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Virtual Shoe Fitting System that Uses Augmented Reality to Measure Feet and Try on Shoes

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ABSTRACT: In this project, we address the common challenge of buying shoes online without be- ing able to try them on. We introduce an innovative solution that harnesses the power of augmented reality to measure the size of your feet and match you with the perfect-fitting shoes. Our system enables you to virtually try on shoes, ensuring not only the right fit but also the comfort you desire. By visualizing pressure points on your feet, our technology offers a unique way to assess the comfort and suitability of the shoes you're interested in. traditional online shoe shopping often leads to dissatisfaction and the hassle of returns due to sizing issues. With our AR-based system, you can say goodbye to guesswork and uncertainty. It's a game-changer for the online shoe shopping experience, making it as close to in-store try-ons as possible. Whether you're looking for running shoes, stylish sneakers, or elegant heels, our system adapts to your specific needs. We aim to redefine the way you shop for shoes online, providing a more accurate and personalized experience that puts the perfect pair of shoes at your fingertips. No longer will you have to worry about ordering shoes that don't fit. Our technology revolutionizes the way you discover and purchase footwear, offering you the confidence and convenience you deserve. Say farewell to shoe-shopping guesswork and hello to a future where your perfect pair is just a few augmented reality steps away.

KEYWORDS: Customization; scalability; E-commerce; shoes; try-ons; virtualization; 3d modelling; feet measurement.

I. INTRODUCTION

We will develop a Virtual Shoe Fitting System that uses Augmented Reality (AR) to transform the way people shop for shoes online. With the help of AR technology, customers can accurately measure their feet and virtually try on different shoe styles from the comfort on their homes. This innovative system aims to provide a seamless and interactive shoe shopping experience, ensuring customers find the perfect fit and style without physically trying on the shoes.
In traditional way of online shoe shopping, we address some common challenge like sizing issue, fit comfort, material quality, for that we introduce an innovative solution that uses the power of augmented reality to measure the size of your feet and give the perfect-fitting shoes by visualizing pressure points on your feet.

II. LITERATURE SURVEY

- Virtual Shoe Fitting System that Uses Augmented Reality to Measure Feet and Try on Shoes.

Research paper or project that utilizes augmented reality technology to measure the size of a person's foot and recommend a shoe that would be the best fit for their foot. This is achieved through visualization, Likely by overlaying digital information or imagery onto the user's real-world view through augmented reality. It might also say how well the system works in finding the right shoe size for people.[1]

- Virtual Mirror: Real-Time Tracking of Shoes in Augmented Reality Environments

This paper presents a unique system where a single camera takes a person's image and displays it on a large screen, effectively replacing the need for a traditional mirror. It offers a fresh and innovative approach to personal reflection and image capture. [2]

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- 3-D Tracking of Shoes for Virtual Mirror Applications

This paper introduces a system that allows people to virtually try on customized shoes through visualization. In other words, it provides a way for individuals to see how personalized shoes would look on their feet without physically wearing them.[3]

- An Individual Customization System for Shoe Prod- ucts Based on the Network

In this paper, the system not only offers expert guidance and recommendations but also allows for creating customized shoes over the internet. In simple terms, it helps you design and order personalized shoes while getting professional advice along the way. [4]

- Real-time Augmented Reality shopping platform for studying consumer cognitive experiences

This paper presents a demo platform application developed for a real-time shopping experience for shoes and attempts to de- fine a ground base for posterior marketing research in the field. [5]

- Street-To-Shop Shoe Retrieval with Multi-scale View- point Invariant Triplet Network

In this research paper, the main objective is to identify the same shoes in online shops when given photos of those shoes in everyday street settings. This task is tricky because street photos and online shop images can look quite different. To address this challenge, the researchers developed a special network that creates a unique shoe representation, making them recognizable across different scenarios. [6]

- Shoes Recommendation System Based on Clustering of 3D Shoes Data

Online shopping often faces issues like customers returning products because they don't fit properly. This is a big problem, especially with shoes, where comfort matters a lot. To solve this, they are trying to create a system that recommends the right-sized shoes by using 3D data of your feet and the shoes.[7]

- Enhancing the Sneakers Shopping Experience through Virtual Fitting Using Augmented Reality

This paper focused on creating a smartphone application. This application utilizes augmented reality technology to improve the experience of shopping for shoes online. Users can use this app to virtually try on shoes, and the augmented reality feature enables them to see how the shoes would look on their feet in real- time, without physically wearing the shoes.[8]

