

Design 360

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Abstract

Design 360 is an augmented reality (AR) application that revolutionizes interior design by enabling users to visualize and interact with 3D furniture models in real-world spaces. The application allows users to place, adjust, and customize furniture elements such as chairs, sofas, and tables in an immersive AR environment. By leveraging Unity and AR frameworks, Design 360 enhances user experience through real-time scaling, positioning, and selection features. The project aims to bridge the gap between traditional interior design planning and digital visualization, offering an intuitive and interactive solution for homeowners, designers, and furniture retailers. Future enhancements include improved object rendering, AI-driven design recommendations, and enhanced user interactivity to refine the virtual design experience.

Introduction

Interior design often relies on 2D floor plans and physical models, which fail to provide an accurate representation of a space. This limitation leads to misunderstandings, costly revisions, and unsatisfactory outcomes. One of the biggest challenges is helping clients visualize layouts, furniture, and decor in a three-dimensional environment before making decisions. Design 360 addresses this gap by leveraging augmented reality (AR) to create an immersive and interactive experience. Users can place,

adjust, and visualize furniture in real-world settings, ensuring better decision-making and reducing design errors. By integrating AR technology, our solution enhances creativity, improves collaboration between designers and clients, and streamlines the design process. This tool transforms interior design, making it more intuitive, efficient, and aligned with the user's vision.

Methodology -

For Design 360, your AR-based interior design project, the methodology should follow a structured approach that ensures seamless development and deployment. Here's a step-by-step methodology:

1. Research & Planning

Identify user needs and market trends in AR-based interior design.

Core features:

360° AR visualization

Furniture placement

Real-time lighting and texture adjustments

Customization options (materials, sizes)

Technology stack:

AR Development: ARCore (Android), WebAR

3D Modeling: Unity

Backend: Google lens

Frontend: HTML, CSS

2. Design & Prototyping

Develop a low-fidelity prototype with basic interaction flow.

Define 3D assets and models for furniture and interior elements.

3. Development & Implementation

AR Integration: Use AR SDKs for object detection & placement.

Implement plane detection to place furniture realistically.

4.3D Model Rendering:

Optimize models for real-time rendering.

Support texture & material customization.

User Interaction & Controls:

Drag, rotate, and resize objects in AR.

Implement gesture-based controls.

5. Deployment & Launch

Deploy on the web or mobile platforms (Android).

Optimize for performance and scalability.

Implement analytics to track user engagement.

Objectives -

- To innovate 3D interior design solutions.
- To provide a User-friendly platform.
- To Enhance collaboration.
- To Improve satisfaction.

