Virtual Cloths Trial Room

¹Dr. Ashwini Mandale(Jadhav), ²Mr.Gaurav Yele, ³Mr.Shreyas Yamagekar, ⁴Ms.Isha Dudhalkar, ⁵Mr.Nilesh Kene

¹Assistant Professor, 2,3,4,5CSE - Student, RIT, Sangli, Maharashtra, India.

**¹ashwini.mandale@gmail.com, ²gauravyele1025@gmail.com, ³shreyas12y@gmail.com.
⁴ishadudhalkar@gmail.com**

Abstract—**Virtual Trial Room is a VR-based application that allows users to try on clothes and evaluate their fit and style without the need for a physical examination. Users can choose clothes from the virtual environment, see them on their own bodies, and see how they look from different angles and lighting. It saves time, eliminates the need for a physical dressing room, and helps make informed purchasing decisions. The technology adapts to all shapes and sizes, provides personalized recommendations, and benefits consumers and retailers by increasing engagement, reducing returned items, and collecting important information. Overall, it represents a step forward in the retail industry and makes things easier online thanks to its body parts knowledge. In conclusion, the virtual trial room represents a step forward in clothing stores, combining the convenience of online shopping with body fit information. With its ability to improve customer satisfaction, increase sales, and increase engagement, technology holds great promise for the future of the fashion industry.**

I. INTRODUCTION

Virtual cloth trial rooms have evolved over time. Initially, they offered basic virtual try-on [2]experiences with limited accuracy. However, advancements have led to improved visual rep- resentation, better fit simulation, integration with body, virtual styling and customization options[3], and integration with e-commerce platforms. These advancements enhance the overall user experience and make online clothes shopping more convenient.

Virtual cloth trial rooms are important because they provide convenient and time- saving benefits. They allow you to try on clothes virtually without visiting a store, accurately assess fit, visualize different styles and customizations, access them anytime and anywhere, and reduce frustration associated with online shopping. They enhance the overall shopping experience and increase customer satisfaction.

Basically, the virtual clothes trial room provides a virtual environment to customers. It provides an immersive experience to customer. In this project we will implement the trial room using machine learning[7] and OpenCV library in python[2]. When customer opens the application then they have to select clothes. Once customer can select clothes, he/she got three options as buy clothes, try clothes virtually and add clothes to cart. If customer selects try clothes virtually then he/she able to see themselves virtually in selected clothes. Another option is to buy clothes, customer has to log in into the system to buy clothes and then confirm order and make payment. If customer selects add to cart module, then he/she able to add clothes into the cart.

II. LITERATURE REVIEW

A. K. Kjaerside et al

This paper's methodology is that an augmented reality con- cept for dressing rooms has been presented by Augmented Dressing Room with Tag-based Motion Tracking and Real- Time Clothes Simulation system[1]. And the advantage is that instead of a mirror, this virtual room has a camera and a projection surface and the customer's body is fitted with a selection of clothes. Instead of this, this paper has some disadvantages like limited hardware availability, Lack of scalability, Clothing simulation accuracy, User interaction challenges, Limited evaluation and user feedback etc.

B. F. Isˌıkdogˇan and G. Kara et al

This article describes a method to create a real-time virtual room recording application using the Kinect sensor[2]. This document covers real-time wearable devices, Kinect sensor integration, cost-effectiveness, user-friendly solutions, etc. Al- though it offers many advantages such as, it also has some disadvantages such as lack of detailed information and lack of technology.

C. P. Bhavika, "Design and Implementation of Virtual Class- room Based on Image Blending", Intervention Science (SJIF), Vadodara

This paper has several methods. Research has shown that some of the most commonly used virtual classrooms in design are 2D fashion design, 3D fashion design[3],

digital communi- cation and other technologies, e-business, internet-based, ICT- based, electronic magazines and e-books. Additionally, this article provides new methods, visualization, cost savings, etc. for users. It has many advantages such as. There are also some shortcomings, such as lack of comparison with existing solutions and lack of guidance or suggestions for the future.

