

Mixed Reality Tourism for a World Heritage Site in ASEAN

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บทคัดย่อ—การใช้ความเป็นจริงผสมสำหรับการท่องเที่ยวมรดกโลกมีความสำคัญและเป็นปัจจัยที่จะประชาสัมพันธ์ และรองรับงานของธุรกิจการท่องเที่ยว การเดินทาง ธุรกิจ นอกจากนี้ นักพัฒนาโปรแกรม จะพัฒนาแอปพลิเคชันที่มีคุณภาพต้องมีกรอบแนวความคิด และส่วนประกอบที่ครอบคลุมอำนวยความสะดวกสามารถนำไปประยุกต์ใช้กับเทคโนโลยีดิจิทัล จุดประสงค์ของงานวิจัยนี้เพื่อสังเคราะห์เอกสารในเรื่องความเป็นจริงผสมของมรดกโลก และประเมินความเหมาะสมจากการสังเคราะห์เอกสารมรดกโลก ในการศึกษาครั้งนี้คณะผู้วิจัยได้รวบรวมข้อมูลสำหรับการสังเคราะห์เอกสารจากสิ่งต่าง ๆ ดังนี้ วารสาร 50 เรื่อง งานวิจัยที่เกี่ยวข้อง 75 เรื่อง จากห้องสมุดดิจิทัล และจากผู้เชี่ยวชาญจำนวน 5 คนในสาขาท่องเที่ยว ความเป็นจริงผสม ความเป็นจริงเสมือน เทคโนโลยีการสื่อสารข้อมูล และด้านเทคโนโลยีสารสนเทศ เพื่อทำการประเมินความเหมาะสม

ผลจากการวิจัยพบว่าความเหมาะสมขององค์ประกอบที่สำคัญกับความเป็นจริงผสมประกอบด้วย 1. ปฏิสัมพันธ์ระหว่างพิพิธภัณฑ์ (museum interaction) 2. ความเป็นจริงผสมสถานที่ปลายทาง (mixed reality destination) 3. การให้บริการผสมผสาน (mixed reality services) 4. ไกด์อัตโนมัติ (automatic guide) 5. การเดินทางอัตโนมัติ (automatic transportation) 6. ความเป็นจริงผสมเบราว์เซอร์ (mixed reality browser) และ 7. โปรแกรมความเป็นจริงผสม (mixed reality program) ที่มี

คุณภาพซึ่งพัฒนาขึ้นเพื่อประยุกต์ใช้กับการเดินทางท่องเที่ยวมรดกโลก และมีไคด์ความเป็นจริงผสมสำหรับการเดินทาง

สรุปผลการประเมินความเหมาะสมที่ได้ดังนี้ 1. กรอบแนวความคิดเชิงประจักษ์ที่มีประสิทธิภาพ 2. องค์ประกอบที่เหมาะสมของความเป็นจริงผสมของการท่องเที่ยวมรดกโลกอยู่ในระดับสูงสุด และค่าความเชื่อมั่นของอัลฟาครอนบราค (Cronbach's alpha) สำหรับ 7 องค์ประกอบหลัก เป็น 0.9429 และค่าสัมประสิทธิ์ความผันแปร (coefficient of variation: CV) คิดเป็นร้อยละ 13.28 ซึ่งจากผลประเมินแสดงว่ากรอบแนวความคิดที่ได้จากการวิจัยในครั้งนี้สามารถนำไปประยุกต์ใช้กับระบบการท่องเที่ยวมรดกโลกได้อย่างมีคุณภาพตามต้องการ **คำสำคัญ:** ความเป็นจริงผสม, ความเป็นจริงเสมือน, ความเป็นจริงเสริม, มรดกโลก, ท่องเที่ยว, อาเซียน

Abstract—The mixed reality for a world heritage is crucial and essential that should be promoted and supported to lead travel agencies, travels, business and developer application to develop the quality elements of a framework for facilitating and applying development through contemporary digital technology. The aim of this research was, therefore, the synthesis of mixed reality for a World Heritage, and suitability evaluation regarding the synthesis of mixed for a World Heritage. In this study, the researchers used data analysis and synthesis methods approached from content analysis whereas the 50 journals from the digital library, 75 titles of researches which work for this field, and the fifteen experts, in tourism, augmented reality, virtual reality, ICT, and IT would perform suitability evaluation of the synthesis. The findings of the research suggested that

