

AUGMENTED REALITY

M Vijaya Lakshmi¹, Sreekanth B V²

¹Asst Prof, Dept of MBA, Santhiram Engineering College, Nandyal, India.

²Student of MBA, Santhiram Engineering College, Nandyal, India.

ABSTRACT

Augmented Reality (AR) is an emerging technology that enhances the real-world environment by overlaying digital information—such as images, sounds, or data—onto physical surroundings in real time. This study explores the core concepts, technologies, and applications of AR across various industries, including education, healthcare, retail, manufacturing, and entertainment. By blending the virtual and physical worlds, AR improves user experience, engagement, and decision-making processes. The research discusses key components such as AR hardware (smart glasses, smartphones), software (AR development platforms), and methods of implementation (marker-based, location-based, and projection-based AR). Additionally, it highlights the role of AR in immersive learning, remote collaboration, interactive marketing, and real-time diagnostics. Despite its advantages, the technology faces challenges such as hardware limitations, data privacy concerns, and user adaptation. The study emphasizes the potential of AR to transform how we interact with our environment and information, predicting its continued growth and integration with complementary technologies like Artificial Intelligence and the Internet of Things (IoT). Ultimately, AR represents a shift toward more intuitive and context-aware digital experiences that bridge the gap between the physical and virtual worlds.

Keywords: Augmented Reality, AR Technology, Mixed Reality, Immersive Experience, Real-Time Interaction, Smart Devices, AR Applications, User Engagement, Virtual Overlay, Future Technology.

1. INTRODUCTION

Convenience plays a huge part in shopping today. Consumers want a quick and easy way to try on clothes, visualize how furniture will look in their apartments, and generally try before they buy.

Thanks to advanced technology, these types of offerings are becoming increasingly popular and increasingly common across multiple verticals in the retail space.

Augmented reality (AR) allows brands and retailers to introduce a variety of new and engaging shopping experiences, such as virtual fitting rooms, digital try-ons, and color matching for everything from paint to lipstick to hair dye.

Implementing AR in retail and ecommerce spaces creates an environment in which customers no longer need to physically try on clothes or makeup. It also takes the guessing game out of what furniture will look like in a shopper's home, or what color wallpaper will go best with their green velvet sofa.

2. RESEARCH METHODOLOGY

The research methodology outlines the approach and procedures that will be followed to conduct this study on the role of Augmented Reality (AR) in retail marketing. This section details the research design, data collection methods, sampling techniques, and data analysis processes to ensure that the study's objectives are achieved effectively and systematically.

Research Design

This study will adopt a descriptive research design, aiming to describe the current trends, applications, and impacts of AR in the retail marketing sector. Descriptive research is ideal for studying the role and effectiveness of AR technology in retail, as it helps identify patterns, behaviors, and relationships between AR adoption and its outcomes in customer engagement, operational efficiency, and financial management. The research will focus on both qualitative and quantitative data to provide a comprehensive understanding of the topic.

Data Collection Methods

To gain a comprehensive understanding of AR's impact in retail marketing, this study will use a mixed-methods approach that combines both primary and secondary data collection methods.