- AR Shoe: Real-Time Augmented Reality Shoe Try- on System on Smartphones

This paper focuses on enhancing the user experience when shopping for sneakers online by incorporating augmented reality (AR) technology. AR is used to create a virtual reality environment for the user, allowing them to interact with and experience sneakers in a more immersive and creative way. The goal is to provide users with a unique and engaging shopping experience that helps them make more informed and enjoyable decisions when purchasing sneakers online.[9]

III. AIM & OBJECTIVES

- To develop a technology that combines" Augmented Reality" with shoe fitting.
- To create a virtual environment where customers can measure their feet and try-on shoes from the comfort of their own home.
- To include real time foot measurement and 3D modelling capabilities.
- To improve overall online shopping experience for footwear.
- To increase customers satisfaction and reduce returns due to the sizing issue.
- To enhance accuracy of foot measurement to ensure the right shoe size and fit.

APPLICATION:

- Retail and E-commerce:

This technology can be integrated into online shoe stores, allowing customers to virtually try on shoes before making a purchase. It can significantly improve the online shopping experience for footwear.

- Footwear Brands and Manufacturers:

Shoe companies can use this system to showcase their product lines, offering customers a more engaging and interactive way to explore their collections.

- Malls and Department Stores:

Physical retail locations can implement this system to attract customers, provide a unique in-store experience, and reduce the need for maintaining large inventories.

- Mobile Apps:

Developers can create mobile apps that use this technology, making it accessible to a wider audience and potentially

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partnering with various shoe brands.

- Custom Shoe Design:

This system can help customers design custom-fit shoes by measuring their feet accurately and visualizing the design in real-time.

IV. SYSTEM ARCHITECTURE

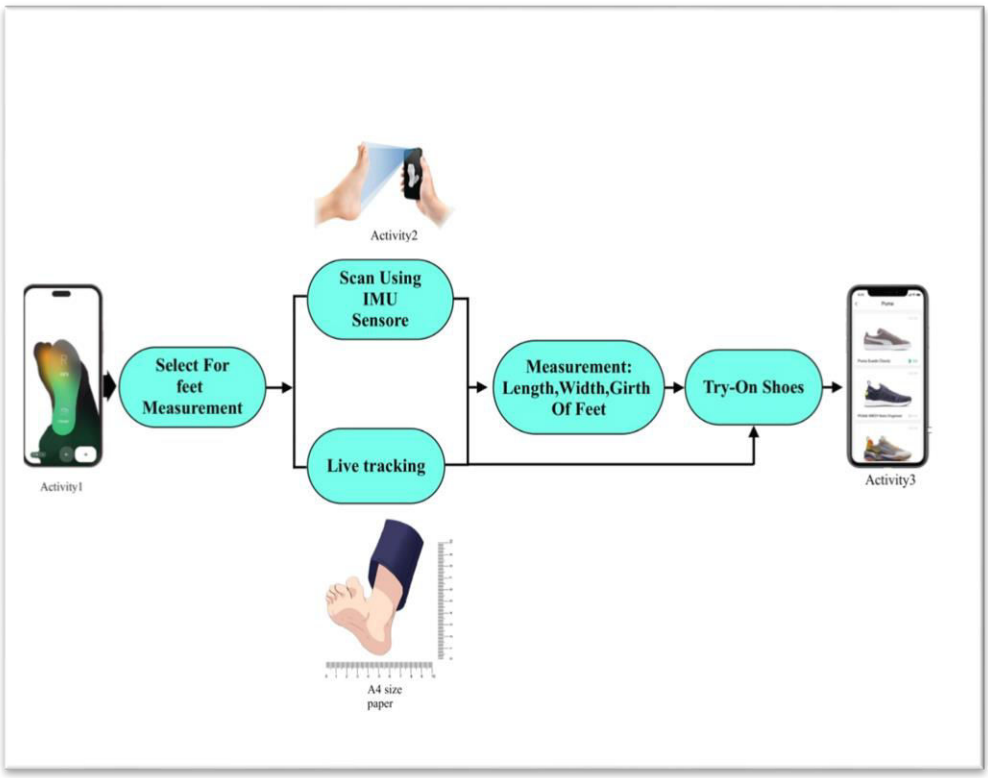

Fig -1: System Architecture Diagram

ADVANTAGES

- Accurate Foot Measurement.