(1) mixed reality for a World Heritage consisted of (1.1) museum interaction, (1.2) mixed reality destination (1.3) mixed reality services, (1.4) automatic guide, (1.5) automatic transportation, (1.6) mixed reality browser, and (1.7) mixed reality program in which implemented in the mixed reality travel application was conducted compatible quality of development a mixed reality traveling for guiding the development of mixed reality travel applications for a World Heritage sites in ASEAN to increase efficiency of empirically examines a new framework, and (2) the result of suitability evaluation regarding the synthesis of mixed reality for a World Heritage was at the highest level, and the reliability of Cronbach's alpha for seven keys was 0.9429 and the coefficient of variation (CV) was 13.28 percentages which indicated that this study could be applied to the development of quality framework that suit for traveling system needs.

Keywords- *mixed reality; virtual reality; augmented reality; world heritage; tourism; ASEAN*

I. INTRODUCTION

This paper explores the use of augmented reality (AR) by analyzing the significant components of published papers. Augmented reality should be beneficial to technology developers who will be using it to facilitate travel to visit the ASEAN's World Heritage Sites. After analyzing the necessary components, the researchers developed the framework for this research. Although, main needed elements are the virtual reality that should be suitable for World Heritage tourists. However, in analyzing the essential elements to develop a facilitator tool with system developers called framework for tourists still lacking. The technology has changed into the 4.0 technology include changed the structure. In particular, the researchers used virtual reality and augmented reality technology in many fields, such as medicine that helps simulate the results of dental surgery before surgery [1]. For industrial applications are used to display the results, it provides information to support each operation or simulate the assembly of parts together [2]. Another important aspect is the new learning style that is called STEM (science, mathematics, engineering, and technology) and this style uses the real-world that combines reality with virtual reality in learning science [3]. Even augmented reality marketing could change the market's style is marketed, then augmented reality marketing should be used to change the style of mobile shopping. Even augmented reality marketing can be used to change the style of mobile shopping. Promoting brand relationships, the researchers would present the facility to customers with augmented reality [4, 5], one of the essential technological developments experiences, the researchers presented the augmented reality to impact the tourism industry today is. It is time for AR and VR that the

researchers used for the technology that is capable of simulating real-world things [6]. Due to the announcement of this establishment of Asia from ten ASEAN countries (Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam, Brunei). In the year 2015, ASEAN countries have received the attention of people around the world in the field. Natural resources are abundant in wood, sea, water, and oils. Incidentally, the key to the uniqueness of the country in ASEAN is the great civilization. From, the past to the present until being declared a world heritage site in ASEAN 37 place[7]. Especially, Thailand has been declared a World Heritage Site include a Historical city of Ayutthaya, Ban Chiang Archaeological Site, Historic town of Sukhothai, Dong Phrayayen-Khao Yai Forest, Thungyai-Huai Kha Khaeng Wildlife [8].

This paper has organized the rest as follows: Section 2 describes some related work published. Section 3 presents the methodology in detail. Section 4 presents results and discusses obtained in our framework. Finally, Section 5 concludes the paper.

II. BACKGROUND

This paper explores the use of augmented reality (AR) by analyzing the significant Nowadays, virtual reality (VR) and augmented reality (AR) have become the preferred technologies in a wide range of fields such as education [9], training, tourism, entertainment, social media and cultural heritage. Include complex tasks presenting them in a functional overview for easy understanding [6, 10-13].

A. Augmented Reality Tourism (AR)

Augmented reality is a 3D technology that enhances the user's sensory perception of the real world with a contextual layer of information system [14]. AR has become a favorite topic for travelers with simulated locations like a real environment as if it was a visit. With, the ability to see virtual reality simulated three-dimensional. Include the actual location environment [15], has been used in many areas such as retail, transportation, and tourism [12].

Moreover, AR has contributed to that makes it possible to see things in the real world as well as an interaction in real time. For a better understanding the term, Milgram has described the details of completion of augmented reality (closer to the real environment finale) and augmented virtual (closer to the virtual environment finale) similar to the real environment [3].

The researchers conducted the enhancement the tourist experience of using AR while some studies are exploring through handheld as well as the wearable device [16].

The AR technology allows combining seamlessly physical world and virtual information but is still widely under-utilized in the field of Tourism. The travelers can be a view the history of the place, history stories and links to real situations. In addition to an understanding and visit the World Heritage Site. AR technology refers to the inclusion of the virtual element given actual physical environments, to create a mixed reality in real time [1]. Overall, For viewing the AR, it has two ways for display the augmentation via real-time video that was called the magic mirror technique by displaying on a projection screen while capturing the object to be displayed. Then, the viewers should stand in front of the display and watch as the augmentation is happening [6, 10, 17]. For, example augmented reality applications include mobile phone applications that overly virtual directions, retail locations, and other information about actual places [15].

