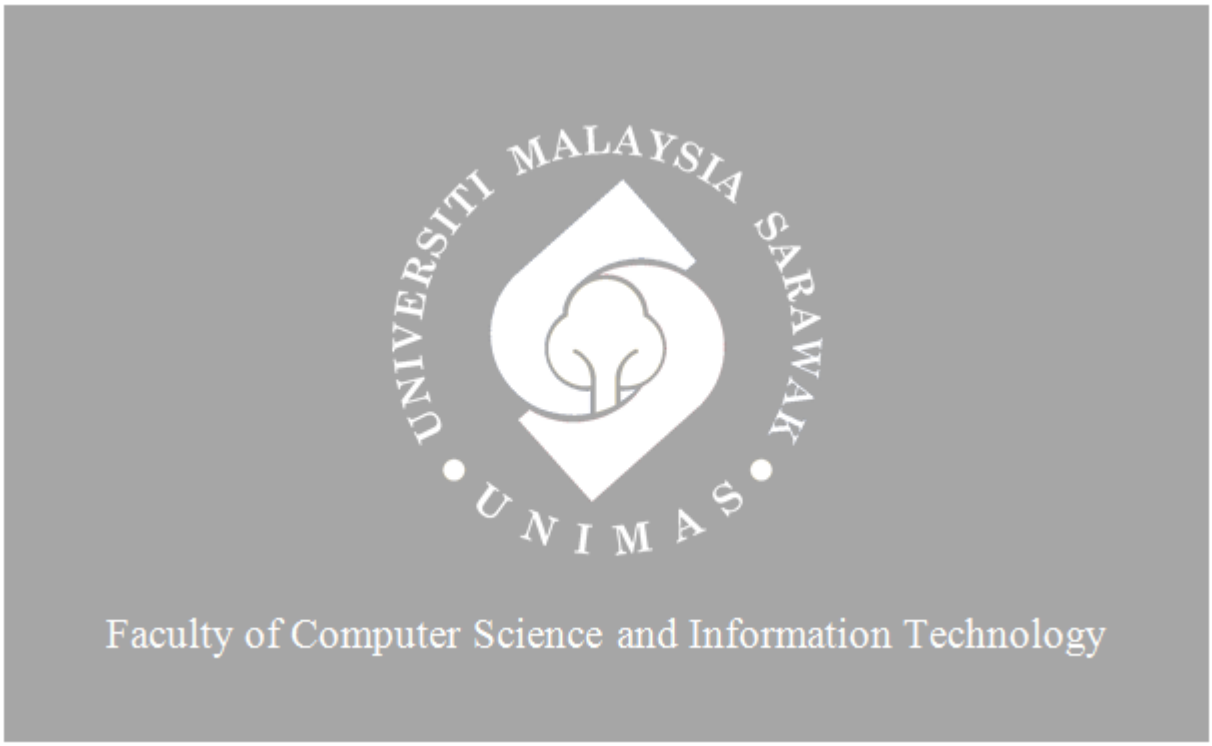

EMERGENCY NOTIFICATION APPLICATION FOR MOBILE DEVICE

HAU YONG CHUN

Bachelor of Computer Science with Honours

(Network Computing)

2018/2019

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HAU YONG CHUN

This project is submitted in partial fulfillment of the
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Finally, I feel thankful and grateful to who, directly or indirectly, have lent their helping hand in this project.

Declaration

I hereby declare that this project is my original work. I have not copied from any other student's work or from any other resources expect where due references are not made explicitly in the test, nor have any part has been written for me by another person.

(HAU YONG CHUN) 13 May 2019

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ABSTRACT

Emergency case can happen everywhere and anytime without being predicted. Crime, car accident, fire are the cases where help is needed immediately. Thus, personal emergency notification system is an important tool to protect personal safety and security.

In this emergency notification system which integrated with GPS tracking provided efficient location tracking which may become evidence in helping to restore the trust in the crime cases. Furthermore, a real time in app notification will be sent to notify users linked member in case of any emergency are happeded.

Last but not least, the proposed application is used to interconnect the user with their friend or family member, and it can be accessed by using a smartphone with the Internet connection.

