

Design Of "JOGJAVA" Mobile Application with Augmented Reality Technology Features as A Media Tourism Experience in Yogyakarta

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ABSTRACT

Tourism is an important sector of economic growth. The number of tourist attractions in Jogjakarta increased foreign tourist visits to the Special Region of Yogyakarta by 3.46% in March 2023. This increase is inseparable from the development of information technology and the sophistication of communication. The use of a technology is necessary to realize the equitable introduction of Yogyakarta Special Area attractions and be able to describe tourist attractions in real terms. The solution is by utilizing technology that can package the potential of tourist attractions attractively, attractively and today. One of the technologies that we can use is Augmented Reality, which can be used through the Hand Phone (HP) with the Screen application facility. Like the JogJava application created in this study. JogJava application is desin to provide tourist information with features that use AR technology. This research was made using research and development methods.

Keywords: Application Mobile, Tourism, Augmented Reality

INTRODUCTION

Tourism is developing into an important economic sector for a country. Traveling becomes a necessity and at the same time a lifestyle of modern people. The activities of the world tourism economy are supported by government policies in an effort to maximize the means of transportation and information technology to facilitate travelers. According to Law No. 10 of 2009 on Tourism mandates that one of the objectives of tourism activities is to conserve nature, environment and resources based on the principles of maintaining nature and the environment, empowering local communities and ensuring integration between sectors, between regions, between centers and regions which constitute a systemic unity in the framework of regional autonomy and inter-stakeholders. Based on data from the Ministry of Tourism and Creative Economy (Kemenparekraf), in March 2023 the visits of foreign tourists (tourists) to Indonesia through all entrances amounted to 809,959 visits. This number experienced a growth of 470.37% compared to March 2022 which amounted to 142,007 visits. When viewed from nationalities, in March 2023 the highest number of tourist visits was Malaysia which amounted to 124,617 visits, Singapore which amounted to 111,259 visits, Australia with 96,157 visits, East Timor which amounted to 63,594 visits, and China which amounted to 51,974 visits. Based on the above data shows that tourism can be a priority in economic development in Indonesia. Yogyakarta is one of the cities that have tourist attractions that can be visited. Yogyakarta is one of the regencies in the Special Region of Yogyakarta (D.I.Y) that has four titles, namely student city, cultural city, struggle city, and tourism city. The number of tourist visits

in Yogyakarta has an increasing trend. The Central Statistics Agency noted that the number of visits by foreign tourists to the Special Region of Yogyakarta in March 2023. The number of visits increased by 3.46%. Some famous tours in Yogyakarta, include: Ngayogyakarta Hadiningrat Palace, Alun — AlunKidul, TuguJogja, Malioboro, and so on. This is certainly inseparable from the development of advances in the field of information technology and the sophistication of communication. The concept of tourism through the utilization of technology and information can also be defined as e-tourism or smart tourism (Benckendorf et al, 2014). We can see that the use of technology is very necessary to realize the equitable introduction of Yogyakarta Special Area attractions and be able to describe tourist attractions in real terms. The solution is by utilizing technology that can package the potential of tourist attractions attractively, attractively and today. One of the technologies that we can use is Augmented Reality, which can be used through the Hand Phone (HP) with the Screen application facility. (Safaat, 2011). Augmented reality is a technology that combines two-dimensional or three-dimensional virtual objects and then projects the virtual objects in real time (James R. Valino, 1998). Augmented reality is defined as a technology that combines the real world with the virtual world, is interactive according to real time, and takes the form of three-dimensional animation (Azuma, 1997). Augmented Reality (AR) can be defined as a technology that is able to combine virtual objects in two dimensions or three dimensions into a real environment and then generate them or project them in real time. Procurement of tourist experiences using Augmented Reality technology

can be used to educate tourists about historical places of interest. The use of Augmented Reality technology can make it easier for travelers to see and learn in more detail various related information. Augmented reality can also make your visit more enjoyable. Tourists can easily learn about the history and description of the attraction. The use of Augmented Reality to market a tourist spot is also one of the things that can play a big role. Ultimately, the beauty or grandeur of a tourist attraction is difficult to unfold without strategic and interactive marketing. For this reason, the procurement of Augmented Reality technology in the tourist experience is needed to improve promotion and introduce the history of tourist attractions in the Special Region of Yogyakarta to mancane tourists.

LITERATURE REVIEW

I. Applications

Applications are programs that people use to do things on a computer system. Mobile can be interpreted as a simple move from one place to another. For example, mobile means that a phone terminal can easily move from one place to another without interruption or interruption of communication. -- A mobile app system is an application that can be used even when the user can easily move from one place to another. the other turns on without losing connection or causing interference. The application can be accessed via wireless devices such as paging devices such as cellphones. and PDAs. Mobile phone features:

1. Small size Mobile phone is small in size. Consumers want the smallest device for convenience and portability.
2. Limited storage Mobile phones also have a small amount of storage, namely primary storage (RAM) and secondary storage (hard disk). Limited computing power. Mobile systems are not as efficient as their desktop counterparts.
3. High-performance mobile devices consume less power compared to desktop computers.
4. Durable and reliable Since mobile devices are always with you, they must be strong enough to withstand shocks, movements and occasional drops of water.
5. Limited Connection. Mobile phones have low bandwidth, there are even those that are not connected.
6. Short Lifespan These consumer devices start in seconds and are mostly always on.