B. Virtual Reality Tourism (VR)

Virtual reality is to allow the user to virtually execute a task while believing that they are executing it in the real world[6]. A computer-simulated described VR as an environment with and within which people interact [11] At present, the tourism business used AR. From the tourists' point of view, the Main benefits of VR include enhancement of tourism experiences [1, 6, 16, 18] facilitation of immersive, engaging, social, and entertaining experiences [6, 11, 12, 16-19]. While the perspective of businesses and destinations adopting VR, factors such as marketing and promotions, sales and distribution [2, 14, 16, 17, 19, 20]. Additional revenue generation [4, 6, 10, 11, 13, 21]. The goal of virtual reality is to give users compelling intuitively interactive and immersive experiences within virtual environments [1, 3, 6, 15, 17, 21].

C. World Heritage sites in ASEAN

ASEAN has been declared a World Heritage Site [8] by the following Table 1.

TABLE I. WORLD HERITAGE IN ASEAN

Country	World Heritage	Nature
Thailand	Historic City of Ayutthaya	The city was attacked and razed by the Burmese army in 1767. Once an important center of global diplomacy and commerce. Ayutthaya is now an archaeological ruin, characterized by the remains of tall prang and Buddhist.
	Historic Town of Sukhothai and Associated Historic	The first Kingdom of Siam in the 13th and 14th centuries. It has

Country	World Heritage	Nature
	Towns	some beautiful monuments, illustrating the beginnings of Thai architecture.
	Thungyai-Huai Kha Khaeng Wildlife Sanctuaries	Sanctuary contains biological features of outstanding natural beauty and high scientific value, including many natural features and two significant watersheds with their associated riverine forests.
	Ban Chiang Archaeological Site	The most important prehistoric settlement so far discovered in South-East Asia. It marks a crucial stage in human cultural, social and technological evolution.
	Dong Phrayayen-Khao Yai Forest Complex	The site is home to more than 800 species of fauna, including 112 mammal species 392 bird species and 200 reptile and amphibian species.
Cambodia	Angkor	The famous Temple of Angkor Wat and, at Angkor Thom, the Bayon Temple with its countless sculptural decorations.
	Temple of Preah Vihear	The Temple is composed of a series of sanctuaries linked by a system of pavements and staircases over an 800-meter long axis.
	Temple Zone of Sambor Prei Kuk, Archaeological Site of Ancient Ishanapura	The temple in the richness of the forest " in the Khmer language, has been identified as Ishanapura.
Indonesia	Prambanan Temple Compounds	The most massive temple compound dedicated to Shiva in Indonesia.
	Ujung Kulon National Park	The largest remaining area of lowland rainforests in the Java plain .It still has several species of endangered plants and animals.
	Sangiran Early Man Site	Sangiran is one of the key sites for the understanding of human evolution

Country	World Heritage	Nature
	Lorentz National Park	Lorentz National Park, the area also contains fossil sites which provide evidence of the evolution of life on New Guinea.
	Tropical Rainforest Heritage of Sumatra	The site holds the greatest potential for long-term conservation of the distinctive and diverse biota of Sumatra, including many endangered species.
	Subak	The temples are the focus of a cooperative water management system of canals and weirs, known as subak.
Lao People's Democratic Republic	Town of Luang Prabang	The landscapes and urban fabric retain a high degree of authenticity, and the site is not disturbed by any significant construction.
	Vat Phou and Associated Ancient Settlements within the Champasak Cultural Landscape	The Vat Phou Temple complex is a remarkably well-preserved planned landscape more than 1,000 years old.
Malaysia	Gunung Mulu National Park	Gunung Mulu National Park, on the island of Borneo in the State of Sarawak, is the most studied tropical karst area in the world.
	Kinabalu Park	The highest mountain between the Himalayas and New Guinea. It has a vast range of habitats, from rich tropical lowland and hill rainforest to tropical mountain forest.
	Melaka and George Town, Historic Cities of the Straits of Malacca	The influences of Asia and Europe have endowed the towns with a specific multicultural heritage that is both tangible and intangible.
	Archaeological Heritage of the Lenggong Valley	One of the longest records of early man in a single locality, and the oldest outside the African continent.
Myanmar	Pyu Ancient Cities	They reflect the Pyu Kingdoms that flourished for over 1,000 years between 200 BC and AD 900.

