

UNIVERSITI TEKNOLOGI MARA

**THE DEVELOPMENT OF SMART ROAD HAZARD REPORTING
MOBILE APPLICATION**

(Road4U)

By

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**This thesis submitted in fulfilment of the requirements
for Bachelor of Information Technology (Hons.)
Faculty of Computer and Mathematical Sciences**

February 2022

ACKNOWLEDGEMENT

All praises to Allah SWT and His blessing for the completion of this proposal. I thank Allah for all the strength that has been given to me to finish this proposal.

First and foremost, I would like to thank my supervisor, Dr. Ahmad Iqbal Hakim Suhaimi for his guidance, patience and most importantly encouragement and spirit towards this proposal. It has been a great pleasure and an honor to have him as my supervisor.

Next my gratitude goes to my final year project lecturer, Dr Emma Nuraihan Mior Ibrahim for her endless support and guidance for me to shape this proposal in many ways.

I also would like to thank my family members for their endless support in providing me with all the means to help me with my proposal from providing a comfortable place to study and providing me with some great supportive ideas alongside. It would be impossible to finish this proposal without their support.

Finally, I would like to give my appreciation to all my friends and classmates for spending their time to assist me with some of my question and solving some of my issues along the way. With their support and struggle together towards the completion of this proposal. I thank them.

ABSTRACT

Road Hazard is an object or obstruction such as potholes, uneven road, and many more. Every year there has been an increase of accident due to road hazard as there is an increase of vehicles on the road. Currently there is a lack of mobile application that allows user to be notified when approaching a road hazard and an application to share a reported road hazard between users. Therefore, “Road4U” Smart Road Hazard Reporting Mobile Application is developed to identify and alert user of the nearby road hazards. The objective of this project is to identify the requirements, to design and develop “Road4U” mobile application for reporting road hazards. The scope of this project mainly focuses on the road users of Selangor areas. This project adapts the Mobile Application Development Life Cycle (MADLC) up to the testing phase for the development. The main features for the application are real-time tracking, push notification, real-time database, and a smart reporting feature. The application allows user to easily report road hazard they encountered, share it with other user and even notify the users upon nearing a road hazard that has been reported. The mobile application is tested using System Usability Scale (SUS) to understand the effectiveness and usability of the mobile application. For future improvement, it is proposed for the “Road4U” Smart Road Hazard Reporting Mobile Application to be developed in the iOS platform to increase the compatibility with apple devices.

Keywords: Road Hazard, Smart Reporting, Mobile Application Development Lifecycle, Android, Push Notification

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CHAPTER ONE

INTRODUCTION

Chapter Overview

1.1. Project Background

Every year road accident has been increasing by the numbers due to the increase in vehicles on the road and license holder (Daina et al., 2012, p. 31). In Malaysia, the trend is similar as in 2008 there is 13,578,457 active number of vehicles on the road and in 2015 there is 18,026,509 vehicles (JABATAN PENGANGKUTAN JALAN, 2016). That is an increase of 27% over the span of 7 years.

There are multiple causes of accidents and one of it is road hazard. Road hazard is an incident that interfere with vehicles on the road which can cause a significant impact on their safety (Budzyński et al., 2019, p. 324). This shows that road hazard is dangerous and there are several cases in Malaysia that has been caused by road hazard such as potholes with one of recent incident causing injuries to YB Khairy Jamaluddin (Vanar, 2020).



Figure 1.1 Pothole

Source: Malaysia's Works Ministry Pledges to Fill Small Potholes within a Day, 2020

Figure 1.1 shows a pothole in the middle of the road. This is one example of road hazard under the road condition section which can cause drivers to lose control of the vehicle upon hitting it.