as a programming language for thefunctionality, Firebase for the database, and Android Studio for the development.

Android Studio:
It is the official integrated development environment (IDE) for Android app development. It is developed byGoogle and provides a comprehensive set of tools and features for creating, testing, and deploying Android apps. some of its key features are a code &Layout editor, virtual devices, a Gradle build system,profiling tools, and Plug-in Support.

Activity life Cycle:

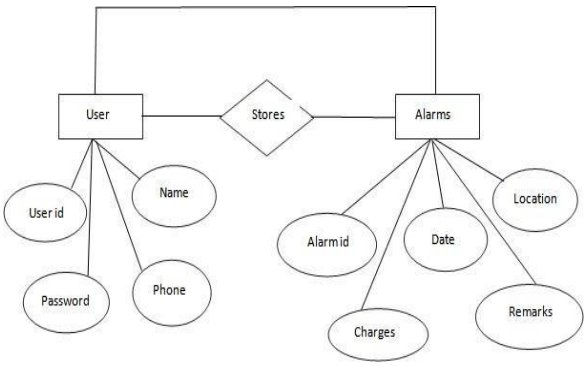

Fig 1, In Android app development, an activity is a key component that represents a single screen with a user interface. The activity life cycle refers to the series of states that an activity goes through as it is created, started, resumed, paused, stopped, and destroyed. Following is the fig.

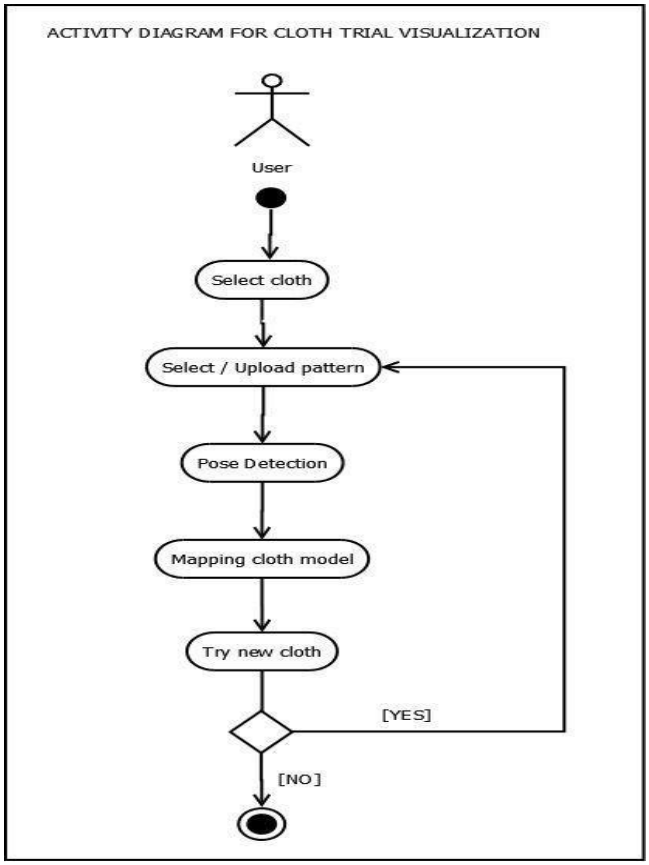

Figure1-Activity Life Cycle

V. SYSTEM DESIGN

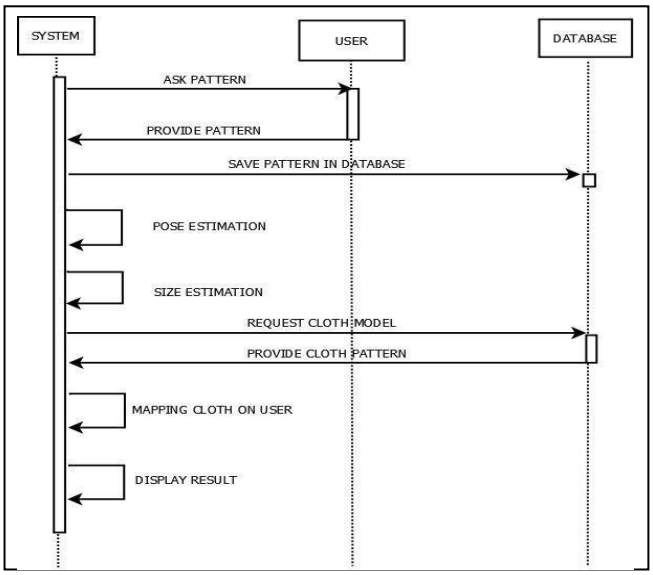

Figure 2. Sequence diagram

Above Sequence diagram describes the information about Virtual Click & Fit application. we can consider as blueprint of the application that simply tell us how will be the structure of the Virtual Click & Fit and how it willwork with user's end and system's end. System have all the information we only have to access it with permission of administrative. we can consider it for now but further changes and implementations of best algorithms can be done later but for now in starting stage we have to consider this as a blueprint. it's saying that when user will use the task manager application then if task manager has administrative permission then it will showinformation by accessing the system.

