UNIVERSITI TEKNOLOGI MARA

SERIOUS GAMING FRAMEWORK TO DESIGN EVACUATION FACILITIES

MOHAMAD SALAH TALEB

MSc

April 2020

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Mohamad Salah Taleb
Student I.D. No.	:	2018652758
Programme	:	Master of Science (Civil Engineering) – EC750
Faculty	:	Civil Engineering
Thesis Title	:	Serious Gaming Framework to Design Evacuation Facilities
Signature of Student	:	……………………………………………..
Date	:	April 2020

ABSTRACT

The building sector struggles from the aspects of safety and security during evacuations, such as fire evacuation, especially in current times, where usual drills are insufficient. The situation is further exacerbated as previous evacuations in high-rise buildings show deficiencies in design procedures because of contempt on code's minimum requirement by designers. The popularity of Serious Games has increased widely and proved to be a very effective training tool in many sectors. Serious Games can assist in preparing qualified designers, whereby they are able to conduct experiments within the game safely and in repeatable environments. Developing scenarios play a huge part towards the development of a serious game. This study has been conducted to propose a serious game framework in training designers for evacuation requirements. The four objectives established for this study are as follows: 1) to explore the applications of Serious Game from construction/building engineering perspective; 2) to define the requirements evacuation facilities for fire in high rise buildings; 3) to develop serious gaming scenarios based on real-life fire accidents; 4) to develop a serious game framework that integrates the design elements in evacuation facilities with different game scenarios. This exploratory study has adopted various research methods such as systematic review, open-ended interview, as well as structured interview that enables triangulation of the findings. The outcome of this study enables the provision of a creatable, safe and repeatable environment for designers to design for fire evacuation as it allows high degree of immersion between the designers and the real life-based scenarios in the game.

ACKNOWLEDGEMENT

TABLE OF CONTENTS