Country	World Heritage	Nature
		The three cities are partly excavated archaeological sites.
Philippines	Baroque Churches of the Philippines	The unique architectural style is a reinterpretation of European Baroque by Chinese and Philippine artisans.
	Tubbataha Reefs Natural Park	The North Islet serving as a nesting site for birds and marine turtles.
	Rice Terraces of the Philippine Cordilleras	The Rice Terraces of the Philippine Cordilleras are authentic in form, character, and function as a direct result of the 2000-year-old.
	Historic City of Vigan	Vigan is the best-preserved example of a planned Spanish colonial town in Asia.
	Puerto-Princesa Subterranean River National Park	This park contains a full 'mountain-to-sea' ecosystem and has some of the most important forests in Asia.
	Mount Hamiguitan Range Wildlife Sanctuary	These include critically endangered trees, plants and the iconic Philippine eagle and a Philippine cockatoo.
Singapore	Singapore Botanic Gardens	The evolution of a British tropical colonial botanic garden that has become a modern world-class scientific institution used for both conservation and education.
Vietnam	Complex of Huế Monuments	The cultural and religious center under the Nguyen dynasty until 1945.
	Ha Long Bay	Its great biological interest complements the property's exceptional scenic beauty.
	Hoi An Ancient Town	Its original street plan, with buildings backing on to the river, with its infrastructure of quays, canals, and bridges in its original setting
	My Son Sanctuary	its spiritual origins to Indian Hinduism developed on the coast of contemporary Viet Nam

Country	World Heritage	Nature
	Phong Nha-Ke Bang National Park	The Park's landscape is formed by limestone plateaux and tropical forests.
	Central Sector of the Imperial Citadel of Thang Long -Hanoi	The Imperial Citadel buildings and the remains in the 18 Hoang Dieu Archaeological Site reflect a unique South-East Asian culture
	Citadel of the Ho Dynasty	Ho Dynasty Citadel, built according to the feng shui principles, testifies to the flowering of neo-Confucianism in late 14th century Viet Nam.
	Trang An Landscape Complex	The Trang An Landscape Complex is a spectacular landscape of limestone karst peaks permeated with valleys, many of them partly submerged and surrounded by steep, almost vertical cliffs.

Thailand has been declared a World Heritage Site by the application. Also, tourists can study the place by simulating a virtual reality tour and other truth this is modern technology and help tourists to see the tourist before making a real trip, it is the advancement of technology in the 4.0 era that made a new change for people around the world.

Based on the above factors, the development of the mixed reality framework in the ASEAN tourism research in the application of the results of tourism research is a beneficial technology to tourists in the decision for the world heritage sites in ASEAN before traveling.

III. METHODOLOGY

This research is a development of mixed reality frameworks by collecting thirty-seven world heritage sites in ASEAN.

Mixed Reality Tourism for World Heritage Sites in ASEAN (MRTWHA), the research aims to support tourism users, and the implementation used analysis process for the research.

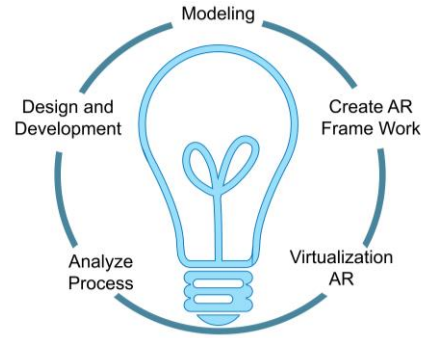


Figure 1. Augmented reality development process.

A. Analyze Process

This process is the first stage of conducting a review and gaining an understanding for business processes. It involved reviewing the components of a process, including inputs, outputs, procedures, controls, actors, applications, data, technologies and their interactions to produce results.

B. Design and development

In the second stage, it is a definition process of the system's components, modules, interfaces, and data to meet the system requirements. This process is creating or altering systems, along with the processes, practices, models, and methodologies used to develop them.

C. Modeling

The third stage is a representing process of a real-world object or phenomenon as a set of mathematical equations which have degrees of uncertainty or randomness built this phase. The randomness means that the researchers might be able to predict future trends pretty well with past data, but the researchers were never going to get 100 percent in accuracy. Usually, the process got close enough for it to be useful in most scenarios. More specifically, the term is often used to describe the process of representing 3-dimensional objects in a computer. All 3-D applications, including CAD/CAM and animation software, perform modeling.

