# Art Nexus: - An App Brining Art Forms on a Platforms

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## ABSTRACT

The convergence of art and technology has led to new opportunities for creative expression and global connectivity. *Art Nexus* addresses the fragmented nature of digital art spaces by creating an integrated mobile application that brings together visual, musical, literary, and performance arts onto a single platform. Developed using Android Studio with Arcore for augmented reality visualization and TensorFlow lite for *Art Nexus* offers an immersive experience for artists and art enthusiasts. The platform facilitates virtual galleries, AR projections of artworks in real environments, a secure art marketplace powered by Stripe, and community forums for collaboration. Initial evaluations demonstrate the feasibility and potential impact of *Art Nexus* in fostering a dynamic and inclusive digital art ecosystem.

**Keywords:** Art Platform, Augmented Reality, Machine Learning, Android App, Digital Marketplace, Virtual Gallery

## 1. INTRODUCTION

The traditional art world has long been confined by physical spaces, geographical barriers, and limited access to audiences. However, the advent of digital technology offers unprecedented opportunities for global exposure and interaction. Despite the availability of online galleries and market-places, most existing platforms are either discipline-specific or lack immersive features such as real-world visualization and personalized discovery.

*Art Nexus* seeks to bridge these gaps by providing an all-in-one mobile application that unites multiple art forms, enhances user engagement through AR experiences, and empowers both creators and consumers. By integrating creation, exploration, and commercialization features within a single digital ecosystem, *Art Nexus* aims to revolutionize how art is created, shared, and experienced globally.

## 2. LITERATURE SURVAY

Recent studies underscore the trans- formative impact of mobile technologies on the accessibility and commercial- lization of art. Research by Smith et al. (2021) highlights the potential fragmented reality (AR) to deepen engagement in visual arts by enabling contextual visualization. Platforms like Artsy and *Artivive* have demonstrated the viability of AR and AI in enhancing the art buying experience. However, these platforms are often limited to specific genres and lack community-driven and multi-disciplinary features.

Furthermore, the integration of machine learning for personalized content curation as explored in e-commerce applications, points toward its significant potential in art platforms. *Art Nexus* leverages these insights by offering a holistic, AI-driven, and AR-enhanced art experience that supports visual, musical, literary, and performing arts.

## 3. PROPOSED SYSTEM

### A. System Architecture Overview

The proposed system architecture of *Art Nexus* consists of multiple integrated layers:

- **Frontend Layer**: Native Android application developed with Android Studio using Java/Kotlin, offering a clean and intuitive user interface.
- **Augmented Reality Layer**: Google ARCore SDK enables users to view artworks directly projected into their real environments, enhancing realism [4].
- **Machine Learning Layer**: TensorFlow Lite powers personalized recommendations based on users' behavior, such as previous interactions, browsing time, and purchase history [5].
- **Backend Services**: Supabase handles secure authentication, cloud database management, and real-time updates across the application [13].
- **Secure Payment Gateway**: Stripe API facilitates real-time encrypted transactions, supporting multiple currencies and future NFT integrations [12].

Each module communicates seamlessly to ensure a cohesive user experience while maintaining modular scalability for future enhancements.

### B. Key Functionalities

- **Virtual Gallery**: Artists can upload high-resolution images, videos, and audio files to create virtual exhibitions.
- **Augmented Reality (AR) Studio**: Users can visualize artworks in their living spaces or public venues before making purchasing decisions.

- **Smart Marketplace**: A secure marketplace allows the buying and selling of original art pieces, with encrypted transactions powered by Stripe.
- **Community Interaction**: A forum-like space enables discussions, critiques, and artist collaborations, fostering a stronger community.
- **Learning Hub**: Offers curated tutorials, webinars, and interactive workshops across multiple disciplines.
- **Advanced Search and Filtering**: Intelligent search functionality with multi-faceted filters (by category, style, price, artist, medium, event type) allows users to find specific artworks or artists efficiently.
- **Artist Profiles and Portfolios**: Artist can build rich personal profiles showcasing them biograph, artworks, exhibitions, awards and upcoming projects, fostering discoverability and professional growth

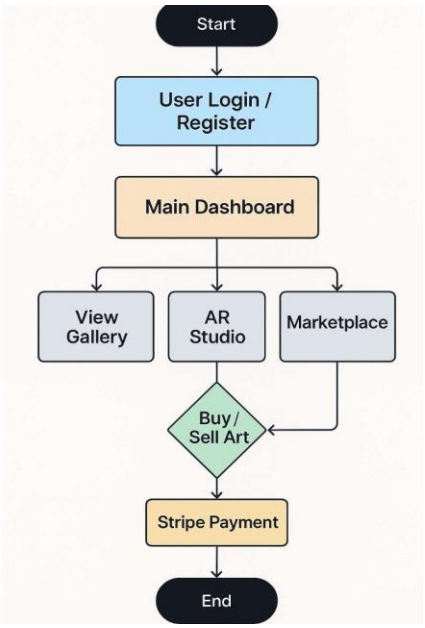


*Figure 1 :- system design flowchart*

## 4. RESULT ANAYSIS

The implementation of Art Nexus yielded promising results that validate the feasibility and effectiveness of integrating emerging technologies into a digital art platform. The prototype successfully demonstrated seamless functionality across its core modules—virtual gallery, AR studio, community forum, art marketplace, and artist profiles. Users were able to upload and view artworks in real-time, engage with community discussions, and interact with AR-based features on supported Android devices.

