

AR Shoes Try-on

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Abstract - AR shoes utilize real-time object recognition, 3D modeling, along with motion detection to create immersive virtual try-on experiences. Using platforms like Lens Studio, they adapt seamlessly to users' leg movements, boosting online shopping and improving customer engagement. high-quality 3D visualization, and low-latency displaying across various AR devices. Beyond retail, AR shoes have applications in gaming, artistic expression, and social media, fostering collaboration between brands, designers, and AR platforms. This study explores the transformative potential of AR in fashion, offering a creative and innovative approach to digital footwear.

Key Words: AR, 3D Model, Shoes, Virtual try-on, lens studio, Digital Fashion, Retail innovation

1. INTRODUCTION

“Augmented Reality (AR) technology has emerged as a groundbreaking tool in various industries, innovating the consumer interaction with products and services. In the fashion and footwear field, AR has introduced a transformative strategy known as "AR try-on," allowing users to visualize and digitally try shoes using their mobile devices or AR glasses. This innovative technology overlays digital footwear onto the user's feet in real time, offering an engaging and dynamic experience that eliminates the need for physical try-ons.

The AR shoe try-on experience leverages advanced technologies such as real-time object recognition, 3D modeling, and movement tracking. By using smartphone cameras or other AR-enabled devices,

users can seamlessly "try on" different styles, colors, and designs of shoes, adjusting them dynamically to fit their feet and leg movements. This provides an efficient and engaging way for consumers to explore footwear options without being constrained by location or the need for physical samples. Shoe try-on applications are revolutionizing the online shopping experience by leveraging augmented reality (AR) and artificial intelligence (AI) technologies. These apps let customer to virtually try on shoes, providing a realistic visual overlay of the footwear on their foot in real-time via their mobile cameras. This innovative feature helps customers better assess how a particular shoe style looks and fits without needing to visit a physical store. In addition, some apps offer personalized size recommending according to foot measurement and the history of their purchases, further enhancing the shopping experience and reducing the likelihood of returns. By integrating with e-commerce platforms, these apps streamline the buying process, making it easier for customers to explore, try on, and purchase shoes all within a single platform. The rise of AR shoes try-on holds significant promise for revolutionizing online shopping and retail. It doesn't only enhance users engagement even so reduces likelihood of returns by offering users a clearer idea of how shoes will look also fit. With digital solutions continues to evolve, AR try-on is poised to become a cornerstone in the digital shopping experience, offers both user and companies new opportunities for interactive and personalization.

1.1 Literature Survey

In Analyzing augmented reality(AR) and virtual reality (VR) recent progress in educational paper in 2023, This methodology involved a systematic analysis of AR-VR

applications in educational purpose over the past 12 years. It sourced a total of 1,536 research paper retrieved from Scopus on specific inclusion criteria, focuses topics like, keywords, and abstracts. Using WordStat for text mining.[1]

Research and Applications Overview, The focus was on the various applications of AR in tourism, including way finding and navigation. This research further underlined the necessity for specific device compatibility and stable connectivity, system responsiveness and also the challenges associated with maintaining this updates with respect to context of AR in tourism.[2]

In Augmented reality in architecture and construction education: state of the field and opportunities paper in 2022, The methodology of this study involved a comprehensive review and critical analysis o existing literature on the use of augmented reality (AR) in architecture and construction (AC education).[3]

P Janardhana Reddy, Augmented Reality is an effective tool for this emerging studying paradigm, making the learned in active role of self-directed studying, providing flexibility and interaction in teaching and learns process. We need to interactive studying methods and this changing role of education is inevitable with introduction of Augmented Reality in education sector.[4]

Milgram, P., Milgram, P., Colquhoun, H., & Colquhoun, H. (1999). A Taxonomy of Real and Virtual World Display Integration. Mixed Reality-Merging Real and Virtual Worlds, 5- 30..[5]

Mykhaylo Andriluka, Leonid Pishchulin, Peter Gehler, and Bernt Schiele. 2014. 2D Human Pose Estimation: New Benchmark and State of the Art Analysis. Published the IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 3686- Segmentation. In Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV). 9156-9165. [6]

In Augmented Reality Research and Applications in Education paper in 2022, The methodology of this study involved a comprehensive compilation and analysis of existing literature on Augmented Reality (AR) technologies and their applications in education. First,

Applicable sources were identified, focusing on peer-reviewed articles, case studies, and practical examples that illustrate the use of AR in various educational contexts.[7]

METHODOLOGY

This states a proper approach to developing an Augmented Reality (AR) shoe try-on application, emphasizing user engagement, technical implementation, and evaluation.

