

Chapter 4

Caventure as Innovative Cave-based Tourism and Education Platform Towards Society 5.0 in Yogyakarta

Aditia Pramudia Sunandar, Rizki Oktavianto, Khoirunnisa, Angki Pranamukti, Rohsyam Sidik

Yogyakarta State University

aditiapramudia.2017@student.uny.ac.id

ABSTRACT

Covid-19 has a big impact on economic conditions. The Central Statistics Agency (BPS) report states that the Indonesian economy in the third quarter experienced a recession with economic growth reaching -3.49%. Previously, in the second-quarter economic growth was -5.32% and the first quarter only grew by 2.97% (BPS, 2020). This condition continues until now the condition of the Indonesian economy in the first quarter was at -0.74% (BPS, 2021). The development of tourism experience and learning media in the form of android-based applications can be used as a solution in overcoming these problems. caventure as an innovative cave-based tourism and education platform towards society 5.0 in Yogyakarta. The application of media cave-based tourism and education will give a new approach to ecotourism. This application will be implemented in many caves in Yogyakarta which promote eco-tourism. The use of technological platforms is to respond to the digitalization of tourism that must be done in the Society 5.0 era. Through this innovation, writers expected can minimize the gap between humans and economic problems in the future. This study uses a waterfall method that includes several stages as follows: Requirement, Design, Implementation, Verification, and Maintenance The limitation is needed because of the limit of time and resources. The application development is using android studio, javascript, and HTML. This Platform will benefit on education to learn about everything inside the cave and also in economic to the society around the cave as tourism manager and other small and medium enterprises all around the cave.

Key Words: cave, caventure, education, platform, tourism

1. INTRODUCTION

The Covid-19 pandemic that hit Indonesia and the world one year ago caused quite a serious impact, especially in the economic sector. The Central Statistics Agency of

Indonesia (BPS) noted that the third quarter of 2020 experienced a recession with economic growth reaching -3.49%. Previously in the third-quarter economic growth was -5.32% and the first quarter only grew 2.97% (BPS, 2020). This condition continues until now the condition of the Indonesian economy in the first quarter was at -0.74% (BPS, 2021). To answer these problems, it is necessary to develop a strategy to improve Indonesia's economy, one of which is through development in the tourism sector.

Indonesian tourism has an important role in the economy. Data from the Ministry of Tourism and Creative Economy states that tourism contributes 4.8% to the national Gross Domestic Product (Kemenparekraf, 2020). Seeing this excellent contribution, of course, tourism innovation is needed that fits the post-pandemic atmosphere. Pandemic conditions cause people to pay more attention to health. Likewise, in choosing a tourist destination, the health aspect is an additional consideration of the comfort, safety, and quality of tourism factors. This is a challenge for tourism activists to realize tourist destinations that consider aspects of sustainability, safety, and tourist comfort. One form of tourism concept that can answer this challenge is ecotourism.

Ecotourism is a tourism development concept that prioritizes aspects of sustainability by supporting nature and culture preservation and increasing community participation in management to provide economic benefits to local communities. In addition to economic benefits, ecotourism also has wide opportunities in supporting the advancement of science and education (Rhama, 2019). However, the reality that exists in Indonesia today is that ecotourism has not been fully developed. Even though Indonesia has a lot of natural potentials that are suitable for ecotourism areas, one of which is a cave.

Acintyacunyata Speleological Club (ASC), an organization of cave research activists based in Yogyakarta, 2018 managed to inventory 2,743 caves in the karst region of the archipelago. This is of course very potential to be used as an ecotourism area. In the management of ecotourism, the novelty of the concept is needed to increase interest in visiting the community. In addition, ecotourism management must also be directed at integrating information technology to adapt to the era of Society 5.0 which demands the digitalization of tourism. In this study, the authors developed a cave-based education and tourism platform called Caventure.