D. A. B. Sasadara, G.C. Naleen et al

Paper Methodology A depth sensor in real-time 3D clothing simulation[4] in an augmented reality virtual clothing room and methods to analyze the collected data and present the results. Some of the advantages of this article include the use of depth sensor, real-time clothing simulation[1], augmented reality, practical and interactive capabilities, evaluation and user feedback, etc. is located. Disadvantages are limited equip- ment, no comparison or system with other sensors, limited measurement accuracy and sensitivity, insufficient discussion of user experience, lack of decision making, high scalability, etc.

E. A. Masri and M. According to Al-Jabi

This paper's method involves using a camera to capture the user's image, segmenting the user's body, overlaying virtual clothing[8] over the user's image, and allowing the virtual experiment to be seen in real time. information. By using and analyzing their methods, the authors demonstrated the feasi- bility and potential of using virtual offices to develop online business[8]. They have advantages and disadvantages such as scalability, instant testing without determining hardware and needs accordingly, ease of use, efficiency, and effectiveness, as well as limited monitoring opportunities.

III.   METHODOLOGY

The complete system architecture presented here provides a general framework for visualization and visualization of data flows. At its core, the system provides users with the ability to create combinations and integrations by interacting with a large collection of clothing data. The image below shows this process, which allows users to search and select clothing options from a large database.

Users can access a rich clothing collection after logging into the system. The collection offers users a variety of options to suit their preferences, with a variety of styles, sizes and categories. Saving outfits upon login allows users to quickly start searching and interacting on the platform.

Part of the system architecture includes the use of OpenCV[2] to obtain graphics. OpenCV is a powerful com- puter vision software that plays a key role in improving user experience by creating graphics that show exactly how the selected garment will look when worn.

This feature adds a layer of realism to the virtual try-on[2] experience, allowing users to make more informed decisions about their clothing choices. Once logged in, users can participate in various activities on the platform, all handled by the backend. The system supports various features such as trying on clothes, adding selected products to the virtual shopping cart and continuing shopping. These operations are seamlessly managed in the backend to ensure a smooth and responsive user experience. The virtual try-on feature is important; It allows users to see the differences between different outfits as well as their style and preferences. By trying on clothes, users can be more confident and satisfied in their purchasing decisions, thus increasing overall user satisfaction. Backend operations play a key role in managing user interactions, managing data, and facilitating transaction security during the purchasing process. A strong backend infrastructure provides reliability and efficiency, laying the foundation for increased scalability of datasets.
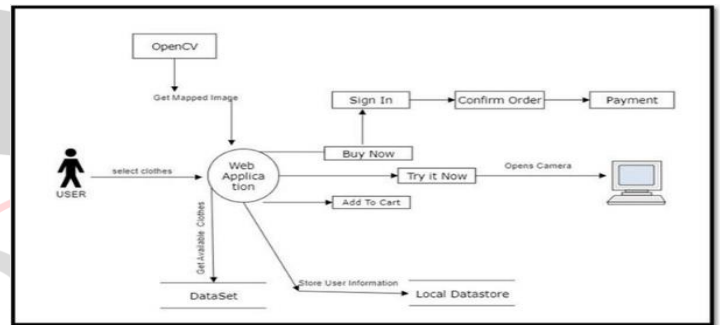

Fig. 1. System Architecture

This research leverages Firebase database[https://firebase.google.com/docs/database] for our Vi