1. Study and Examination :

Market Analysis: Conduct a comprehensive evaluation of current footwear market, focusing on consumer preferences, existing AR solutions, and industry trends.

User Research: Perform questionnaires and interviews were conduct to gain insights on user expectations, pain points, and desired features for virtual shoe try-on experiences.

2. Design and Prototyping :

User Persona Creation: Develop user personas based on research data to represent various target demographics.

Customers Mapping Flow: Create customers journey maps to identify key touchpoints, challenges, and opportunities in the shopping experience.

3. Technical Development :

Platform Selection: Choose an appropriate AR development platform (like lensStudio and sketchHub) based on project requirements and device compatibility.

3D Model Creation: Collaborate with designers to make right 3D models of shoes, ensuring they are optimized for AR rendering and compatible with the chosen platform.

4. Implementation of AR Features :

Real-Time Rendering: Implement the AR functionality to overlay 3D shoe models on the user's feet, ensuring accurate alignment and real-time tracking of foot movements.

User Interaction Development: Create features that allow users to interact with the AR experience, such as rotating the shoe view, taking screenshots.

5. Testing and Validation :

Functional Testing: Conduct unit tests on individual components, such as the 3D model rendering and foot tracking functionality.

User Acceptance Testing (UAT): Engage a group of target users to test the application, gathering feedback on usability, accuracy, and overall satisfaction.

6. Deployment and Marketing :

Integrating with E-Commerce Platforms: Ensure the AR application is easily integrated with available e-commerce systems, enabling users to easily transition from the AR experience to purchasing.

Marketing Strategy Development: Create a marketing plan to promote the AR shoe try-on feature, leverages social media, influencer partnerships, and targets advertising to reach potential customers.

7. Post-Launch Evaluation :

Customer Analytic Monitoring: Implement analytic tool to track customers engagement and interaction within the app, emphasizing key performance indicators like interaction and conversion rates.