II. Augmented Reality

“Augmented Reality (AR) is a term for an inclusive environment created in the real world as well as a computer virtual world, so the boundary between the two becomes very thin. The main goal of AR is to create new environments including the interaction of real and virtual environments for users to experience

that the created environment is real In other words, users do not believe in it There is a clear difference between AR and what they see/feel the real environment. With AR technology (e.g. computer vision and recognition models) is the real environment around us interacting in digital (virtual) form. About objects and Environments around us can be extended to AR systems, which then provide information appearing on board the real world plane in real time as if the data were real see the information Virtual theme helps users to carry out activities in the real world The image below shows augmented reality closer to the left, The environment is real and the objects are real in virtual augmented reality, which is closer to the right, the environment is virtual and objects are virtual. (Rumajar, 2015)

III. Tourism Experience

Basically, tourist activities have one main purpose which is to get pleasure or pleasure. This demands the responsibility of the tourism industry to meet the needs of tourists which includes a good mix and balance between 5A (Easy Nter Global LTD, 2020), namely Accommodation, Accessibility, Activities, Amenities, and Attractions when traveling. It aims to maximize the traveler's experience to get the pleasure they expect. The common goal of all actors, especially in the intelligent tourism ecosystem, is the availability of enhanced tourism experiences that are enriched, high value, meaningful, and sustainable (Buhalis&Amaranggana, 2015). In this sense, technology-based tourism is a social phenomenon arising from the merger of ICT with tourism experience (Hunter, Chung, Gretzel, & Koo, 2015). Tourism experience is about meaning co-created through interaction with smart technology and the broader intelligent tourism ecosystem, especially when traveling (Gretzel, Reino, Kopera, & Koo, 2015)

METHOD

This research aims to develop a more attractive and efficient learning medium by utilizing Augmented Reality (AR) technology. The methods used in this research are research and development methods or Research and Development. Research & Development method is a research method that produces a product (it can be a model or module or something else), and there is the effectiveness of a product (Budyono, 2016:7). Research & Development methods can be used by researchers including finding a model or product or to develop a model or product. According to Sukmadinata (2008) Research & Development is a research approach to generating a new product or refining an existing

product. Sugiyono (2009:407) also argues that the Research & Development method is a research method used to produce a specific product, and test the effectiveness of that product. Then Sugiyono (2014:409) put forward a series of development research steps which included 10 steps as follows: (1) Potential and problem; (2) Data collection; (3) Product design; (4) Design validation; (5) Design revision; (6) Product trial; (7) Product revision; (8) Usage trial; (9) Product revision; and (10) Origin production. On this type of quantitative research it is necessary to list the relevant hypothesis testing techniques.

RESULT AND DISCUSSION

I. Definition JogJava

JogJava is a travel friend application that provides interesting features to make it easier for tourists who want to visit Yogyakarta City. This application provides information about tourism, culinary, historical buildings, transportation and tourist history information using Augmented Reality technology.



Figure 1. JogJava mobile app logo image

II. Application Usage

Mechanism Here illustrates the JogJava application usage mechanism.

1. Install JogJava application on Play Store or App Store on device or device
2. Log in on the user's Log In page, if you have an account, you can enter username and password



Figure 2. JogJava mobile application main display image

3. Register as a user of the JogJava application or Sign In



Figure 3. JogJava application

4. Then it will enter the main menu page. On this page the user will see the appearance of the main menu with various features inside it. Features provided include Profile, Cam Info, Culinary, By - by, Historical Building Tourism, Temple, Hotel/Inn, Trans Jogja and Natural Tourism



Figure 4. the main menu page

Features shown in the JogJava application, here is the explanation:

- Profile, in the user profile feature can change the use of language, this will make it easier for national and international traveller users not to be overhung by the language. Then users can change passwords or increase security security with email, so user data remains secure and avoid hacking or data leakage.
- Cam Info is the main feature of JogJava application. This feature makes it easier for users to get information about historical and other tourist buildings in Yogyakarta City. The Cam Info feature displays 3D images through the camera of the device in the JogJava app. The use of the Cam Info feature is very easy, the user only scans the QR Code that is on each tour will then display the following 3D images with explanations in it such as history, legend, year of creation, and others.
- Kulinerku, according to the name of the feature, kulinerku displays famous culinary information in Yogyakarta. The culinary feature provides regional culinary information accompanied by explanations and google maps links, which then users will be directed to the google maps application with the direction that has been shown to the culinary place to go, so users who want to visit culinary do not worry about getting lost.
- BuahTangan or Hand Fruit, displays information about Yogyakarta specialties, with explanations and addresses of scattered stores to make it easier for users to buy by — by typical regions.
- Bersejarah or Historic. is a feature that provides information Regarding historical buildings

scattered in Yogyakarta City such as Kraton, as well as former war buildings such as Fort Vredeburg, and museums. f. Temple, Yogyakarta City has hundreds of temples scattered in various regions. With the temple feature, providing information to users about location, travel route links, explanations, and facilities.

- Sare, sare which in Javanese means sleep or rest is a feature that displays information about hotels/villas or inns in Yogyakarta City, users will be presented with information about location, explanation, hotel rating, travel route link, pictures, and hotel facilities
- Trans Jogja, or transportation is jogja feature featuring information about public transportation in Yogyakarta City. The feature will provide information on public transportation such as trans jogja with travel routes, bus names and stops, then delman, as well as beca
- Alamku, feature with explanations of natural tourism that is widespread in Yogyakarta City, by displaying pictures, locations, links to locations, as well as tourist explanations.

CONCLUSION

JogJava application is an application that provides interesting features for travel companions. JogJava is supported with one of its features based on Augmented Reality technology. Cam Info feature is one of the features in the JogJava application that presents 3D images containing information about tours in Jogjakarta. The JogJava application is expected to become a travel companion for all international national tourists and local communities and make the application to facilitate a pleasant trip in the city of Yogyakarta.

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