ABSTRAK

Kes kecemasa boleh berlaku di mana-mana dan bila-bila masa tanpa diramalkan. Jenayah, kemalangan kerata, api adalah kes-kes di mana bantuan diperlukan dengan segera. Oleh itu, sistem pemberitahuan kecemasan peribadi adalah alat penting untuk melindungi keselamatan dan keselamatan diri.

Dalam sistem pemberitahuan kecemasan yang disepadukan dengan pengesanan GPS yang disediakan penjejakan lokasi yang cekap yang mungkin menjadi bukti dalam membantu memulihkan amanah dalam kes jenayah. Selain itu, masa nyata dalam pemberitahuan aplikasi akan dihantar untuk memaklumkan kepda ahli yang dikaitkan pengguna sekiranya berlaku sebarang kecemasan.

Akhir sekali, permohonan yang dicadangkan digunakan untuk menghubungkan pengguna dengan rakan atau ahli keluarga mereka, dan dapat diakses menggunakan smartphone dengan sambungan Internet.

Chapter 1 : Introduction

1.0 Introduction

Emergency case can happen everywhere and anytime without being predicted. Crime, car accident, fire are the cases where help is needed immediately [1]. Thus, personal emergency notification system is an important tool to protect personal safety and security.

Malaysia shows 61.15 crime index in year 2018 according to the NUMBEO, dropping at top 20th in the World, top 1st in South-Eastern Asia. This shows how concern where visitor comes to our country. Crime can be divided into different category such as crime against properties, and crime of aggression [2]. To overcome or prevent this kind of situation, an integrated system in mobile devices which can provided location tracking, location check-in, interconnect with local people, and emergency call to family members features which can help in protect the personal safety.

In existing emergency notification system, it can be classified into two types [3]. One is designed to connect to a node at local area, the another one is normally designed for elder people where a physical SOS button is enabled when facing emergency case and the notification will send to the people that setting in advance. However, it cannot provide enough information that regarding to the emergency case since it is built without embed GPS tracking feature.

In this emergency notification system which integrated with GPS tracking provided efficient location tracking which may become evidence in helping to restore the trust in the crime cases. With the help of GPS tracking feature, the location of the victim can be easily

target, and easy to use interface is capable for sending the notification to the connected friends or family members.

1.1 Problem Statement

Malaysia is a relatively safe country, violet crimes are uncommon, however, assaults and robberies do occur frequently. Purse snatching, pickpocketing, and bag snatching are the common case happened in Malaysia. Besides, the private hire car services such as Grab car is also getting popular from time-to-time, to keep track your family member's location is getting important if their facing any emergency cases. Some of the case do happen very quickly and the victim does not have enough time to response and they may forget what happened during the case. Hence, a computational system in the mobile devices which can keep track the location, connecting to family members may can help to provide evidence for helping the cases. Hence, this personal emergency notification system is to keep and assist people safe, covering all kinds of personal emergency.

1.2 Scope

Emergency Notification Mobile Application is an application that developed for the smartphone user to safeguard their personal safety. The specialised for this application are this system can be running on different operating system since it is built with a hybrid mobile application. Users can connect with their family members and friends to form a link. In case of emergency happen, they can send a SOS notification to the connected people. The notification will be included user's details and current location.

1.3 Objectives

- To design and develop a system for interconnecting-between family members and friends.
- To evaluate the usability of the proposed personal emergency application system.