D. Create AR Conceptual

Then, the fourth stage is a real or conceptual structure intended to serve as a support or guide for the building of AR that expands the structure into something useful.

E. Virtualization AR

Finally, the fifth stage is the ability to simulate a hardware platform, such as a server, storage device or network resource, in software. Also, the hardware platform could be excellent to spin up or down as needed by supporting multiple virtual devices or machine.

IV. RESULTS PREPARE

After analysis and synthesis, the researchers selected articles whereas 50 journals from the digital library and 75 titles of researches which work for this field that related the mixed reality tourism, the result of the essential components were shown in table 2.

TABLE II. CRITICAL COMPONENTS OF MUSEUM INTERACTION IN ASEAN

Components	Jiří Kysela and Pavla Štorková	Timothy Jung, Namho Chung, and M. Claudia Leue	Alžbeta Királová and Antonín Pavličeka	Dallen J. Timothy	Meiliana Devita Irmanti et al.	Philip Feifan Xie and Kai Gu	Huei-Ming Chiao, Yu-Li Chen and Wei-Hsin Huang
Museum Interaction		√		√			√
Mixed Reality destination	√	√	√	√			
Mixed Services			√	√			
Automatic Guidance						√	√
Mixed Transportation	√				√		
Mixed Browser				√	√		
Mixed Program					√	√	

A. Museum Interaction

This composition is a style of human-computer interface that a user will be able to interact with the real world that is augmented by the computer's artificial information. Moreover, a tablet or a smartphone installed the applications on the mobile devices with this technology. It detects the location and orientation of a smartphone or a tablet in space and based on these data, the image placed into a locally multimedia content such as various text information (names of buildings, historical context, hyperlinks to websites, opening hours, admission, institutions), audio (old record audio guides, comments), video, photographs (archive picture) or 3D animation in the real space-time. According to [11, 21, 22], the researchers recommend that permitting the computer to assist the users without having to be directly trained by the users and the user's situation would be automatically predictable by applying a range of recognition methods.

The user's focus is on the real world. The computer's role was to assist and enhanced interactions between human and the real world.

B. Mixed Reality Destination

It represents that the travelers think about the possibilities around heritage. They could travel to ancient battlefields and get an accurate impression of how they looked centuries ago. AR will like probably be useful to travelers in many ways. Information, inspiration, navigation, education, translation is in one app. Also, travelers will use AR technology to choose their destinations and activities before and during their trip. Ultimately, as [1, 2, 4, 5] recommended that they will experience planning and traveling in a much more interactive and enriching way that will feel like a journey of its own. It also might imply that the real experience should beat the virtual experience as good marketing is all about managing expectations. Reality will be enriched and layered. The researchers recommended that services and visits will become more optimized and personalized than ever. Nevertheless, personal innovativeness was found to reinforce the relationships among content quality, personalized service quality, system quality, and satisfaction with augmented reality.

C. Mixed Services

They are offering includes the core services and peripheral services offered by the firm moreover; the related promotional communications with customers, and the service delivery system used to deliver the services. [19, 22] implied these include the brand name or trademark, price; the level of quality, packaging design, size variations, color might be choice, flavor varieties, service support, warranties, and guarantees, extended credit terms, installation; and return policies. Collectively these features and attributes enhance the value of augmented services' total worth. These services work anywhere, adding a layer of exciting information to intuitively interact via the surrounding objects, places, or people. They are not the only forms of tourism that depend on heritage resources, but they are illustrative of the point. They can apply in various applications areas, ranging from navigation, shopping and tourism to entertainment, gaming and social interaction. This potential creates excellent possibilities but also challenges for designing a pleasurable user experience.

D. Automatic Guidance

The automatic guide enables a change in format for the products on the production lines for automatic guidance on conveyors, ever so rapidly and accurately, without any need for tools.

This system eliminates the need for human intervention and ensures the perfect positioning of the products, both straight and in curves, or for a transfer between conveyors. Also, it was aware of the position of the visitors. As the visitors walked up to a specific exhibit, without any clicks or operations, the system could retrieve the corresponding information of that exhibit automatically. According to [7, 21] suggested the first was a set of signal transmitters which were pre-installed at different locations of museums or scenic spots. The second was a handset device that would be carried by a visitor. Also, by detecting the signal emitted from the pre-installed transmitters at different locations, the client device could determine the position of the visitor. Accordingly, it should automatically deliver the corresponding contents to the visitor.

E. Mixed Transportation

However, the development of this augmented transportation is still a significant room; there should still significant to develop in this industry, and it should do so over the coming years. Even though augmented transportation has helped tourists navigate train lines, assist cyclists in urban traffic, and it improved logistics transportation optimization.[4, 7] implied that it combines the excellent public transport navigation capabilities with augmented reality visualization on a mobile device. The system can provide directions to tram and bus stops and monitors user journey in real time using geolocation data and schedule information.

F. Mixed Browser

Augmented Browser describes the experience of using a system that can automatically augment or improve the information in web pages. It augments the physical environment with digital information associated with geographical locations or real objects by using smartphones with a camera, GPS, and compass sensors. According to [2, 7] implied while still relatively small in the mobile applications landscape; AR technology has nevertheless become a noticeable player.

G. Mixed Program

Augmented Program is the VR Tour that organized by virtual reality; the tour was scheduled to visit the various actors for operation in the fields of virtual and augmented reality in all World Heritage in ASEAN. According to [7, 17] suggested this initiative aims to build and enhance the Tour that would lead to maps of the various actors operating in VR, AR, 3D and other related fields and areas of expertise.

TABLE III. SUITABILITY EVALUATION OF MIXED REALITY FOR A WORLD HERITAGE IN ASEAN

Items	Evaluation Outcome		Results	CV (%)
	\bar{X}	(S.D.)		
Museum Interaction	4.36	0.93	High	21.32
Mixed Reality destination	4.50	0.65	High	14.45
Mixed Services	4.57	0.51	Highest	11.23
Automatic Guidance	4.57	0.65	Highest	14.14
Mixed Transportation	4.43	0.85	High	19.23
Mixed Browser	4.64	0.50	Highest	10.71
Mixed Program	4.43	0.65	High	14.59
Overall	4.50	0.60	Highest	13.28

*N=15, 95% of confidence

TABLE IV. RELIABILITY STATISTICS OF SUITABILITY’S MIXED REALITY FOR A WORLD HERITAGE IN ASEAN

Cronbach’s alpha	Number of Items
0.9429	7

According to table 3, the researchers collected data from fifteen experts to acquire the evaluation that should be developed in the mixed reality for a world heritage in ASEAN, and the result shows that this mixed reality for a world heritage in ASEAN should be mixed browser, the average mean was 4.64, with S.D. was 0.50, respectively. The average mean for mixed service and automatic guidance were 4.57, and 4.57 and S.D. were 0.51 and 0.65, respectively. Overall evaluation outcome rated at the highest level with average was 4.50 and S.D. was 0.60. Also, the alpha coefficient for the five items is 0.9429, suggesting that the items had relatively high internal consistency. Moreover, it represented the coefficient of variation was 13.28%.

V. CONCLUSION

This study was to develop a virtual reality travel framework for guiding the development of augmented reality travel applications. This research analyzed and synthesized data gathered from a digital library such as ScienceDirect, ACM Digital Library, ProQuest, IEEE. Then, the researchers implemented this framework in the following steps. First, the study searched those articles by keywords as augmented reality, world heritage, ASEAN, and tourism. Second, the synthesis result found components in the development of augmented reality travel application. Third, the synthesis of components was in this research that can be implemented in the augmented reality travel application as follows: 1) museum interaction, 2) mixed reality destination, 3) mixed services, 4) automatic guide, 5) automatic transportation, 6) mixed browser, and 7) mixed program. Finally, the result of suitability evaluation regarding the synthesis of mixed reality for a world

heritage was at the highest level, and the reliability of Cronbach's alpha for seven keys was 0.9429 and the coefficient of variation (CV) was 13.28 percentages which indicated that this study could be applied to the development of quality framework that suit for traveling system needs.

Even though similar research in this fields was incompleated components to serve the traveler, these components have completed the services of travel agencies, travelers, businesses and developer applications.

VI. FUTURE WORK

This research worked to explore the components of mixed virtual reality by analysis and synthesis of the research documents in the digital library such as ScienceDirect, ProQuest, IEEE. The researchers would like to implement these components in the framework for entrepreneurs in tourism. Moreover, the stakeholders will use this application for serving ASEAN world heritage, augmented reality, virtual reality, and mixed reality is changing the way that people perceive and interact with the digital world. Combined with conversational platforms, a fundamental shift in the user experience to an ideal and immersive experience will emerge. The focus will be on mixed reality with digital and real-world objects while maintaining a presence in the physical world.

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