

An IT Model to engage elderly people to the community.

by Tuan Vinh Ha

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the degree of

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under the supervision of Professor Doan B. Hoang

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Certificate of Original Authorship

I, Tuan Vinh Ha, declare that this thesis is submitted in fulfillment of the requirements for the award of Master of Science (Research) in Computing Sciences, in the Faculty of Engineering and Information Technology at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise reference or acknowledged. In addition, I certify that all information sources and literature used are indicated in this thesis.

This document has not been submitted for qualifications at any other academic institution.

This research is supported by the Australian Government Research Training Program.

Signature: Production Note:
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prior to publication.

Tuan Vinh Ha

Date: 17/06/2021

Dedication

To my parents, aunty, and siblings

To my primary supervisor

Thank you all for your great support.

Acknowledgment

During the length of my candidature, I have received many valuable lessons, support, and encouragement. I want to express my deepest appreciation to my principal supervisor, Professor Doan B. Hoang, for his tireless guidance. From him, I have learned many invaluable lessons that cannot be read in books, learnt from documents, or even experienced from the industry. Problem-solving, research skills, critical thinking are among the few to be named. His understanding and enthusiasm encouraged me to reach further than I expected. Without his insightful feedback, comments, and motivation, I would not be able to bring my work up to this standard.

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Abstract

Many countries around the world are experiencing an aging population issue. It is predicted to have a negative impact on the economy, health and social security system. As a result, it requires a solution that reduces the economic burden and the impact on the health care system by increasing productivity and promoting mental and physical health. Many solutions utilise the benefits of social networks or service networks. However, those solutions typically fail on the following measures: 1) they are ineffective in allowing elderly people to act as value contributors, 2) they do not provide enough benefits to older users. The goals of this thesis are to overcome these challenges by demonstrating the feasibility of how social network and service network can be integrated to provide benefits for elderly people. It also reveals the design and implementation of the engaging factors for online platforms to engage their users. Finally, it validates and evaluates the performance of the platform by collecting and analysing data after trial.

To achieve the above goals, this study investigates the possibilities and designs the necessary features of social network and service network to engage elderly people in the community. It also investigates and designs the engaging factors that can be adopted to engage users on an online platform.

The result of the collected data indicates that the platform has a positive effect on its users' financial and social well-being. The respondents indicated that it has the potential to improve their social relationships, increase their productivity and income. However, privacy and security remain the main concerns for some users.

The contribution of this thesis includes the integration of social network and service network with the novelty of the architecture where the integration of the two platforms can cover the shortfalls and assist each other to bring the maximum benefits. Another contribution is the methods to engage users on the platform with the novelty of interpreting and converting the factors that engage users in volunteering activity to technical implementation. It shows the possibilities of using these factors for future development on different online platforms.

Ultimately, the findings will have an impact on future directions for addressing the aging population. It opens the potential of using elderly people as a resource to provide benefit for

both elderly people, the society, and the community using a platform that utilises the social network, service network with the engaging factors.