IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 10, May 2025
Impact Factor: 7.67

Augmented Reality Based Home Designer

Prof. W. P. Rahane, Siddhi Gathe, Komal Shinde, Kamesh Joshi
Department of Information Technology Engineering
NBN Sinhgad Technical Institutes Campus, Pune, India

Abstract: *This paper introduces "Augmented Reality Home Designer," an advanced application that leverages Augmented Reality (AR) and Virtual Reality (VR) technologies to revolutionize home design visualization and interaction. Traditional methods such as 2D blueprints, static images, and showroom visits often fail to provide an immersive and accurate representation of furniture placement and interior aesthetics. Our approach overcomes these limitations by allowing users to virtually position and visualize furniture in real-time within their own living spaces using an interactive AR interface. Unlike existing AR-based interior design applications that are often complex or require high-end devices, our solution focuses on accessibility and user-friendliness, making AR tools available to a broader audience regardless of technical expertise or device constraints.*

In addition, our platform facilitates seamless integration for furniture retailers, enabling them to showcase digital furniture models interactively. This feature enhances customer engagement by providing a realistic, lifelike experience using VR visualization with a standard camera interface. By combining AR's real-time spatial mapping with VR's immersive capabilities, the Augmented Reality Home Designer aims to redefine the way homeowners, interior designers, and furniture retailers approach space planning and décor selection. The proposed system employs Python, OpenCV, and AR SDKs to deliver an intuitive real-time visualization tool, ensuring high performance across various devices.Through extensive research, we address critical challenges in AR-based interior design, including visualization difficulties, the steep learning curve of professional design software, and limited accessibility of advanced design tools.

Keywords: Augmented Reality (AR), Home Design, Virtual Reality (VR), Furniture Visualization, Accessibility, Interactive Design, User Experience, Real-Time Rendering, Smart Interiors, Spatial Computing

Copyright to IJARSCT
www.ijarsct.co.in

ISSN 2581-9429 IJARSCT