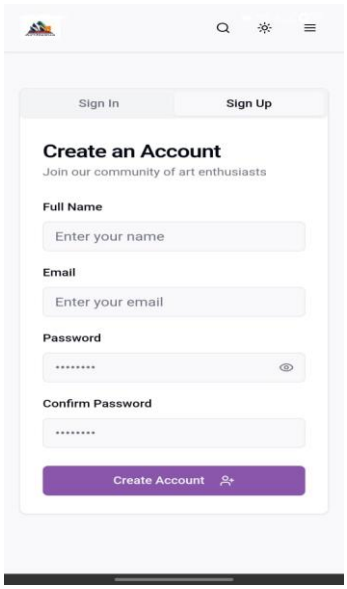


*Figure 2 – Sign up page*

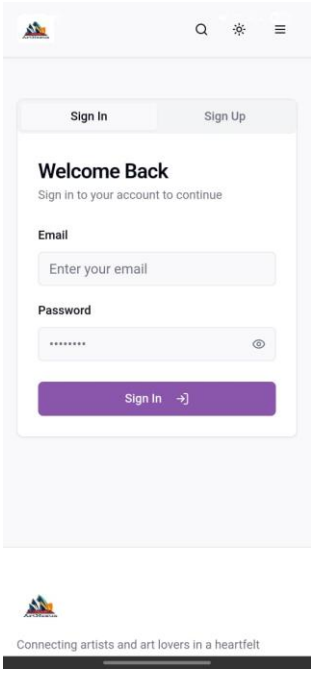


*Figure 3 – Sign in page*

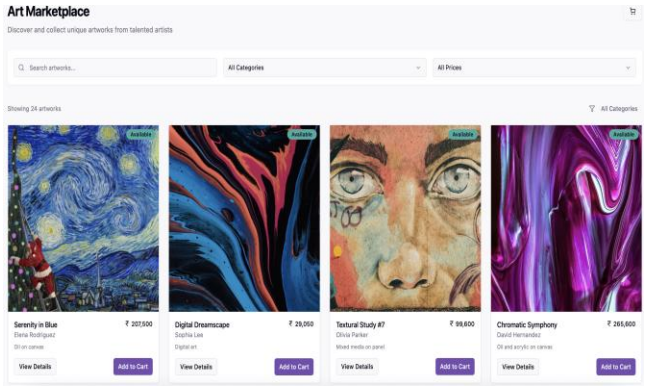


*Figure 4 :- Market Page*

User testing revealed a high degree of engagement and satisfaction, particularly with the Augmented Reality visualization, which allowed users to place digital artworks in their real environments with precision. The personalized recommendation engine, powered by TensorFlow Lite, effectively suggested relevant artworks, enhancing content discovery and user retention

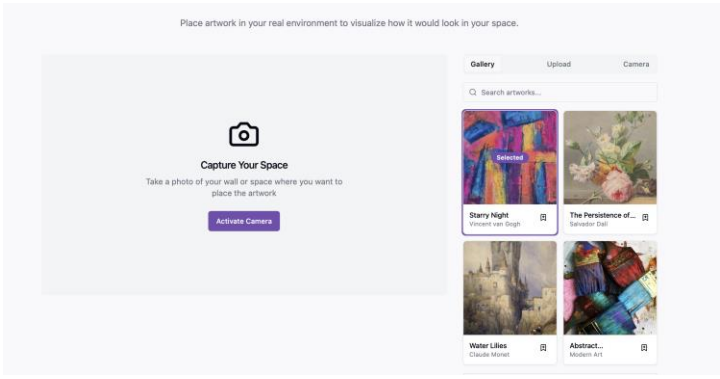


*Figure 5 – AR View*

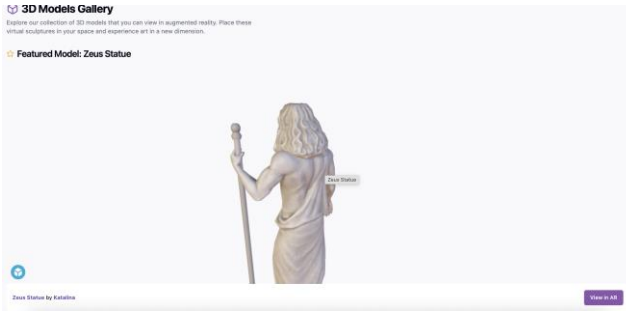


*Figure 6 – 3D Model Page*

## 5. CONCLUSION

Art Nexus successfully delivers a unified platform for artists, enthusiasts, and collectors, allowing them to engage, exhibit, and experience art in immersive and interactive ways. The application seamlessly combines mobile and web technologies using Flutter for the mobile interface and React for the web-based platform, ensuring cross-platform accessibility and a consistent user experience. The backend is powered by Supabase, providing secure authentication, real-time database functionality, and scalable storage. The integration of ARCore further enhances the application by enabling users to visualize artworks in their real-world environment through augmented reality. The collaborative use of React and Kotlin allowed the project to cater to both mobile-first and browser-based users, making the platform inclusive and flexible. The modular architecture and cloud-first backend ensure that Art Nexus remains scalable, secure, and maintainable as the user base grows

## 6. FUTURE SCOPE

Future developments of *Art Nexus* may include:

- **Cross-Platform Expansion** Development of an iOS application using Flutter for broader accessibility.
- **NFT Integration**: Enabling artists to tokenize and sell artworks as NFTs securely.
- **Advanced AI Modules**: Integration of explainable AI (XAI) for better transparency in recommendations [10].
- **Biometric Login**: Implement fingerprint or facial recognition for secure app access [11].
- **Integration with Global Art Events**: Live streaming, exhibitions, and artist meetups through partnerships with international art festivals.

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