

Home Decor using AR

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Abstract - This abstract introduces the exploration of augmented reality (AR) in the context of home decor. Augmented reality offers an innovative solution to visualize and personalize interior design concepts within the home environment. This paper examines the integration of AR technology into home decor applications, enabling users to virtually preview furniture, decor items, and spatial arrangements before making purchase decisions. Through a comprehensive analysis of current AR applications and their impact on user experience, this research aims to highlight the benefits and challenges of implementing AR in home decor. Furthermore, it explores the potential future developments and implications of AR technology in shaping the way we design and decorate our living spaces.

Key Words: AR, 3D Model, Interior Designs, Home-Decor, Unity and Scene form Framework, Android Studio.

1. INTRODUCTION

Home Decor using AR explores the integration of Augmented Reality (AR) in home decor, highlighting its transformative impact on design, visualization, and experience. AR creates a seamless transition between the real and virtual worlds, offering a captivating design encounter. It enables users to visualize furniture placement, interactive design visualization, and enhanced shopping experiences. AR also facilitates collaborative design, allowing multiple users to interact simultaneously. It also has implications for businesses, enhancing online shopping experiences and driving market trends. The convergence of home decor and AR marks a paradigm shift in how we engage with and shape our living spaces. The paper explores the applications, benefits, and potential challenges of AR adoption in the home decor sector, providing a deeper understanding of how augmented reality is reshaping domestic environments. As technology continues to evolve, AR promises to revolutionize the way people engage with their living spaces, offering a seamless blend of creativity, functionality, and practicality in the pursuit of creating homes that truly reflect personal style and preferences. Augmented Reality (AR) is revolutionizing the way we approach home decor. Imagine being able to visualize how a new sofa would look in your living room or experiment with different paint colors without lifting a paintbrush. With AR, homeowners can do just that and more. By simply using a smartphone or tablet, AR apps overlay virtual furniture, decor items, and paint

colors onto the real-world environment, allowing users to preview and customize their home designs in real-time. This immersive technology not only streamlines the decision-making process but also empowers homeowners to unleash their creativity and transform their living spaces with confidence. Welcome to the future of home decor, where the possibilities are as limitless as your imagination.

1.1 Literature Survey

Jaydeep Bhoite, Onkar Wasadikar, Vineeta Prithi D'souza, Dr. R. C. Jaiswa A user-friendly mobile application uses marker-less augmented reality to simplify home renovation, providing customers with a clear visual representation of their home's aesthetics after choosing wall frames, floor tiles, and furniture. [1].

Harsh Kasana, Tushar Singh Rathore, Kanishk Arora, Vibha Nehra, Aditya Sharma. This paper explores the use of augmented reality in home décor systems, allowing users to preview life-sized products using their smartphones native camera. It highlights the benefits of augmented reality in businesses, increasing customer purchases and providing a natural user experience. The paper analyzes research on augmented reality, interior design, marker-less AR, marker-based AR, and 3D Mode. [2].

Nimesh More, Namrata Chavan, Humera Shaikh, This paper discusses a system using AR technology for home decoration, enabling real-time tracking without identification markers. It proposes a method to add virtual objects to the real environment using a camera, addressing the issue of manual manipulation and limited 3D interfaces. The system automatically calculates the most suitable viewpoint, improving understanding of room layout and allowing user transitions. [3]

Nikitha GS, Amrutha MC, Gagana GT, Sathveeka S AR technology has revolutionized interior design by allowing designers and clients to visualize and experiment with design elements in real-time. It reduces the need for in-person meetings and site visits, allowing for remote collaboration. AR also reduces time and cost associated with traditional design processes. It overlays digital information and objects onto the real world, creating an immersive and interactive experience. AR is expected to become more prevalent and continue to transform interior design and create spaces [4].