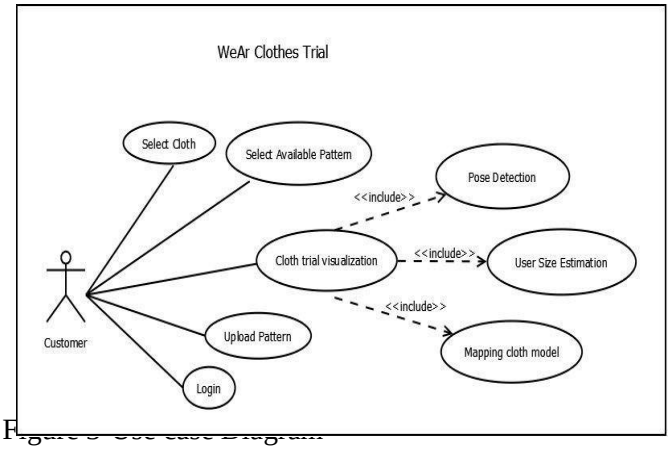

Figure 5 Use case Diagram

The above diagram shows how the user will interact withthe application and how the application will interact with the system as well as the user Virtual Click & Fit application has to get administrative permission for showing anything.

VI. LANGUAGE AND DATABASE USED

Android Java: - Android is used to define the workingof the layout created by the XML. The Java code of Android is responsible to communicate with the database and the interface. Firebase's real-time databaseis a NoSQL cloud-hosted database that allows developers to store and sync data between users in real-time.

In Android app development, Java is used to write the logic and functionality of a Native app. Java code is compiled into bytecode, which is then executed by the Dalvik virtual machine (now replaced by Android Runtime) on the Android platform. Java is particularly well-suited for Android app development because of its platform-independent nature, which means that code written in Java can be easily ported to different platforms and devices.

- **XML:** - it is a markup language that is commonly used in Android Studio for layout designing and user interfaces (UI) of Android apps. it is used to create flexible, maintainable, and platform-independent UI designs that can be easily modified and customized.

Firebase: Firebase is a mobile and web application development platform, owned by Google, that offers a range of services to help developers build, deploy, and manage their applications. Firebase provides several features, including hosting, a real-time database, authentication, messaging, analytics, and more.

Firebase's real-time database is a NoSQL cloud-hosted database that allows developers to store and sync data between users in real-time. It uses a flexible JSON data structure, which makes it easy for developers to manage and manipulate data. also provides an authentication system.

VII. ADVANTAGES AND APPLICATIONS

- The customer experience and saves time and effort, as customers can quickly see how clothes look on them without going through the hassle of trying them on physically.
- Retailers can increase sales by enabling customers to try on more clothes and encouraging them to buymore items.
- Cost-Effective: The Virtual Click & Fit project is cost-effective for both customers and retailers. Customers do not have to spend money ontransportation and parking to visit physical stores,
- This project can offer personalized recommendations to customers based on their bodyshape, style preferences, and purchase history.
- E-commerce: The virtual Click & Fit project can be integrated into e-commerce websites to allow customers to try on clothes virtually before makinga purchase.
- Brick-and-Mortar Retail: The virtual Click & Fit project can be used in physical retail stores to provide customers with a more interactive and engaging shopping experience. Customers can try on clothes virtually and see how they look without going to the physical trial room, saving time and effort.

VIII. Acknowledgement

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IX. CONCLUSION

To conclusion, the virtual Click & Fit Android app has the potential to enhance the online shopping experience and improve customer satisfaction. Future research should focus on addressing the limitations of the app, including increasing the realism and range of clothing items available, and exploring the use of virtual Click & Fit in other contexts beyond fashion retail. Overall,our study provides valuable insights into the potential of virtual Click & Fit technology in enhancing the online shopping experience and improving consumer behavior.

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