# UNIVERSITI TEKNOLOGI MARA

# DEVELOPMENT OF MOBILE LOCATION BASED NOTIFICATION FOR CRIME CASES TRACKING AS AN ALTERNATIVE ALERT FOR PUBLIC SAFETY

## NORAINI BINTI ISMAIL

Dissertation submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Networking

**Faculty of Computer and Mathematical Sciences** 

July 2014

#### ABSTRACT

Today, the public finds the info about crime cases activity in their neck of the woods from the read in the social media services, or requested the information from the police department. This study is to develop a system for Crime cases that capable for public or police officer to get an alert notification regarding of criminal hotspot. User also can search manually the crime cases in their neighborhood based on the current location (longitude and latitude). This study has been carried on to introduce Location Based Services (LBS). In order to develop the application with Android platform and Java, the researcher is using Eclipse IDE to support the development and use a SQLite database to store the data. The result showed that average speed of access to receive alert notification are 7.77 sec, 7.34 sec, 6.95 sec and 6.41 sec for GSM, 3g, GPS and WLAN accordingly.

### ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my Master and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor. Dr. Hj Kamaruddin Mamat. Thank you for the support, patience and ideas in assisting me with this project. I am sure it would have not been possible without his help. His sincerity and encouragement will never be forgotten and became my inspiration as I hurdle all the obstacles in the completion this research work. I also would like to express my gratitude to my examiner Prof Dr, Saadiah Yahya for providing the idea and knowledge.

My appreciation goes to the computer science department members of the Kolej Poly-Tech MARA Kuala Lumpur who provided assistance during my dissertation. Special thanks to my colleagues and friends for helping me with this project.

Finally, this thesis is dedicated to the loving memory of my very dear father and mother, Ismail Mohammad @ Mohd Embong and for the vision and determination to educate me. This piece of victory is dedicated to both of you. Thanks a hundred millions to all my siblings, Mohd Faris Bin Ismail, Mohd Saifuddin Bin Ismail, Mohd Suhaimi Bin Ismail and Norhana Binti Ismail for their support and motivation Also not to forget, friends whose boosted me morally and provided me great information resources. Thank you for all the contributions, motivations and reminders given till the end of this dissertation. Alhamdulillah.

## TABLE OF CONTENTS

AUTHOR'S DECLARATIONiv	
ABSTRACTv	
ACKNO	WLEDGEMENTvi
TABLE OF CONTENTSvii	
LIST OF FIGURES	
LIST OF TABLESxiii	
LIST OF ABBREVIATIONS xiv	
CHAPTER 1 INTRODUCTION	
1.1	BACKGROUND1
1.2	PROBLEM STATEMENT
1.3	RESEARCH QUESTIONS
1.4	RESEARCH OBJECTIVES
1.5	SCOPE OF THE STUDY
1.6	SIGNIFICANCE OF THE STUDY
1.7	ORGANIZATION OF THESIS7
CHAPTER 2 LITERATURE REVIEW	
2.1	LITERATURE REVIEW
2.1.1	Location Based Services
2.1.2	How Location Based Services Works
2.1.3	Positioning Methods for Smartphone
2.1.4	Pull Location Based Services
2.1.5	Push Location Based Services
2.1.6	Smart Phone as Hardware Device for Support Testing 17
2.1.7	Smart Phone Networks and Platforms 17
2.1.8	Android Architecture
2.1.9	Google Maps24
2.1.1	0 Java Language with Android
2.1.1	1 Location Based Messaging Architecture
2.2	RELATED WORKS
2.2.1	Case Study 1: NotiMe!
2.2.2	Case Study 2: Geo Alert
2.2.3	Case Study 3: CrimeMapping.com Mobile
2.2.4	Case Study 4: Malaysia Crime

# CHAPTER 1 INTRODUCTION

#### 1.1 BACKGROUND

Nowadays, many issues and trend of crimes such as robbery, drug addicts, rape, murder or snatch had arisen via the whole world. According to (Sung, 2013), the crime statistics was rising between 1% to 8% per year in the three decades. The researcher also argues that the total crime in Malaysia has been contributed until 13.5% in the coming years.

Figure 1.1 pictorially represents the crime index during the 2012 and 2013 in Malaysia. Like in the research done by (Hector, 2013), the crimes that are reported by the community have decreased by 27.8% from 2012 to 2013. However, the researcher argues that real statistics of crime rates are higher than reported by police. These articles discuss some possible causes of the unreported cases such as the victims feel the crime does not be solved anyway and waste time or feel the crime is too unimportant. These areas of crimes were happening shows that the public, especially to avoid being the victims need for valuable information in their neighbourhood about the recent crime activity. To overcome those crimes a lot of effort and works had been done in many countries everywhere in the world with their goal to be a less crime country.