[5]Rohan Moares , Vaishnavi Jadhav , Rushikesh Bagulc , RejiJacob , Shagufta Rajguru , Rakhi K . This paper focuses on the implementation of the mobile application that gives a virtual view of a reel furniture object in the real world by using Augmented Reality Technology. Augmented Reality (AR) is a technology that overlays the virtual objects in the environment of the real world. AR render’s the real-world information and present it in an interactive way so that virtual elements become part of the real world. This application will help the user to have a look and feel of the furniture object in the current environment before purchasing it from the store.

2.METHODOLOGY

AR in home decor integrates technology with interior design, assessing user needs, creating digital representations, and overlaying virtual decor elements in real-time. Iterative design processes, using advanced rendering techniques like lighting simulations and AI algorithms, refine design choices based on real-time observations. AR platforms facilitate seamless communication and data sharing, allowing designers to present and modify designs in real-time, enhancing decision-making and streamlining collaboration for interior design professionals.

Step 1 A platform is created to integrate entities and achieve presentation objectives, with a user interface and script deployed to a basic object, designed using Unity and Scene form framework.

Step 2: The script will comprise all divergent functionalities to provide the user with varieties of viewpoints to test with.

Step 3: To make things simple for the new user, they are provided with a few presents which will give the abstraction and flow of the Application.

Step 4: Algorithms for plane detection and 3d object recognition are implemented to mark the target points.

Step 5: All the modules are integrated and developed into the engine. Egg. Scene form, Android studio.

Step 6: A simulation world is made available to the interior design developers. This will allow them to visualize the blueprint of a project in a distinct environment.

Step 7: A module is created to select the choice of the scenario. This will also include the option to switch the project course, i.e. AR. The plan and design can be saved and exported to the interior developer’s personal device.

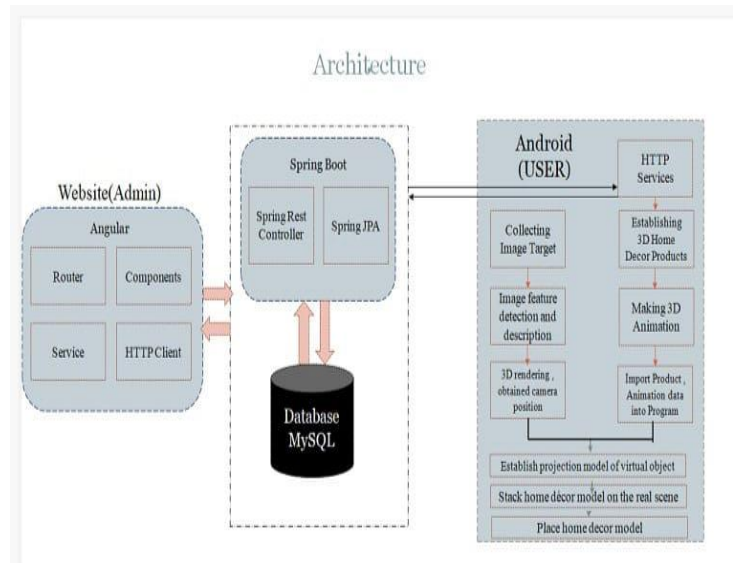


Fig: Architecture of HomeDecor using AR

2 Flow chart for System

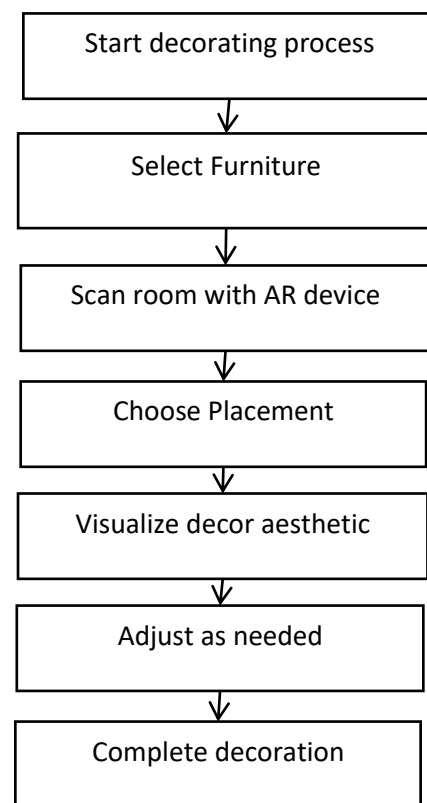


Fig. System Flow Chart

2.Related Work

Several innovative projects have explored the integration of augmented reality (AR) technology into home decor. These initiatives typically aim to enhance the online