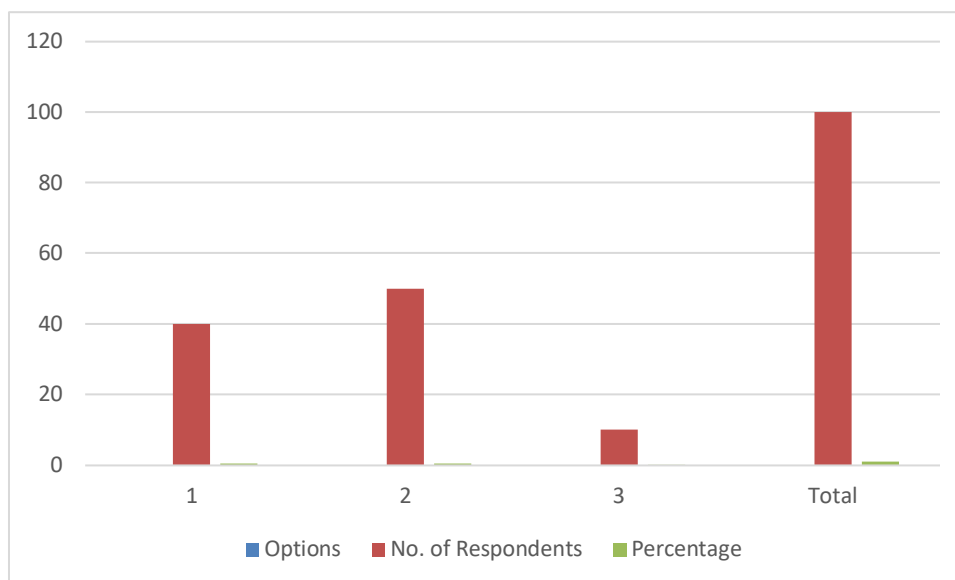
1. **Primary Data Collection:** Primary data will be collected directly from retail businesses, customers, and industry experts to obtain real-time insights into the adoption, challenges, and effectiveness of AR technology in retail.
 - Surveys and Questionnaires
 - Interviews
 - Focus Groups

2. **Secondary Data Collection:** Secondary data will be gathered from various published sources, such as:
 - Literature Review
 - Industry Reports and Market Analysis

3. DATA ANALYSIS

Customer Experience with IKEA's Augmented Reality (AR) Feature

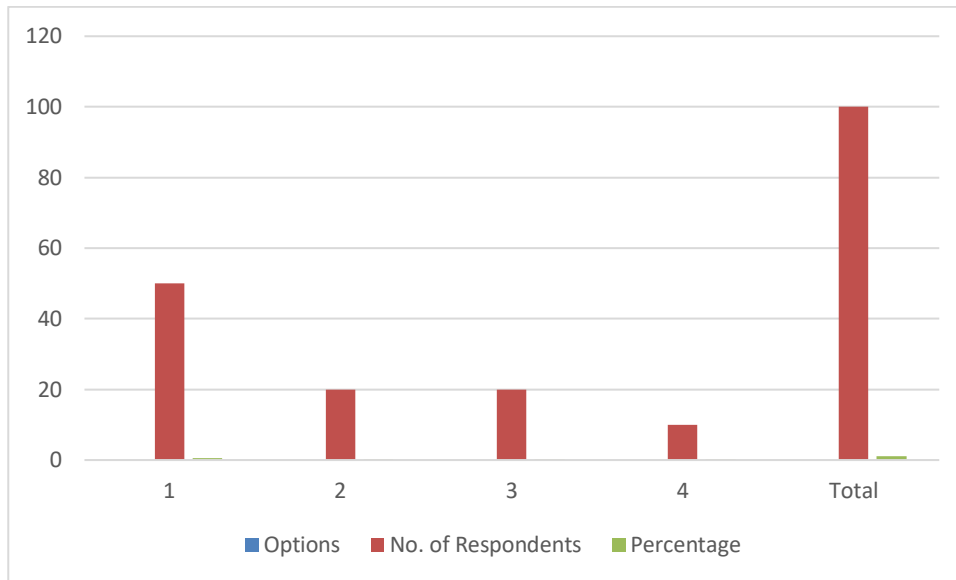
| SL.No. | Options | No. of Respondents | Percentage |
|--------------|------------------|--------------------|-------------|
| 1 | Highly satisfied | 40 | 40% |
| 2 | Satisfied | 50 | 50% |
| 3 | Dissatisfied | 10 | 10% |
| Total | | 100 | 100% |



Interpretation: A majority (50%) of respondents are satisfied with IKEA's AR feature, while 40% are highly satisfied. Only 10% expressed dissatisfaction, indicating a largely positive user experience.