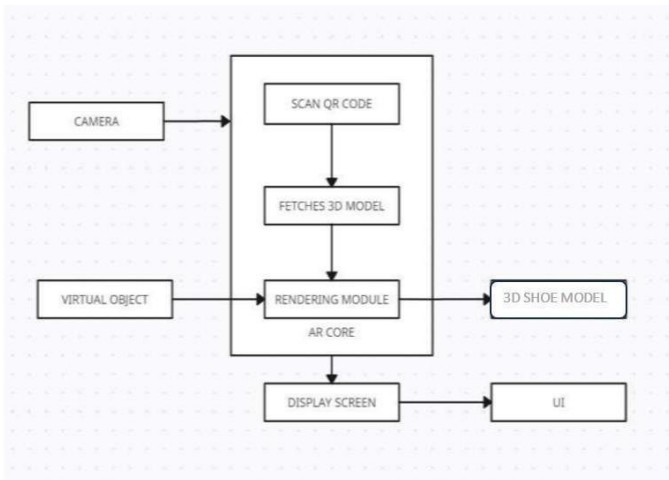


Fig: Architecture of AR Shoes Try-on

2 Flow chart for System

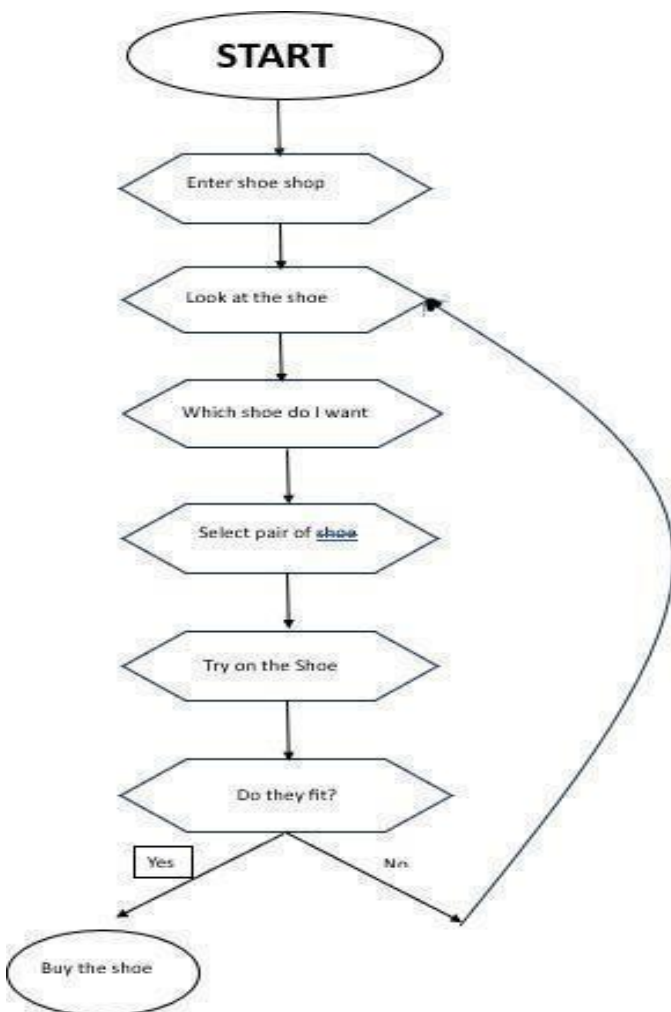


Fig.System Flow Chart

3. Related Work

Several innovative projects have explored the integration of augmented reality (AR) technology into Shoe try on. These initiatives typically aims to enhance the digital shopping experience for shoe items by allowing users to visualize the visual appearance of products within their foots in virtual spaces. By overlaying virtual images onto real environments through smartphone/tablet screens, AR makes users try virtually "try out" different pieces of furniture, experience with various models prior making purchasing decisions. Such applications not only streamline the shopping process but also contribute to reducing the likelihood of post-purchase dissatisfaction. Additionally, AR-based shoe try-on solutions have the potential to revolutionize traditional methods.

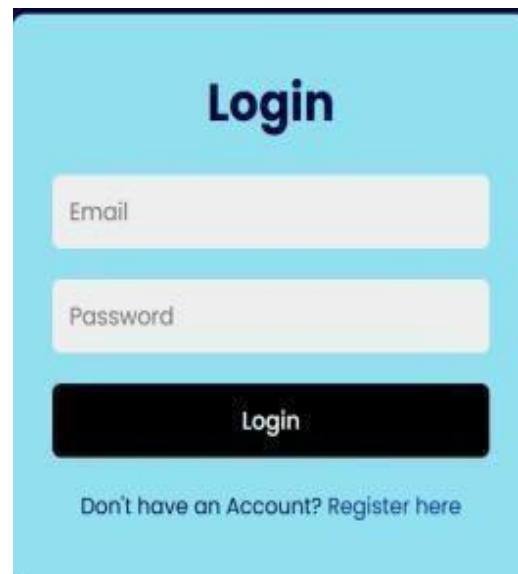


Fig.Login Page

Login page is your gateway to a virtual showroom i.e Solemate using AR where you can explore endless design possibilities. Whether you're seeking inspiration or ready to redesign, our AR technology lets you visualize shoes in your space before making any decisions. Sign in to unlock and try various attractive shoes. Dive in and let your imagination soar with our innovative AR shoe try-on platform.