shopping experience for furniture and decor items by allowing users to visualize how products would look and fit within their own living spaces. By overlaying virtual images onto real environments through smartphone or tablet screens, AR enables users to virtually "try out" different pieces of furniture, experiment with various color schemes, and assess spatial arrangements before 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 home decor solutions have the potential to revolutionize interior design by offering personalized recommendations and interactive design consultations, ultimately empowering users to create spaces that reflect their unique styles and preferences.

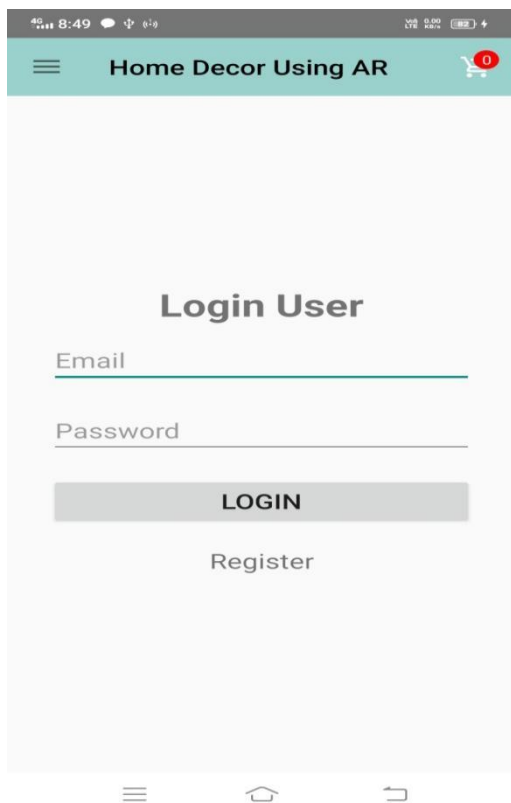


Fig. Login Page

Login page is your gateway to a virtual showroom i.e Home decor using AR where you can explore endless design possibilities. Whether you're seeking inspiration or ready to redesign, our AR technology lets you visualize furniture and decor in your space before making any decisions. Sign in to unlock a personalized journey towards creating the perfect ambiance for your home. Dive in and let your imagination soar with our innovative AR home decor platform.