2. LITERATURE REVIEW

2.1. Show Caves

The development of the cave into a tourist attraction because it is in demand as a special interest in cave exploration. Caves are generally used for several purposes, namely irrigation, looking for bats, and taking bat droppings, and cultural interests (Kurniawan & Rahmadi, 2019). Caves have various characteristics including vertical caves, horizontal caves, caves that flow underground rivers, dry caves, and various interesting ornaments. Several aspects can be fulfilled by opening several caves to become tourist caves in Indonesia, namely the value of beauty, uniqueness, and culture. In addition, caves in karst areas can attract tourists because of their uniqueness that is different from caves in other areas (Harmony & Pitoyo, 2012).

2.2 Society 5.0

Society 5.0 was first applied to Japanese society by focusing on human strength, the use of a more flexible approach, the development of basic requirements in education, the development of science and technology, and innovation to encourage economic growth (Slameto, 2019). Society 5.0 goes hand in hand with the industrial revolution 4.0 so that

the role of humans becomes more central in the development of the world of digital technology in various aspects, one of which is tourism. Indonesian tourism in the digital era focuses on the wonderful startup academy, nomadic digital tourism and destinations, and the role of marketing online-based tourist destinations. In addition, the concepts put forward in tourism in the Society 5.0 era are the three A (3A) concepts, namely attractions, amenities, and accessibility. Tourism objects developed include nature tourism, shopping tourism, cultural tourism, and religious tourism (Helianny, 2019).

2.3 Tourism for Indonesia's Economic Growth

Based on data from the World Travel and Tourism Council (2015 in BPS, 2020) the contribution of Indonesian tourism to GDP in 2014 was IDR 325,467 billion (3.2% of GDP). This is expected to increase by 6.0% to Rp 345,102 billion in 2015. Indonesian tourism also contributed to the workforce in 2014 amounting to 3,326,000 workers (2.9% of the total workforce). This is expected to increase by 2.3% in 2015 and increase by 1.4% per year to 3,905,000 workers (2.9% of the total workforce) in 2025. In addition, Indonesian tourism contributes to Visitors' Exports by generated IDR 132,159.0 billion (5.6% of total exports) in 2014. This is expected to grow by 5.5% in 2015, and grow by 5.5% annually from 2015-2025 to IDR 238,606 billion by 2025 (6.5% of the total). And Indonesian tourism also brought in investment, namely in 2014 amounting to Rp 167,435 billion or 5.3% of the total investment, and up 5.7% in 2015, and up 7.1% per year for the next ten years to Rp352. 910 billion by 2025 (6% of the total). Thus, the development of regional potential as tourism will improve the regional economy in particular, and the country in general.

3. METHODOLOGY

The research method used in product development is the waterfall method. This method is suitable for the development of this product because the use of the method is specifically for software development with a small level of risk and size and requires a long development time. The waterfall method has several advantages, namely practical in product engineering, maintaining software quality with structured and supervised development. This method also has complete documentation so that the maintenance process can be done easily. the use of the waterfall method includes several stages as follows: Requirement, Design, Implementation, Verification, and Maintenance.

4. RESULT & DISCUSSION

This application was developed by utilizing several supporting features such as Android SDK Manager, Android ADV Manager, Java Development Kit, Adobe Illustrator, Coreldraw, and Unity 3D. This application also utilizes several support systems to keep the system running optimally, such as web administrators, domains, hosting, and developer accounts on Google Playstore. The production of Caventure application products uses applications and support systems as previously mentioned as the main manufacturing tools that will be integrated according to the requirements. previously designed schematic. The application design scheme to the final stage includes the following stages: 1) Creating a list of applications, 2) making a list of features, 3) UI Mockup, 4) Database schema, 5) Listing classes and relationships between classes, 6) Application framework in source form code, 7) Details of source code implementation, and 8) User acceptance test.