1.4 Methodology

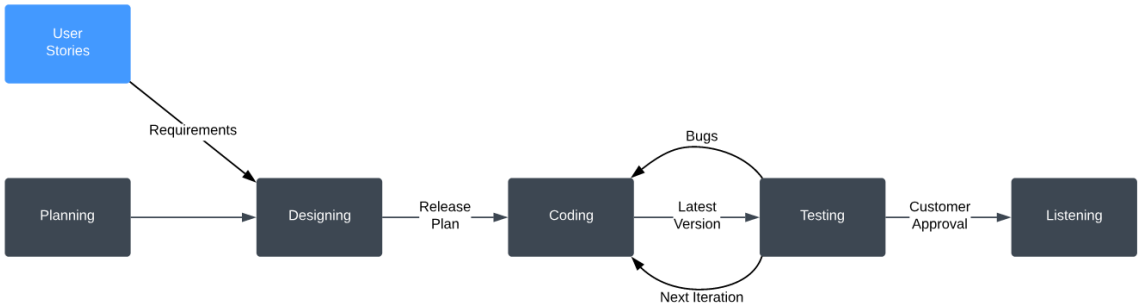

Figure 1:1: XP methodology life cycle

The methodology used to develop this system is called Extreme Programming (XP) methodology. It is a framework that built with the concept of agile software development methodology. There are five phases in this methodology which is planning, designing, coding, testing and listening. Unlike the traditional methodology which is sequential, XP methodology is iteration and required more customer involvement.

i. Planning

Planning stage require to collect data to understand what the requirements for this application are and packed those requirements into user stories and then separate the requirement into different iteration.

ii. Designing

This stage is requiring to shows the design of the system, and the data flow within the system.

iii. Coding

Requires developer to developing the code based on the agreed metaphors based on the designing stage.

iv. Testing

All codes need to be tested to eliminate the bugs exists, and make sure all features have reached the user's requirement

v. Listening

This stage is a continuous mechanism of customer involvement through feedback during the development phase

1.5 Significance of Project

This project will bring out a system which user can register an account and use it to connect with their family member or friends. In case of emergency happened, they can send the SOS notification to them and ask for help. Besides, this system can use to help and form a safeguard web to protect the villages safety in an area. This project serves a purpose to help in reducing and improve the crime rate in Malaysia and act as a medium to protect personal safety and security.

1.6 Project Schedule

Task Name	Duration	Start	Finish
Project Emergency Notification Mobile Application	**151 days**	**Tue 18/9/18**	**Tue 16/4/19**
Phase 1: Planning	**24 days**	**Tue 18/9/18**	**Fri 19/10/18**
1.1 Identify problem	5 days	Tue 18/9/18	Mon 24/9/18
1.2 Gather requirement	4 days	Tue 25/9/18	Fri 28/9/18
1.3 Prepare brief proposal	5 days	Sat 29/9/18	Thu 4/10/18
1.4 Prepare full proposal	10 days	Fri 5/10/18	Thu 18/10/18
Phase 2: Designing	**42 days**	**Sat 20/10/18**	**Sat 15/12/18**
2.1 Prepare Chapter 1	8 days	Sat 20/10/18	Tue 30/10/18
2.2 Prepare Chapter 2	10 days	Wed 31/10/18	Tue 13/11/18
2.3 Prepare Chapter 3	14 days	Wed 14/11/18	Mon 3/12/18
2.4 Prepare FYP1 final report	9 days	Tue 4/12/18	Fri 14/12/18
2.5 Submission of FYP1 final report	1 day	Sat 15/12/18	Sat 15/12/18
Phase 3: Coding			
3.1 Define main code structure	60 days	Mon 17/12/18	Fri 8/3/19
3.2 Implementation	50 days	Mon 17/12/18	Fri 22/2/19
3.3 Prepare Chapter 4	10 days	Sat 23/2/19	Thu 7/3/19
Phase 4: Testing	**27 days**	**Mon 11/3/19**	**Tue 16/4/19**
4.1 Implement test case	14 days	Mon 11/3/19	Thu 28/3/19
4.2 Prepare Chapter 5	12 days	Fri 29/3/19	Mon 15/4/19
4.3 Submission of final report	1 day	Tue 16/4/19	Tue 16/4/19