IV.   IMPLEMENTATION DETAILS

A. User Dashboard

This is the actual interface that appears once a customer logs into the system. Customers can view all of the shop's cloth products here. The customer can select our preferred cloth by specifying the quantity and adding the product to the cart to checkout and place the order.
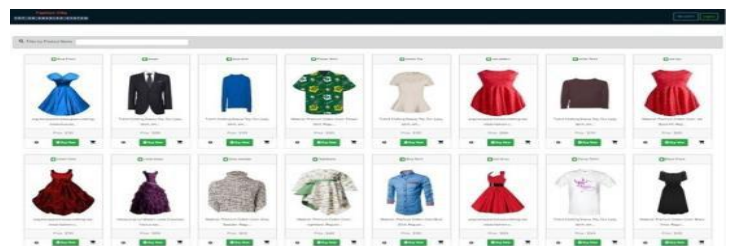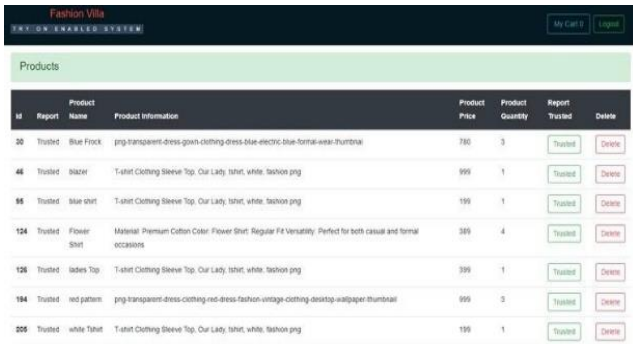

Fig. 2. User Dashboard

B. Admin Dashboard

The page that the administrator will see after logging into the system is as above. Administrators can view

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products cur- rently in stock in the store. Administrator can select categories of new products to be added to fabric stores. Administrators must add product images, names,

C. Result

Fig. 3. Admin Dashboard

V.   CONCLUSION AND FUTURE SCOPE

The virtual cloths trial room in virtual reality is expected to change the fashion store, providing matching, personal and business quality. Virtual Fitting Room The fitting room uses computer vision, virtual reality, and virtual reality to provide users with a simple web application to explore at-home clothing options. Future developments focus on optimizing the recommendation algorithm and making it more user-friendly to increase engagement and satisfaction.

The app uses OpenCV python to recognize the user's body and overlay the user's chosen outfit. We will use Haar based classifier[4]. Haar-based classifiers are trained using a variety of positive and negative images. We use various techniques such as filtering to get the correct body, thresholding to remove noise, and using a Gaussian filter. K- means[7] sharpens the image and removes noise. HTML is used to create web pages, also known as the skeleton of the design. Cascading Table Styles (CSS) are used to create the HTML body and JavaScript is used to add some effects to the page. In the store, customers have three options for fabric selection: Try on, buy now and add to cart. When the user clicks on the "Create Review" icon, the web application will prompt the camera system to be activated. By allowing the camera, customers can see themselves wearing the clothes they choose from the store. Customers can customize the fabric according to their taste, function and location. Finally, the selected data is successfully added to the client's body. As a result, customers can imagine themselves wearing a particular garment without physically trying it on. Customers can also visualize themselves in various outfits available in the store.

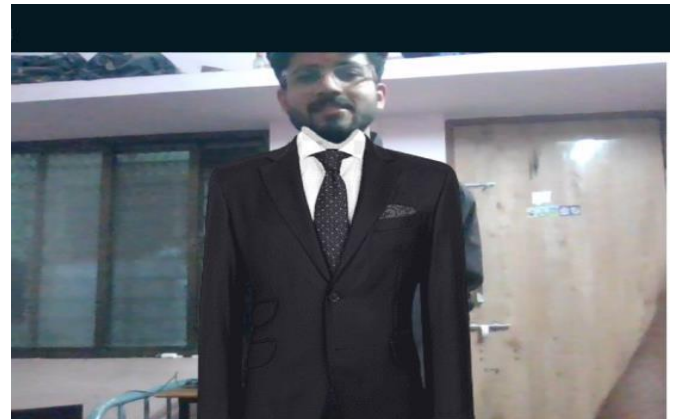descriptions, and product prices.and CSE department of RIT,Rajaramnagar for their support in this study.

Fig. 4. Result Image

VI.   ACKNOWLEDGMENT

VII.   REFERENCES

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