Caventure is a travel and educational application based on special interest ecotourism, namely caves and their environment. The purpose of Caventure is to increase income for Small and Medium Enterprises around the shows cave and make environmental

education an added value in the field of special interest tourism. Everyone who uses Caventure can take advantage of this application for vacations and traveling to various shows caves in Indonesia and get complete tourist facilities according to the information applied. In addition, cave tour managers can also register their location on this application to be chosen by travelers in Indonesia or abroad. Caventure is expected to increase Indonesia's economic value through special interest tourism for eco-educational business actors. The description of the Caventure application is as follows:

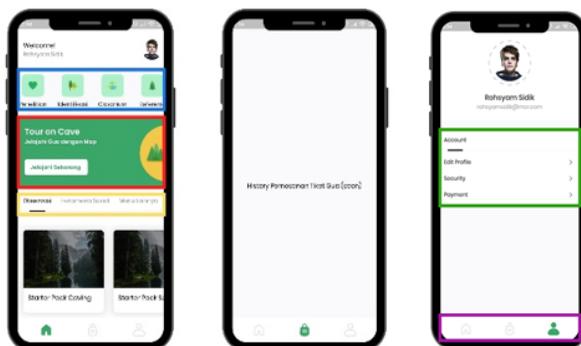


Figure 1. Display of the three main features of the Caventure app

Next, to enter the three main features, the user must register by including an email and password. This is intended to make it easier for users to enter the Caventure application at any time. On the home screen, there are various features, because the home features are designed to be more complete so that users do not need to be confused when they first time to use this application. The box with the blue line is the main component of the application in the field of education, such as cave research, identification of cave fauna, glossary, and references used in the application. Furthermore, the field of education is equipped with features that are in the yellow line.

The observation feature is equipped with sub-features for new explorers who will enter the cave regarding their needs and equipment that must be prepared. The sub-features in the observation feature are starter pack caving (equipment to enter the cave), starter pack sampling (equipment to observe cave fauna), a guide for observing cave fauna, and quizzes as a medium for relaxing studying caves. Then on the features of social phenomena, it aims to provide environmental literacy related to pollution and also the use of caves in various fields. The sub-features are as follows: short films (the use of caves in the field of the film), cave photography, and various environmental problems in the cave or its surroundings. The last feature is another feature, this feature is an addition that is equipped with sub-features of karst area info, getting to know caves, research info, and info about application developers.

The second main feature has a basket-shaped icon, this feature serves as an update from the tour on cave feature in the main home feature. The Tour On Cave feature is the main feature in the tourism sector, namely providing a map of the distribution of shows caves that can be accessed around application users. The last main feature is the profile feature (purple lined box), in this feature the user can edit the profile, increase account security, and perform periodic checks on the payment process (green lined box). In completing the cave fauna data, the team developed a website system to update fauna data as follows:

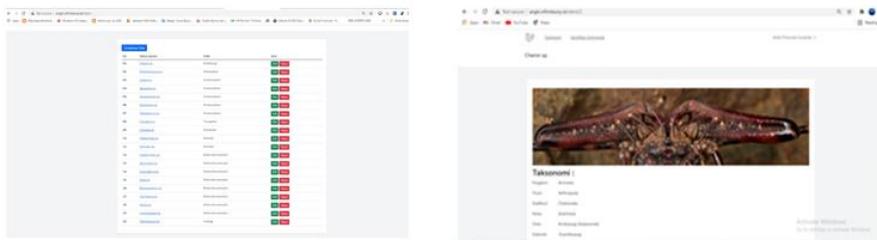


Figure 2. Overview of the three main features of the Cavature app

The identification data refers to the research of Kurniawan (2018) who found cave arthropod types in the karst gunungsewu area, namely 6 classes of arthropods with 30 orders, and 209 morphospecies. An insect has the highest number of species, 87 species, then Arachnida, 80 species, Collembola, 29 species, Diplopoda, 5 species, chilopod, 5 species, and crustaceans, 3 species. The balance between tourism and education will benefit this application to answer the challenges of society 5.0. Because users and service providers will interact directly and become the application as the basis for every decision making during activities in the cave.

5. CONCLUSION & RECOMMENDATION

Cavature as an innovation in the field of tourism and education becomes a forum for promoting special interest tourism such as caves. This application is designed to be simple and attractive for users so that it can describe a friendly and human-focused impression in the implementation process. Cavature can realize digital-based tourism in the Society 5.0 era with the various features it offers and the involvement of humans in the operation process.

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