

**UNIVERSITI TEKNOLOGI MARA**

**THE DEVELOPMENT OF BUS DETECTION  
DEVICES FOR THE BLIND PEOPLE USING  
RADIO FREQUENCY APPLICATIONS**

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Thesis submitted in fulfillment  
of the requirements for the degree of  
**Master of Science**


**Faculty of Electrical Engineering**

December 2012

## AUTHOR'S DECLARAION

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 result of my own work, unless otherwise indicated or acknowledged as reference work. This topic has not been submitted to any other academic institution or non-academic institution for any other 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.

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## ABSTRACT

The thesis outlines the development of bus detection devices for blind people using radio frequency identification technology. The blind uses auditory and tactile clues such as the walking stick also known as white cane in their daily life. The limitation of the walking stick is that a blind person must come into close proximity with their surroundings in order to determine the location of an obstacle. For that basis, various devices have been developed such as the Sonicguide, the Mowat sensor, the Laser cane and the Navbelt. However, these devices can only assist the blind at a pedestrian crossing. Therefore, the project aims to develop a bus detection device prototype using Radio Frequency Identification (RFID) for the blind. The device will assist the blind in detecting incoming buses at the bus stop, retrieve the relevant information from database and produces voiced description as an output mechanism. The research methodologies include the development of prototype, Graphical User Interface (GUI), database management system and output mechanism. The testing and validation processes consist of experiments on tag performance, antenna coverage pattern and the study of speed parameter. The discussion on experimental results, database, and functionality of output mechanism are also provided.

## ACKNOWLEDGMENTS

Alhamdulillah and praise to ALLAH S.W.T. for giving me the strength to complete my research study while facing with all kinds of challenging constraints during this period.

First of all, I would like to thank my supervisor, Dr Ismarani Ismail who helped and gave me guidance to complete my research. To other lecturers involved in my work and gave me guidance, I would also like to thank them. May Allah bless you all.

Special thanks to my lovely family, especially my mom and dad, Assoc. Prof. Hj. Noor Awang Hamat and Pn. Hasnah Ibrahim, who have always given me support and motivation during my studies. Without both of you, I would not know how to face this challenging period. Thanks to ALLAH again for giving me the best parents anyone could ever have. To my wife, Noraini Zolkaffli, to my sons, Haqqul Hakim and Haiqal Hakim and last but not least, to all my siblings, Mustakim, Imani, Nordinie, Fathin and Iezatie, thank you all for your encouragement and I love all of you so much.

Lastly, to all my dear friends, thank you so much for your encouragement and support throughout the duration of my study. I love you all and hope ALLAH will always be with you at all times.

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