Journal of Science and Social Research ISSN 2615 – 4307 (Print)
Nov 2024, VII (4): 1808 – 1813 ISSN 2615 – 3262 (Online)
Available online at http://jurnal.goretanpena.com/index.php/JSSR

AUGMENTED REALITY IMPLEMENTATION FOR PROMOTION MEDIA

Zulfadli[1], Ronaldo Syahputra[2]
[1]Universitas Bung Hatta
[2]Universitas Putra Indonesia "YPTK" Padang
e-mail: [1]zulfadli@bunghatta.ac.id, [2]ronaldo_syahputra@upiyptk.ac.id

Abstract: *This paper introduces the development of an Augmented Reality (AR) based promotional media application, addressing the challenge of engaging modern consumers effectively within evolving marketing dynamics. Augmented Reality's unique capacity to blend virtual and real elements presents a promising solution for creating immersive and captivating promotional experiences. Acknowledging the need for innovative approaches to promotional strategies, this study employs a linear strategy methodology, sequentially designing, developing, and implementing the AR application. By defining clear components aligned with the strategy's characteristics, and leveraging technical foundations like AR frameworks and content creation tools, the application successfully merges real-world scenarios with virtual content, resulting in compelling promotional experiences. The result of the research is a prototype application for promotion with the capability to display AR-based promotional content on various media such as printed posters, brochures, and computer monitor screens.*

Keywords: *augmented reality, promotion, application.*

Abstark: Promosi merupakan suatu kegiatan yang dilakukan untuk menyampaikan, menyebarkan, dan menawarkan produk, supaya calon konsumen tertarik untuk membeli. Dalam pelaksanaann promosi CV. Pentaland Jaya Abadi menggunakan media website dan brosur yang masih yang berisi gambar 2 dimensi dan informasi tentang perumahan sehingga calon konsumen kurang tertarik disebabkan konsumen tidak bisa melihat bentuk eksterior dan interior secara langsung. Calon konsumen biasanya mendapatkan brosur melalui lokasi proyek yang masih dalam proses pembangunan, setelah itu menghubungi kebagian marketing. Salah satu cara mengatasi masalah ini dapat menggunakan teknologi Augmented Reality dengan metode pengembangan yang sesuai adalah Multimedia Development Life Cycle (MDLC) yang meliputi Concept, Design, Material Collecting, Assembly, Testing, dan Distribution sehingga penelitian ini dapat menghasilkan aplikasi Augmented Reality berbasis android yang dapat menampilkan bentuk virtual 3 dimensi dari 3 perumahan diantaranya Calista Haus, Grand Ayahanda Residence dan Tuasan Homey. Dari masing-masing perumahan menghasilkan objek 3 dimensi pada bagian eksterior dan interior sehingga dapat memberikan ketertarikan untuk membeli objek rumah dan selain itu juga membantu pada bagian marketing dalam mempromosikan objek perumahan tanpa perlu memperlihatkan banyak miniatur yang membutuhkan waktu dan juga tempat yang besar.

Kata kunci: Promosi, Brosur, Multimedia Development Life Cycle, Augmented Reality

INTRODUCTION

Today is the era of technology, technology adopted in many segmentation in life. In the realm of modern marketing and advertising, staying ahead of the curve demands continuous innovation in the way products and services are promoted to capture the attention of increasingly discerning consumers. As traditional promotional methods encounter limitations in engaging and

captivating audiences, emerging technologies offer a new dimension to promotional strategies. Augmented Reality (AR) has emerged as a powerful tool that blurs the boundaries between the virtual and physical worlds, creating interactive and immersive experiences for users.

Augmented Reality involves overlaying digital content, such as images, videos, and 3D models, onto the real-world environment, thereby enhancing the user's perception of reality. This technology holds the potential to transform conventional promotional approaches by creating dynamic and engaging content that goes beyond static visuals. By seamlessly integrating virtual elements into real-world contexts, AR provides marketers and advertisers with a novel canvas to convey their brand stories and messages.