AR technology can provide precise measurements of a customer's feet, including length, width, and arch shape. This ensures that customers can find shoes that fit them perfectly, reducing the likelihood of returns due to sizing issues

- Market Expansion.

Virtual shoe fitting systems can make the shoe shopping experience more interactive and enjoyable. Customers can try on a wide range of shoes virtually, without the need to physically try on multiple pairs, saving time and efforts

- Reduce Return

By accurately measuring feet and allowing customers to vir- tually try on shoes, the system can significantly reduce the number of returns and exchanges, saving both customers and retailers time and money.

- User friendly Interface

Customers can use the system from the comfort of their own homes or in-store, reducing the need for physical visits to brick-and-mortar stores. This convenience is particularly ap- pealing for online shoppers

- Virtual Try-On Experience.

With the help of virtual environment user can easily try on the shoes virtually and will check the fit and comfort of the shoes to their feet by the RGB fit.

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V. FUNCTIONAL & NON-FUNCTIONAL REQUIREMENTS

Functional Requirements:

1. User Registration and Profile Management:
- Users can create accounts with their personal information.
- Users can manage their profiles, including saving shoe size preferences.

2. Foot Measurement:
- The system must accurately measure the user's feet using AR technology.
- It should provide measurements for foot length, width, and other relevant dimensions.

3. Shoe Catalog:
- • Display a catalog of available shoes with 3D models and detailed descriptions.
- • Categorize shoes by type, brand, and size.

4. Virtual Try-On:
- Users can select shoes from the catalog and virtually try them on in real-time using AR.
- Users can view how the shoes look on their feet from different angles.

Nonfunctional Requirements:

1. Performance Requirements:
- The system should provide responsive and real-time AR rendering for smooth shoe try-on experiences.
- It should handle a large number of concurrent users without significant performance degradation.

2. Safety Requirements:
- User data and foot measurements should be kept private and handled in compliance with privacy regulations.

3. Security Requirements:
- User data must be securely stored and transmitted, following best practices for data protection.
- Payment transactions should be secure and compliant with relevant regulations.

4. Availability:
- Achieving this involves redundancy, fault tolerance, and robust infrastructure design to minimize disruptions and ensure users can access the system whenever they need to.

SYSTEM REQUIREMENTS:

Software Used:

- Windows 7 or above • Flutter • Python • Flask
- Dart

Hardware Used:

- AMD/Intel i5 Processor or above Processor
- 4GB RAM for application development
- 150 GB or above Hard Disk

VI. CONCLUSION

The overall conclusion is that there is an opportunity to create a single platform that combines the best features of existing shoe shopping apps. This platform would allow users to try on shoes virtually, track their shoes in real time, and customize their own shoes. This would provide users with a more immersive and personalized shoe shopping experience. There is a market for a comprehensive shoe shopping app that combines the best features of existing apps. This app would provide users with a more immersive and personalized experience, which could lead to increased sales for shoe retailers.

REFERENCES

[1] Hiro Bizen, Minori Yoshida, Makoto Jimbu, Yasuo Kawai. "Virtual Shoe Fitting System that Uses Augmented Reality to Measure Feet and Try on Shoes".

[2] Peter Eisert, Jurgen Rurainsky, Philipp Fechteler. "Virtual Mirror: Real-Time Tracking Of Shoes In Augmented Reality Environments".

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[3] Eisert, P.Fechteler, J.Rurainsky. "3-D Tracking of Shoes for Virtual Mirror Applications".
[4] Kai Shi, Dajuan Fan. "An Individual Customization System for Shoe Products Based On The Network".
[5] Junya Matsuki, Yoshitsugu Manabe, Noriko Yata, Kenji Nomura, Hirohito. "Shoes Recommendation System Based on Clustering of 3D Shoes Data".
[6] Huijing Zhan, Boxin Shi, Alex C. Kot. "Street-To-Shop Shoe Retrieval With Multiscale Viewpoint Invariant Triplet Network".
[7] unya Matsuki, Yoshitsugu Manabe, Noriko Yata, Kenji Nomura, Hirohito. "Shoes Recommendation System Based on Clustering of 3D Shoes Data".
[8] Ha-Lim Rhee, Kyu-Hye Lee. "Enhancing the Sneakers Shopping Experience through Virtual Fitting Using Augmented Reality".
[9] Shan An, Guangfu Che, Jinghao Guo, Haogang Zhu. "ARShoe: Real-Time Augmented Reality Shoe Try-on System on Smartphones".

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