4.2: Awareness About IKEA's AR Feature

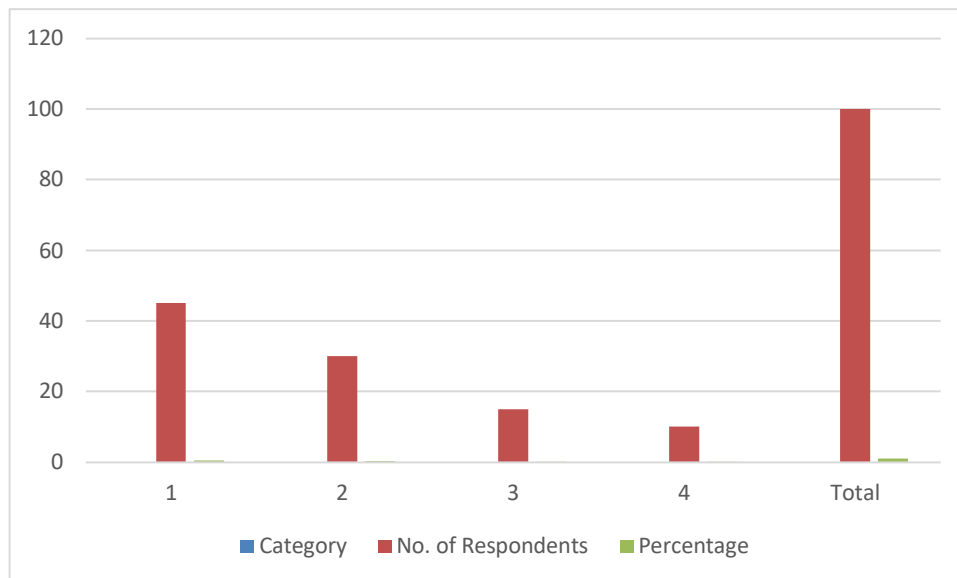
| S.No. | Options | No. of Respondents | Percentage |
|--------------|----------------|--------------------|-------------|
| 1 | Social Media | 50 | 50% |
| 2 | Television | 20 | 20% |
| 3 | Friends/Family | 20 | 20% |
| 4 | Search Engines | 10 | 10% |
| Total | | 100 | 100% |



Interpretation: Half of the respondents (50%) learned about IKEA’s AR feature through social media, followed by 20% through television and word-of-mouth recommendations.

4.3: Preferred Product Categories for AR Usage

| S.No. | Category | No. of Respondents | Percentage |
|--------------|-----------------|--------------------|-------------|
| 1 | Furniture | 45 | 45% |
| 2 | Home Decor | 30 | 30% |
| 3 | Kitchenware | 15 | 15% |
| 4 | Office Supplies | 10 | 10% |
| Total | | 100 | 100% |



Interpretation: Furniture is the most preferred category for AR usage (45%), followed by home decor (30%). Kitchenware and office supplies have lower usage rates.

4. CONCLUSION

The study highlights that IKEA’s AR feature is well-received, with high customer satisfaction and strong influence on purchase decisions. Social media plays a crucial role in awareness, and product visualization is the primary factor driving AR adoption. To further improve user engagement, IKEA should refine its AR accuracy, expand AR applications to additional product categories, and enhance customer education and support. By implementing these strategies, IKEA can solidify its position as a leader in AR-driven retail marketing.

5. REFERENCES

- [1] Azuma, R. T. (1997). "A Survey of Augmented Reality." *Presence: Teleoperators and Virtual Environments*, 6(4), 355-385.
- [2] Billinghurst, M., & Kato, H. (2002). "Collaborative Augmented Reality." *Communications of the ACM*, 45(7), 64-70.
- [3] Javornik, A. (2016). "Augmented Reality: Research Agenda for Studying the Impact of AR on Consumer Behavior." *Journal of Retailing and Consumer Services*, 30, 252-261.
- [4] IKEA. (2023). "How Augmented Reality is Transforming Furniture Shopping." *IKEA Digital Reports*.
- [5] Kim, M. J., & Forsythe, S. (2008). "Adoption of Virtual Try-On Technology for Online Apparel Shopping." *Journal of Interactive Marketing*, 22(2), 45-59.