The focus of this paper lies in the development of an application that harnesses the capabilities of Augmented Reality for promotional purposes. We delve into the process of designing, building, and implementing an AR-powered promotional media application that aims to engage users in an immersive and memorable way. By marrying technology with creativity, this application seeks to enhance brand-consumer interactions and create lasting impressions.

Through a thorough exploration of the underlying principles and components of Augmented Reality, we will discuss the technical foundations that enable the development of such an application. Additionally, we will examine the potential benefits and challenges of using AR as a promotional medium, shedding light on how this technology can offer a competitive edge in a crowded market.

Furthermore, this paper will present case studies that illustrate successful instances of AR-driven promotional campaigns. By analyzing real-world examples, we intend to demonstrate the effectiveness of Augmented Reality in enhancing user engagement and delivering promotional content in a way that resonates with modern audiences.

In conclusion, the development of an AR-based promotional media application represents a significant step towards embracing technological advancements to create compelling marketing experiences. As we navigate through the intricacies of designing and implementing such an application, we aim to provide insights that contribute to the broader understanding of how Augmented Reality can redefine the landscape of promotional strategies and consumer-brand interactions.

METHODS

This research employs the linear strategy method by adopting a procedural approach through sequentially organized steps, following a straightforward and easily comprehensible design phase. The linear strategy method is particularly applied in research where the components have been clearly defined. These stages are illustrated in Figure 1.

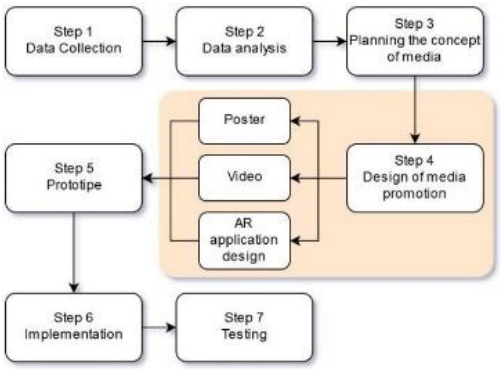

Figure 1. The stages of linear strategy to AR development

1. First stage: collecting data, starting with the necessary materials and technical support.
2. Data analysis: The collected data is analyzed, including its suitability with requirements and specifications of supporting technical equipment.
3. Planning the media concept: Creating a clear plan about the concept and

media to be used.

4. Designing media promotion: This stage is technically crucial, as it involves core activities such as creating posters, videos, and developing AR application designs.
5. Prototype: This phase involves execution, resulting in a prototype.
6. Implementation: The generated prototype is put into action.
7. Testing: The final stage involves testing and observing potential findings for further development.

Throughout the entire process, stage number 4, which is the design of media promotion, is a vital activity. Here, the execution of the previously made plan results in a prototype. This stage consists of three main interconnected activities: designing product posters, creating product promotion videos, and developing AR applications.

Designing Product Posters

In this phase, the product will be materialized in the form of a poster with A0 dimensions (841 mm x 1189 mm). The images present within the poster will serve as markers that initiate Augmented Reality (AR) programs. These markers are utilized to determine the position and orientation of digital content such as videos, 3D models, or text. Consequently, when the images on the poster are detected as markers, the AR digital content is automatically activated. The integration of AR technology into this print medium aims to provide users with a novel experience. The stages in the design of the product poster involve four steps: concept planning, sketching, creating layout and design, and finally printing it. The illustration of these stages can be seen in Figure 2..

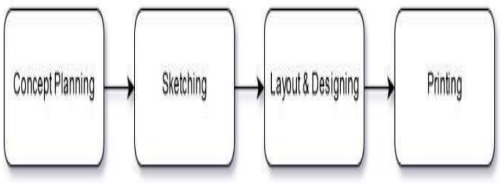

Figure 2. Stages in the activity of designing product posters

The content within this product poster will be meticulously designed to be appealing and creative, aiming to captivate enthusiasts and encourage exploration. This objective is to ensure that the intended message is effectively conveyed and well-received by users.