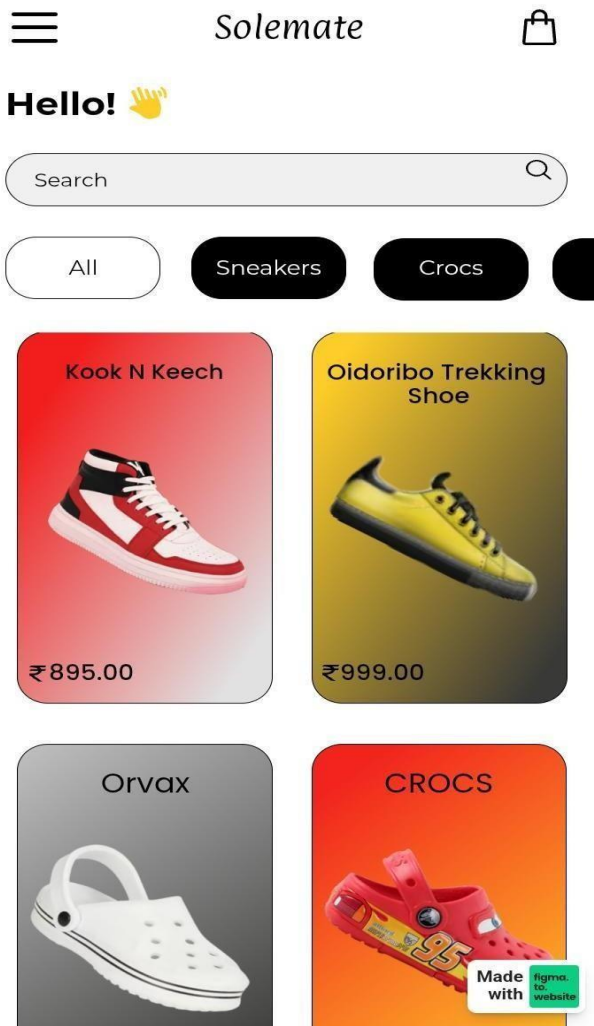


Fig. Product Page

Step into a world where style meets technology with our innovative AR-powered shoe try-on experience. Explore our curated collection of trendy footwear from the comfort of your home. Simply download our app, and with a quick scan of your feet, visualize how each pair looks in real time. From sleek sneakers to elegant heels, our AR technology allows you to try on shoes with stunning accuracy, ensuring the perfect fit and style before you buy..



Fig. AR View

Augmented Reality (AR) is revolutionizing the way we shop for shoes. With AR view technology, customers can visualize how shoe will visual onto the users own foot before buying it. By simply using a smartphone/tablet, users can superimpose virtual shoe onto their real-world environment, allows them to see how different models will fit and complement their space. This captivating experience doesn't only enhances the shopping process but also minimizes risk of buying items that don't quite match intended aesthetic. AR view for shoe try-on act as a bridge that closes the gap within virtual shopping and the traditional in-store experiences, empowering customers to make confident and informed decisions from comfort of their own homes.