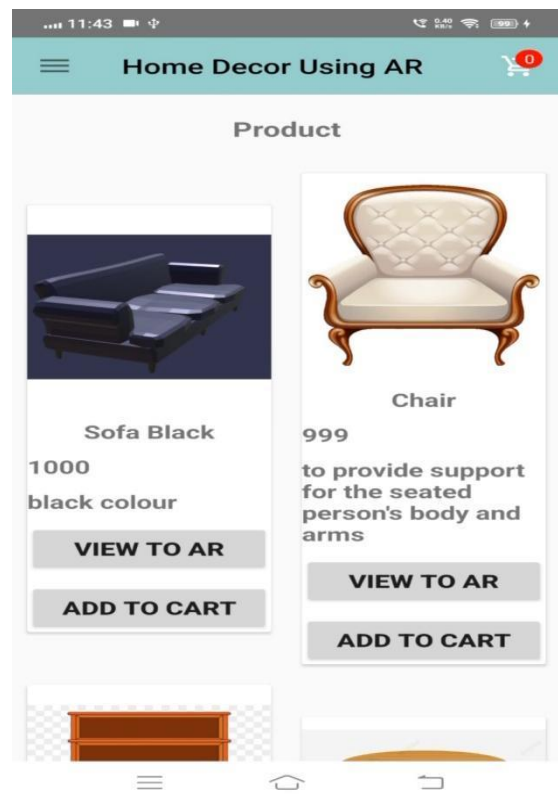


Fig. Product Page

Step into a world where your imagination meets reality with our innovative AR-powered home decor experience. Explore our curated collection of exquisite furnishings and decorative pieces from the comfort of your home. Simply download our app, and with a quick scan of your space, visualize how each item seamlessly integrates into your environment. From stylish furniture to captivating artworks, our AR technology allows you to preview each piece with stunning accuracy, ensuring every choice fits perfectly before you make it. Redefine your interior design Journey with us today.

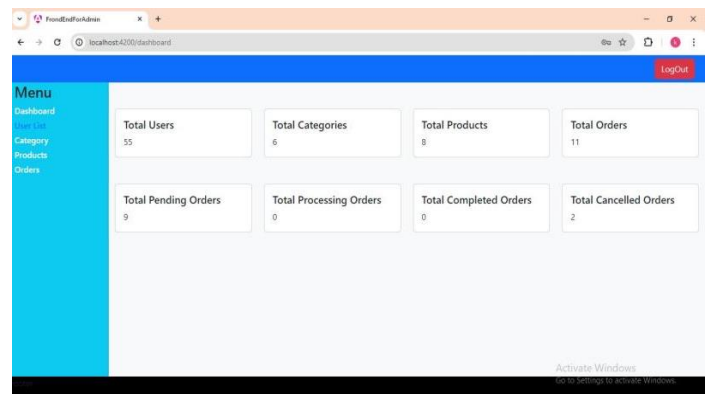


Fig. Admin Panel

Introducing our admin panel for a home decor application, revolutionizing the way users envision their living spaces. Through augmented reality (AR) technology, customers can now virtually place furniture, artworks, and decor items within their own homes before making a purchase. Our admin panel provides seamless management of this AR integration, allowing for easy uploading and updating of product models, as well as monitoring user interactions and preferences. With intuitive controls and real-time analytic, our platform empowers home decor businesses to enhance customer engagement and boost sales by offering an immersive shopping experience like never before.



Fig. AR View

Augmented Reality (AR) is revolutionizing the way we shop for home decor. With AR view technology, customers can visualize how furniture and decorations will look in their own homes before making a purchase. By simply using a smartphone or tablet, users can superimpose virtual furniture onto their real-world environment, allowing them to see how different pieces will fit and complement their space. This immersive experience not only enhances the shopping process but also minimizes the risk of buying items that don't quite match the intended aesthetic. AR view for home decor is bridging the gap between online shopping and the traditional in-store experience, empowering customers to make confident and informed decisions from the comfort of their own homes.