Creation of Product Promotion Video

The prepared promotional video has a short duration of approximately 2-3 minutes, aiming to provide concise yet detailed information about the research product directly from the researcher's perspective. The video can be replayed multiple times, allowing users to attain a comprehensive understanding. By incorporating videos into this Augmented Reality promotional medium, users are immersed in an experience akin to attending a live presentation by the researcher. This approach aims to establish an emotional connection between users, the promoted product, and the creator.

Augmented Reality (AR) Application Design

Upon completing the product poster, the digital poster file is uploaded to the Vuforia database to be used as a marker, and subsequently converted into *unit package format. This system allows for the use of markers that aren't the conventional black-and-white barcode type often employed in other AR applications; instead, it utilizes what is known as "markerless" markers. The advantage of this system is that the AR application can be activated directly on various media (such as brochures, magazines, X-banners, monitors, etc.) as long as the media contains the image used as the marker.

The products highlighted in this promotional endeavor will be replicated as three-dimensional (3D) objects using Blender 3D software. Once created, these 3D objects will be integrated into the Vuforia environment. In general, the

Journal of Science and Social Research ISSN 2615 – 4307 (Print)
Nov 2024, VII (4): 1808 – 1813 ISSN 2615 – 3262 (Online)
Available online at http://jurnal.goretanpena.com/index.php/JSSR

stages in the Augmented Reality (AR) application creation process involve the following steps.

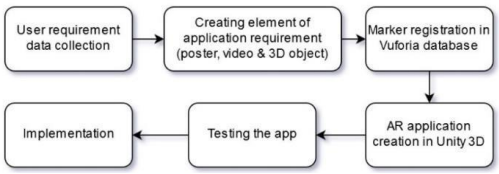

Figure 3. Stages of AR Application Design

The researcher utilizes the Vuforia software integrated with Unity 3D. Vuforia is a platform that enables mobile devices to run real-time AR applications. Differing from conventional methods that rely on barcode markers, this study employs images as starting points, using the design images from the previously created poster. Therefore, the previously designed poster needs to be registered in the Vuforia database as a target or marker. This process can be observed in Figure 4.

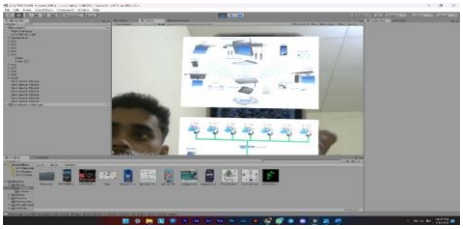

Figure 4. Placing the Poster as a Markerless AR Application Target.

.

RESULT AND DISCUSSION

AR Application User Interface

The user interface of this application showcases several menus specifically designed to showcase and optimize the desired product promotion processes. Below is an example of the designed interface as shown in Figure 5:

Figure 5. Splash Screen of the AR Program and Initial Application Display

The initial display features five user-selectable menus: About, Our Product, Reset Position, Take Screenshot, and Help.

Result of Poster's Design

The design of posters for each produced product is tailored to match the purpose and function of the respective product. Consequently, each poster features a unique and distinct theme. These posters will be printed in A10 size and will include contact information from the relevant institution as well as the name of the researcher responsible for the product. An example of the poster design outcomes can be seen in Figure 6 below:

Figure 6. Result of poster's design

Although intended for research purposes, marketing principles are still applied to every visual element of these posters. Utilizing engaging writing styles coupled with captivating images or illustrations is a crucial component of the design. This aims to ensure that these posters not only convey information but also possess commercial appeal that can capture users' interest in trying out the produced products.

Markerless

The integrated markers on the poster will serve as indicators to recognize barcodes, which aim to activate the 3D objects in the AR application. By directing the smartphone camera towards the identified marker image, the AR application will swiftly initiate and generate the displayed view as depicted in Figure 7.

