

**Universiti Teknologi MARA**

**Malacca Historical Buildings Interactive  
Tour on Smartphone using Augmented  
Reality Technology**

**Engku Ahmad Fariz Bin Engku Zaina Abidin**

**Thesis submitted in fulfilment of the requirements  
for Bachelor of Science (Honours)  
Information Systems Engineering  
Faculty of Computer and Mathematical Sciences**

**JULY 2015**

## **SUPERVISOR'S APPROVAL**

### **MALACCA HISTORICAL BUILDINGS INTERACTIVE TOUR ON SMARTPHONE USING AUGMENTED REALITY TECHNOLOGY**

By

**ENGKU AHMAD FARIZ BIN ENGKU ZAINA ABIDIN**

**2011844392**

This thesis was prepared under the direction of thesis supervisor's, Dr Elin Eliana Binti Abdul Rahim. It was submitted to Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Science (Honours) Information Systems Engineering.

Approved by,

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Dr Elin Eliana Binti Abdul Rahim

Project Supervisor

JULY 30, 2015

## STUDENT'S DECLARATION

I certify that this report and the research to which it refers the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledgement in accordance with the standard referring practices of the discipline.

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ENGKU AHMAD FARIZ BIN ENGKU ZAINA ABIDIN  
2011844392

JULY 30, 2015

## ACKNOWLEDGEMENT

Alhamdulillah, praises and to Allah S.W.T. because of His Almighty and His utmost blessings, I undergo my Final Year Project and finally completed the research within the time duration given.

First and foremost, I would like to express my gratitude to my project supervisor, Dr Elin Eliana Binti Abdul Rahim, for giving me continuous support and guidance throughout the Final Year Project period. All advice, comments and ideas was given to improvise my research until the accomplishment of this research

Other than that, I would like to give my token of appreciation to the representative of National Archives of Malaysia, Mr. Mohd. Nasir Bin Ibrahim and Perbadanan Muzium Melaka (PERZIM), Pn. Norzy Binti Abdul Aziz for providing me with all of the content for me research. Also many thanks to the participants of the usability testing and application assessment.

I would also like to express my heartfelt gratitude to my family, especially to my beloved parent, for their loving support and always prayed for my success. Last but not least, I would like to thank all my friends for their kind assistance and moral support. I'm very thankful to everyone who helped me direct or indirectly in completing this thesis.

## ABSTRACT

This research delivered an Augmented Reality (AR) technology in Android application. Nowadays, AR is not a new approach in the tourism industry. There are tons of AR application that focus on tourism such as WikiTude and Metro AR Pro. This research purposes it to applying AR technology to enhance the interactive tours on Malacca historical buildings. The developed AR application is called MalaccaAR. The current conventional approach of visiting the historical buildings is by using a traditional paper maps or online reference where visitors need an internet connection on their smartphone. These approach has several problems that limit the interaction between visitors and the historical buildings. The first problem is visitors can't see the original building design because most of the historical buildings in Malacca are not in original shape either have been demolished or renovated. The second problem is traditional maps doesn't include complete details about the building where only a few details of the historical buildings included such as name of the buildings, location of the buildings and latest picture of the buildings. The main goal of this research is to provide the ability to view the original building shape by displaying pictures of the historical building. The methodology used in the development of MalaccaAR is User-Centered Design (UCD). By implementing UCD in this application development, users play a very important role by involving in earlier design stages, which ideas are taken to a few representative users for their earlier in design. This kind of approach has been shown to lead to developing more usable satisfying designs. This research also performs usability testing to measure the performance of the application. End-user which is the visitor of the historical buildings involved in the usability testing. Moreover, assessment evaluation was also conducted to ensure that all content contained within this application coincided with the issue that would like to highlight and also to meet the needs of the users. As for the result of the usability testing, most of the participants found that the application to be well-organized, very useful and easy to use application. For the native application assessment, most of the participant agree that the application is well-built, comprehensive, clean and uncluttered. The content included in the application met with the user requirements. The future upgrade suggested for this research are to include more historical buildings in Malacca. Currently, this application only cover one historical building which is A'Famosa Fort (Porta de Santiago).