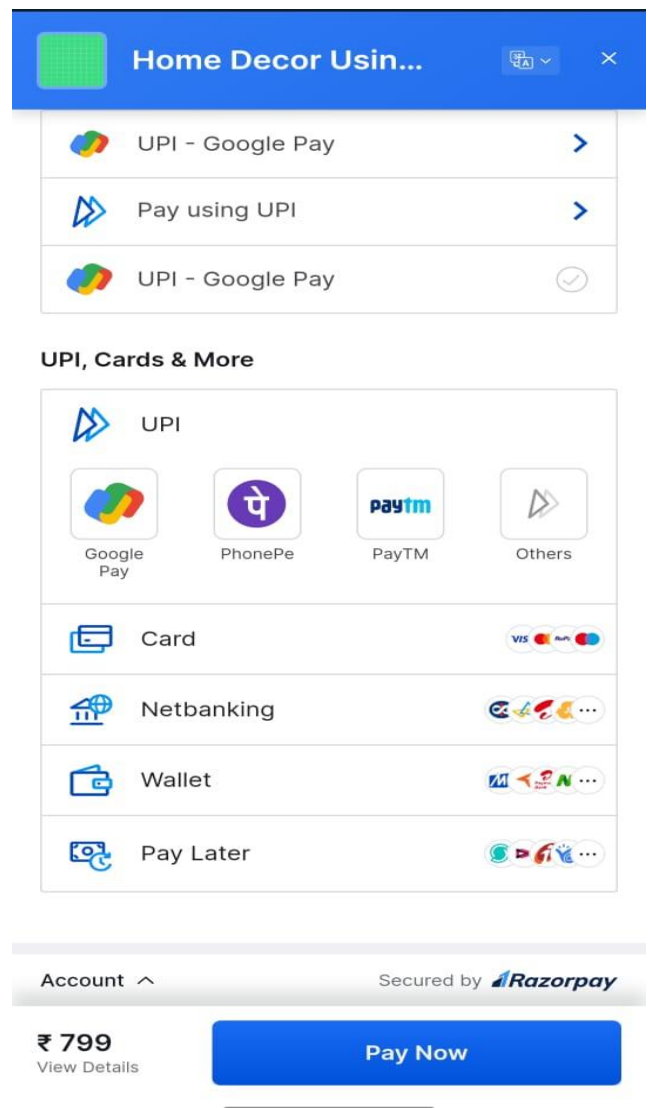


Fig. Payment Page

Experience the future of home decor shopping with our cutting-edge augmented reality (AR) payment page. Explore our curated collection of furniture and decor items from the comfort of your home, and visualize how they fit into your space in real-time using AR technology. With our seamless payment process integrated directly into the AR experience, you can easily purchase your favorite pieces with just a few clicks. Say goodbye to guesswork and hello to a more immersive and convenient way to decorate your home. Welcome to the future of interior design.

3. USES OF AUGMENTED REALITY

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

1. Gaming: One of the most well-known uses of AR is in gaming, where players can interact with virtual objects or characters overlaid onto their real-world environment. Games like 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 virtual clothing, preview furniture placement in their homes, or see how cosmetics look on their faces.

4. Navigation: AR navigation applications overlay directions and points of interest onto the real world, helping users navigate unfamiliar environments more easily. 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.

4. CONCLUSION AND FUTURE SCOPE

In conclusion, integrating augmented reality (AR) into home decor offers a transformative and engaging experience for consumers. By allowing users to visualize furniture, paint colors, and decor items in their own space before making a purchase, AR technology enhances decision-making and minimizes the risk of buyer's remorse. The future scope for AR in home decor is promising, with potential advancements in realism, customization options, and integration with smart home systems. As AR technology continues to evolve and become more accessible, it has the potential to revolutionize the way people design, decorate, and personalize their living spaces.

5. REFERENCES

- [1] Jaydeep Bhoite, OnkarWasadikar, Vineeta prithi D'souza, Dr. R. C. Jaiswa. Home Rnovation using AR [Journal of Emerging Technologies and Innovative Research (JETIR)]
- [2] Mr.Sreejith P S1, Akhil V S2, Saju T R3, Sireen Ibnu Kabeer4Home Decor Using AR [International Journal of Advanced Research in Computer Communication Engineering]
- [3] Harsh Kasana, TusharSingh Rathore, Kanishk Arora, Vibha Nehra, Aditya Sharma Home Decor App using Augmented Reality Technology[International Journal of Engineering Research and Applications]
- [4] Santosh Sharma; Yash Kaikini, Parth Bhodia, Sonali Vaidya "Markerless Augmented Reality based Interior Designing System",IEEE 5-5 Jan. 2018.
- [5] Sidra Nasir, Mohammad Noman Zahid, Talha Ahmed Khan, Kushsairy Kadir, Sheroz Khan. (28-30 Nov. 2018). Augmented Reality Application for Architects and interior designers: Interno A cost effective solution)2018 IEEE 5th International Conference on Smart Instrumentation, Measurement and Application (ICSIMA).