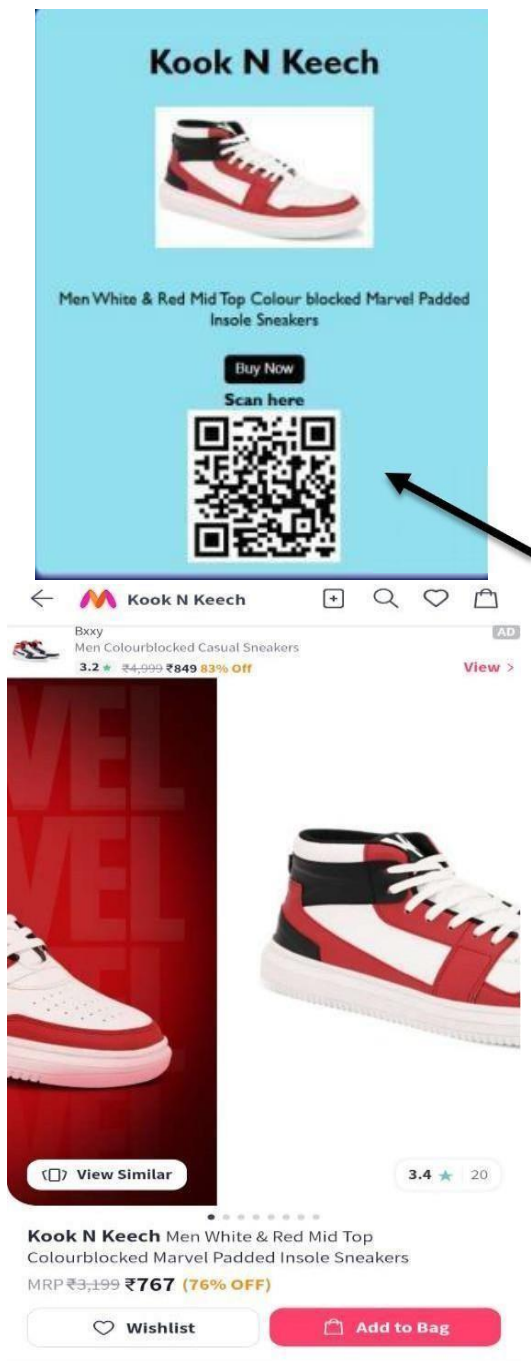


Fig. Redirection to website Page

Experience the future of footwear shopping with our cutting-edge augmented reality (AR) try-on experience. Explore our curated collection of shoes from the comfort of your home and see how they look on your feet in real-time using AR technology. With our seamless payment process integrated directly into the AR experience, user can seamlessly purchase your favorite pairs with just a few clicks. Say goodbye to uncertainty and hihihi for a more immersive and convenient way to purchase the shoes. Step into the future of footwear shopping today

4. USES OF AUGMENTED REALITY

Augmented Reality (AR) has a wide range of applications across various industries, enhancing customer experiences by overlaying virtual information onto the physical world. Here are some common uses of augmented reality:

1. **Gaming:** One of the most well-known uses of AR in gaming, where players can easily interact with digital objects and characters overlaid onto their real-world environment. Games as Pokémon GO and Harry Potter: Wizards Unite utilize AR to immerse players in augmented realities.
2. **Education:** AR enhances learning experiences by providing interactive and immersive content. Students can use AR applications to visualize complex concepts, such as anatomy models, historical events, or astronomical phenomena, in a more engaging manner.
3. **Retail:** AR is transforming the retail industry by allowing customers to visualize products in their own space before making a purchase. Retailers can offer AR apps that enable customers to try-on digital clothing, preview furniture placement at homes, or see how cosmetics look on users faces.
4. **Navigation:** AR navigation applications overlay directions and points of interest onto the real world, helping users navigate unfamiliar environments more easily. All these apps can provide real-time navigation cues, tourist information, and points of interest as users move through their surroundings.
5. **Industrial Training:** AR is used for training purposes in industries such as manufacturing, maintenance, and repair. Workers can receive step-by-step instructions overlaid onto equipment they are working on, improving efficiency and reducing errors.

5. CONCLUSION AND FUTURE SCOPE

The development of the Augmented Reality (AR) shoe try-on application is transforming the retail industry, particularly in footwear sector, by allowing customers to visualize various styles, colors, and designs on themselves on their foot from home. This innovation increases the interactive shopping experience, reducing uncertainty, increasing customer satisfaction, and lowering return rates. With features like real-time tracking, 3D rendering, and user customization, the app evolves with changing consumer preferences, encouraging widespread adoption as AR becomes more familiar through social media and gaming. Future advancements, including AI-driven personalization for real-time size recommendations and style suggestions

REFERENCES

- [1] A comparative study of a Virtual footwear Try-on Applications in Virtual and Augmented Reality
- [2] Broschart, D., & Zeile, P. (2014). reviewed paper ARchitecture – Augmented Reality Techniques and Use Cases in Architecture and Urban Planning Daniel Broschart, Peter Zeile, 8(May), 75–82
- [3] Cerqueira, C. S., & Kirner, C. (2011). Developing Educational Applications with a NonProgramming Augmented Reality Authoring Tool, (June), 2816–2825.
- [4] Martin, S., Diaz, G., Sancristobal, E., Gil, R., Castro, M., & Peire, J. (2011). Computers & Education New technology trends in education
- [5] Mykhaylo Andriluka, Leonid Pishchulin, Peter Gehler, and Bernt Schiele. 2014. 2D Human Pose Estimation: New Benchmark and State of the Art Analysis. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 3686– Segmentation. In Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV).