International Journal of Advanced Research in Technology and Innovation
e-ISSN: 2682-8324 | Vol. 1, No. 1, 8-13, 2019
http://myjms.mohe.gov.my/index.php/ijarti

THE APPLICATION OF IMMERSIVE TECHNOLOGY, VIRTUAL REALITY IN ELECTRONIC TOURISM

Aloysius Yapp[1*], Lim Chai Kim[1], Goh Kiang Kuan[2], Hafez Bin Zainudi[2]

[1]Universiti Tunku Abdul Rahman, Faculty of Creative Industries, Game Study Department.
[2]Universiti Tunku Abdul Rahman, Faculty of Creative Industries, Department of Multimedia & Digital Animation.

*Corresponding Author: kilikulu_2004@yahoo.com

Accepted: 1 June 2019 | Published: 15 June 2019

Abstract: *To travel to a place you have never been before either locally or abroad is a good way of self development. Experiencing a new surrounding can stimulate childlike curiosity and a sense of happiness in oneself. However, circumstances like climate change, aeroplane crash (2018 Indonesia, 2019 Ethopia), terrorist attack (Thailland, Bali), kidnapping (Sabah), strikes (France) and physical disabilities are some of the deterrents to travelling. Despite all that can go wrong, people still wish to travel. Most people at some point in their lives will have an urge to travel. Tourism and terrorism reflect very different philosophies, but there are also some disturbing commonalities. Both need modern technology to be effective, both rely heavily on media management and both require the manipulation of perceptions and attitudes. The scenarios stated above are some of the reasons immersive technologies, for example, virtual reality (VR) can be another way for people to 'travel'. VR development has been immensely fast in the past years, with many consumer grade headsets becoming available just this year Philipp Jacobius (2016). As it is common for new advancements in the Information & Communications Technology (ICT) sector, the technology is originally built for a very specific industry and then later adapted to other specific industries in more general applications (Guttentag, 2010). Sussmann and Vanhegan (2000) define VR as a system that has as its goal the complete replication of elements of the physical world with synthesized 3D material, such as figures and sound into a Virtual Environment (VE). The feeling of presence, which describes the degree of how much a user feels like they are at another place, is accomplished through the stimulation of various senses; most importantly there should be stated sight, sound, and touch. In this matter, user experience (UX) must be one of the factor been carried as a measurement for interest of the user or tourist. In the touristic context, the simulated real world as a VE is of more importance. Especially the sense of sight is very important in tourism, where a lot of experiences depend on visual stimulation (Gutiérrez, 2008; Guttentag, 2010). For this reason, VR seems to be a great fit for the tourism industry, an industry that can boast visually very impressive destinations.*

Keywords: Tourism, Terrorism, Global Climate Change, Aeroplane Crash, Strike, France ,Virtual Reality (VR), Information & Communications Technology (ICT), user experience (UX), Virtual Environment (VE), Visual Stimulation.

1. Introduction

This is a practice led research encompassing the development and application of immersive technology, specifically VR, in tourism. A VE of an Iban Longhouse was developed for a user to tour the exterior and interior of the longhouse. Due to many uncertanties in the world (natural or human disaster), people are taking the risk to travel. Just like what was addressed by Raj Virat on Quora, Oct 18, 2015: "Travelling the world or even your own country can be a great asset to personal development. A heightened sense of our surroundings can stimulate all sorts of feelings, flooding the body with endorphins and creating a natural subtle trigger for internal happiness." With VR we can easily travel from one country to another country just with a click of the fingers.

Significance

VR is a solution for people who are not able to or chooses not to travel physically. With VR we can easily travel from one country to another country with the click of the fingers. That is the selling point.

Scenarios to Think About

Ethiopian Airlines crash: What is the MCAS system on the Boeing 737 Max 8?
News headline published on 23 March 2019.
Similarities between the Lion Air and Ethiopian Airlines crashes, confirmed by black box data, have focused attention on an anti-stalling system used in the new Boeing 737 Max 8 aircraft.

The Maneuvering Characteristics Augmentation System (MCAS) is an automated safety feature on the 737 Max 8 designed to prevent the plane from entering into a stall, or losing lift.

Figure 1.0: Search workers carry a tyre at the scene of the Ethiopian Airlines Flight ET 302 plane crash, near the town

Travel Chaos in France: Flights and Trains Cancelled as Strikes and Protests Spread
Another news headline published on Mar 22, 2018
A wave of public and transportation sectors strikes hit France Thursday with many services including air and rail transportation severely affecting commuters and passengers.

Thousands of members of various labor unions joined more than 150 protests spreading across the country, including Paris, as train service and flights were cancelled by the hundreds, paralyzing much of the country.

Virtual Practice Discussion

Sara De Freitas, Genaro Rebolledo- Mendez, Fotis Liarokapis, George Magoulas and Alexandra Poulovassilis (2009) used virtual worlds, with text- based, voice- based and a feeling of 'presence' naturally to allow for more complex social interactions and designed learning experiences and role plays, as well as encouraging learner empowerment through increased interactivity. Meanwhile, 3D virtual world provides opportunities for destination marketing organizations to communicate with targeted markets by offering a rich environment for potential visitors to explore tourism destinations (Yu Chih Huang, Kenneth Frank Backman, Sheila J. Backman, Lan Lan Chang, 2015). Barbara Neuhofer, Dimitrios Buhalis and Adele Ladkin (2013) addressed the gap between recognization of technology impact on experiences and its empirical exploration by empirically exploring five leading industry cases to generate a holistic understanding of technology- enhanced tourism experiences. Eventually VR has enjoyed a significant upswing of interest from researchers and businesses generally but also specifically from the tourism sector (Timothy Jung, M. Claudia tom Dieck, Natasha Moorhouse, Dario tom Dieck, 2017).

After accumulating the statements, the concept of using alternative solution for instance immersive technology, VR is our outcome. The project consisting of cultural and heritage content drove us to develop an application for future tourism (in the context of Malaysia).

The Field Work

A work force of 5 had been sent to Sarawak for local content and data collection. Researchers travelled to a longhouse and experienced its surrounding.

Figure 2.0 Field work in progress.

Figure 3.0 Crossing river for path finding discovery experience (main purpose for user interface (UI))

Figure 4.0 Suspension bridge crossing experience. (main purpose for user interface (UI))

2. The Research Methodology

The figure below shows the three main phases in our research method. It starts with the data collection phase, where researchers were deployed to the site that is to be virtualized. Based on the data collected, virtual assets are constructed and arranged into a virtual environment. The last phase is the prototype development to include interactivity.

Figure 5: Main phases of research methodology

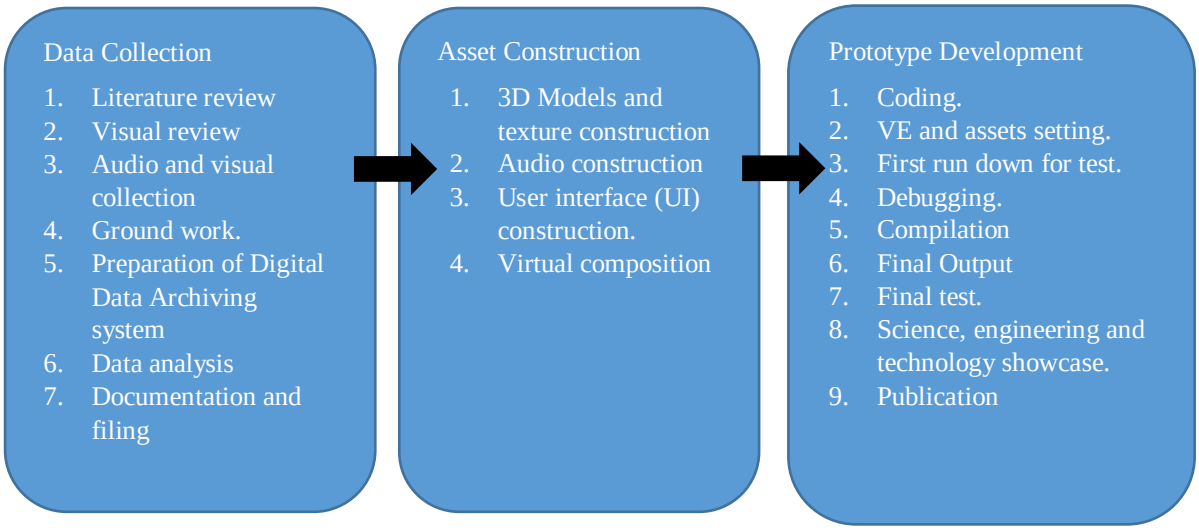

Figure 6: Breakdown of research phases

3. Discussion

The research consists of preparation stage until the development stage. The research team had to study the gap between previous and current research. Then preparation of work flow for the data collection field work. Once the data is ready, analysis had been carried out to make sure the correct data had been collected. Content development team then took over the outcome from analytical process for content building. Eventually the analytical team will assist in the development stage as well. After getting the outcome, testing and evaluating team took over. One of the activities is showcasing the content to the public to get feedback from users. Based on the feedback the development team will improve the system.

4. Conclusion

In this research our team had gathered data from actual Iban longhouses, developed a VR prototype from concept until the final output. We hope this research can become another solution for tourism in future. We are also looking for opportunity to collaborate with other institutions or organizations.

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