System Architecture -

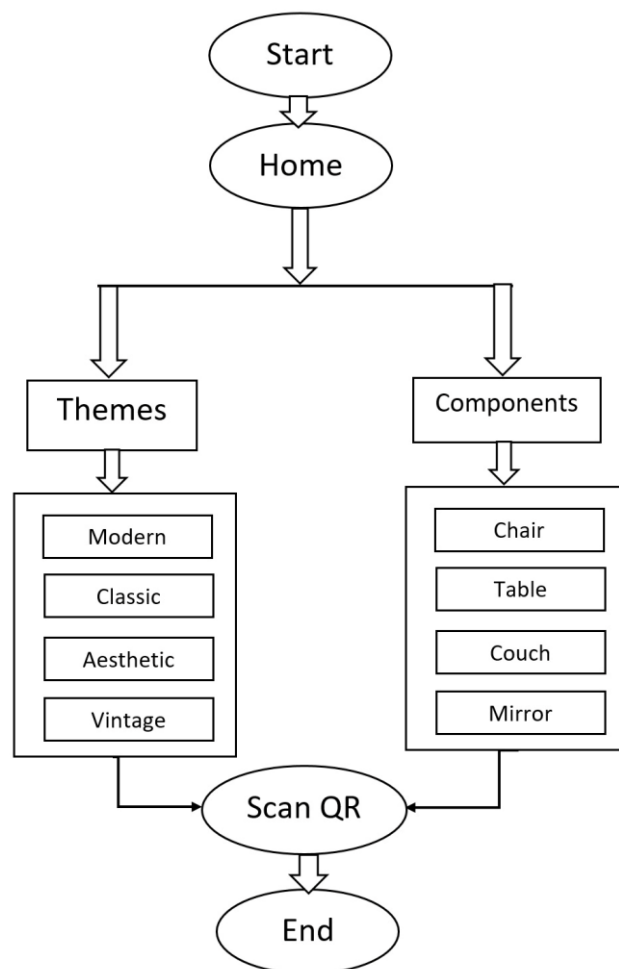
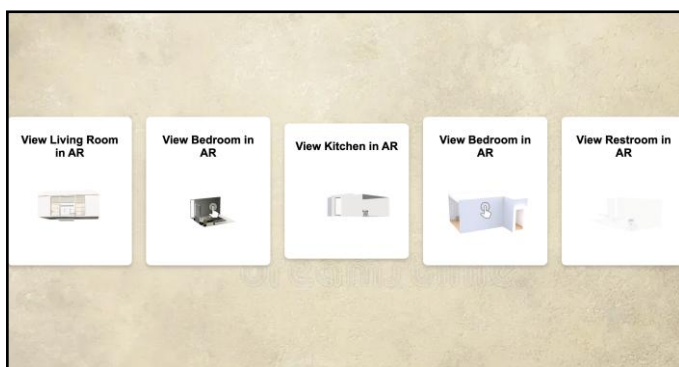
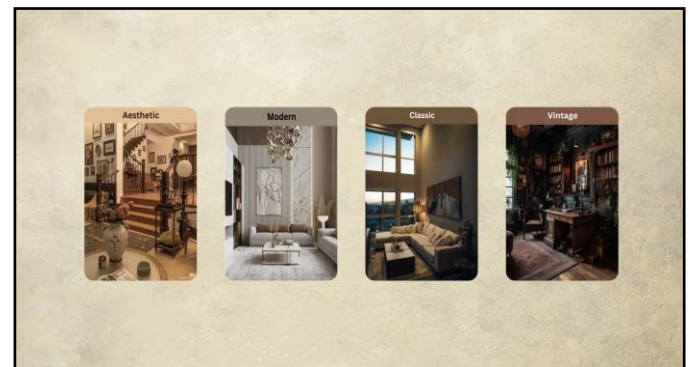
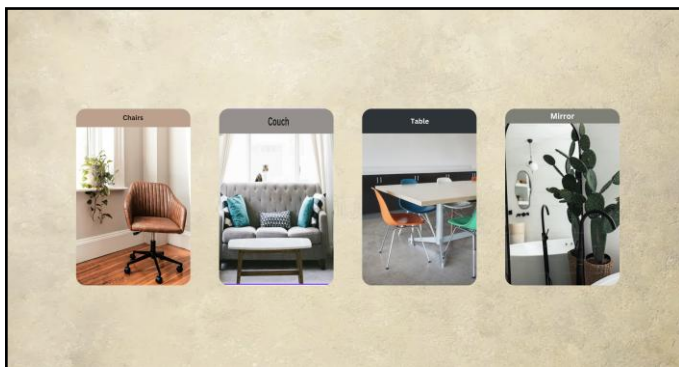
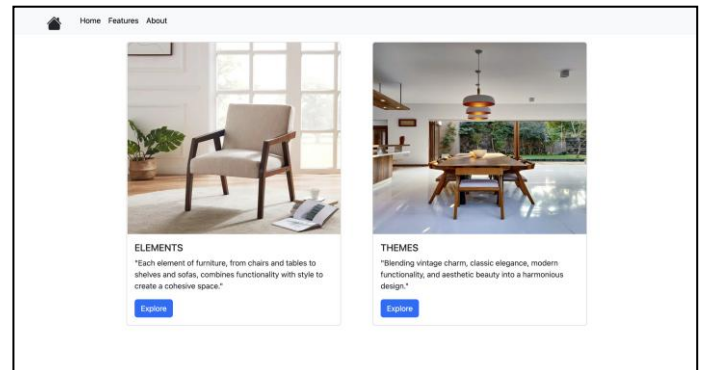
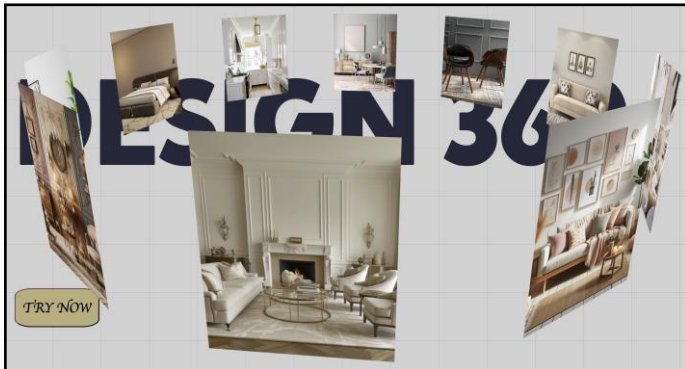


Fig. System Architecture

Results -



Conclusion -

In conclusion, our Design360 solution is all about innovating the way homeowners and designers visualize and interact with design concepts, reducing uncertainty and making decision-making easier. With our user-friendly platform, one can effortlessly experiment with different layouts, furniture, and decorations in a realistic virtual environment. This approach also enhances collaboration, improving communication between homeowners, designers, and stakeholders through immersive and interactive experiences. Ultimately, our goal is to ensure improved satisfaction by delivering a final design that perfectly meets your expectations and needs.

Future Scope:

Users will have the opportunity to virtually try on different clothing items and outfits to their body type, creating an immersive and interactive styling experience. Users will be able to directly shop for recommended clothing items from trusted brands, ensuring a convenient and enjoyable shopping journey that aligns with their personal style preferences and body shape. By creating a space for positive interactions and encouragement, Fashion Flare will further enhance users' confidence and sense of belonging within the fashion community.

References:

<https://free3d.com/3d-models/decoration>
<https://www.turbosquid.com/Search/3D-Models/free/chair>
<https://unity.com>
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