Figure 7. Results of Applying Markerless

AR Application on Posters, Brochures, and Computer Monitors

In the implementation trial of markerless application on the three mentioned media types (printed posters, brochures, and computer monitors), the three-dimensional objects did not undergo size changes upon activation of these media. This indicates that, although the sizes of these media types vary, the size of the displayed three-dimensional model on the user's smartphone screen adjusts to the media utilizing markerless technology. In other words, the size of the markerless media does not impact the size of the appearing 3D model. If users wish to examine the model in more detail, they merely need to bring their smartphones closer to the markerless media. Additionally, users can adjust the orientation and rotation of the model using the rotation buttons provided within the application interface.

CONCLUSIONS

From this research, several conclusions can be drawn as follows:

1. The successful implementation of Augmented Reality (AR) has been achieved across various media, including printed posters, brochures, and computer screens.

2. AR's ability to merge diverse media elements like text, sound, and visuals provides users with an unusual clarity of information. This enables them to interact with and comprehend the products resulting from this project more effectively.

Nevertheless, the application does have certain limitations, particularly in terms of user interface (UI) usability. Additionally, for mobile applications like this AR app, special attention must be given to User Experience (UX), as the information that can be presented to users is restricted by the capabilities of the device. This means that users receive information from various media aspects incorporated into the application, such as sound, images, text, videos, and three-dimensional (3D) models. This is crucial as the attractiveness of audio-visual information within the AR app is a significant factor driving sustained app usage.

REFERENCES

Zulfadli, Arnita, B. Sunaryo, R. Amelia, and D. N. E. Sukma, “Computerized framework for assessment of OBE in Bung Hatta University,” in *INTERNATIONAL CONFERENCE ON MECHANICAL MATERIALS AND RENEWABLE ENERGY (ICMMRE 2022)*, AIP Publishing, Jun. 2023, p. 080001. doi: 10.1063/5.0115960.

P. Penggunaan Energi Listrik pada Konsumen Berbasis Android Zulfadli, “Implementasi Sistem,” 2021.

D. Rahmanda Sari, R. Nurfitri, Y. Asmoro Kanthi, and A. Zakiy Ramadhan, “Design of Vegetable Bada Promotional Media Using Still Life Photography Techniques.”

M. Lohanjaya, “Promotional Strategy for Magic Group Media,” *Nirmana*, vol. 18, no. 2, pp. 80–86, Sep. 2021, doi: 10.9744/nirmana.18.2.80-86.

M. Satoh, T. Nakajima, E. Watanabe, and K. Kawai, “Augmented Reality in Stereotactic Neurosurgery: Current Status and Issues,” *Neurol Med Chir (Tokyo)*, vol. 63, no. 4, pp. 137–140, 2023, doi: 10.2176/jns-nmc.2022-0278.

K. Nistrina, “PENERAPAN AUGMENTED REALITY DALAM MEDIA PEMBELAJARAN,” 2021.

M. A. Egiyi and Phd, “The Benefits of Augmented and Virtual Reality in the Accounting Field,” Modesta A, 2022. [Online]. Available: https://airjournal.org/cjm

A. V Iatsyshyn, "Application of augmented reality technologies for education projects preparation," 2020.

T. Hayasaka *et al.*, "Comparison of accuracy between augmented reality/mixed reality techniques and conventional techniques for epidural anesthesia using a practice phantom model kit," *BMC Anesthesiol*, vol. 23, no. 1, Dec. 2023, doi: 10.1186/s12871-023-02133-w.

R. Cools, J. Han, and A. L. Simeone, "SelectVisAR: Selective Visualisation of Virtual Environments in Augmented Reality," in *DIS 2021 - Proceedings of the 2021 ACM Designing Interactive Systems Conference: Nowhere and Everywhere*, Association for Computing Machinery, Inc, Jun. 2021, pp. 275–282. doi: 10.1145/3461778.3462096.

C. Xia, "Research on User Interface Design of Home Appliances Based on Behavioural Logic," *SHS Web of Conferences*, vol. 152, p. 05003, 2023, doi: 10.1051/shsconf/202315205003.