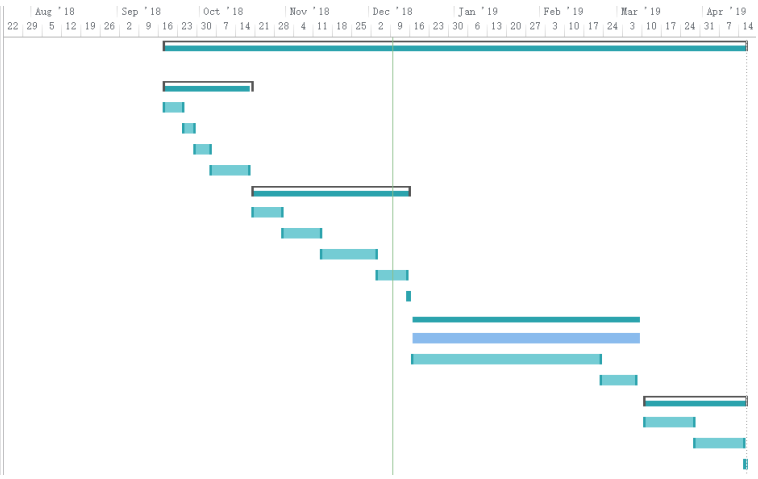

Figure 1:2: Gantt chart of project Emergency Notification Mobile Application

1.7 Expected Outcome

The main outcome of this project is a complete application that can connect to the user's family member or their friends. They can get notice immediately when some emergency cases are happened. This system also provided some useful contact number when facing some emergency cases for travellers.

1.8 Project Outline

The outline for this project can be categorized to five chapters.

i. **Chapter 1: Introduction**

Description of overview and introduction for Emergency Notification Mobile Application will be discussed in Chapter 1.

ii. **Chapter 2: Literature Review**

Study and review on three existing system will be discussed in Chapter 2. After comparing each system features, the solution of Emergency Notification Mobile Application will be proposed.

iii. **Chapter 3: Requirement and Analysis**

Chapter 3 will focus on the methodology that used to develop this system. Besides, the system design will be discussed in this chapter, for example, UML diagram to analyse how system work, and mock-up UI design descript the user interface prototype of this application.

iv. **Chapter 4: Implementation and Testing**

This chapter will focus on implementation and testing of this application.

v. **Chapter 5: Conclusion and Future Work**

Chapter 5 will focus on summarize this application and discussed the future work of it.

Chapter 2 : Literature Review

2.0 Introduction

This chapter is to study and review on three existing related systems. The features, functionalities and user interface of the three existing system are reviewed and discussed in this chapter. The details of comparison for each system will be shown below. Besides, a summary of comparison between these systems will bring out some ideas to improve our current developing system.

2.1 Review on Existing System

Three similar existing applications will be compared and reviewed in this section are Emergency alert, SOS Emergency Alert and Emergency Alert Widget Application. All these applications are available in Google Play Store.

2.1.1 Emergency Alert

Emergency Alert is an Android emergency alert application which is developed by Harsh Patel. This application is to design for the user to immediately send a text message to the emergency contact in case they are facing any emergency such as, medical emergency, robbed, mugged and so on.

This application provided features such as location tracking, allows user to send an emergency text message to emergency contact, and allows customization of emergency message. Besides, it also provided a useful feature such as press and hold the alert button to avoid accidental presses the alert button.

Figure 2:1: Dashboard of Emergency Alert application

Figure 2.1 shows the dashboard for Emergency Alert application. User are required to press and hold the alert button at the middle and then the emergency message will send to the emergency contact that user had predefined earlier on.

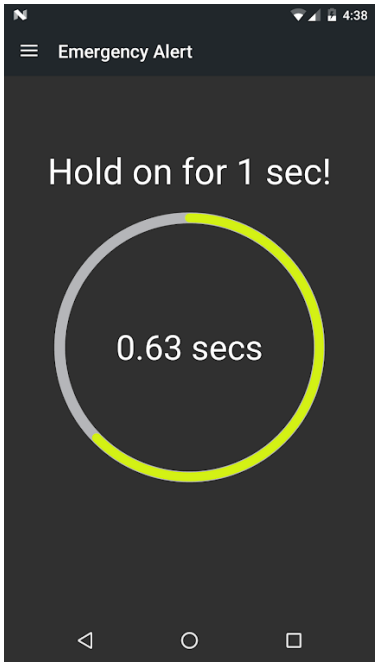

Figure 2:2: Press and hold the alert button

Figure 2.2 shows the interface when user is press and holding the alert button. This feature is design for preventing the user accidentally presses the alert button.

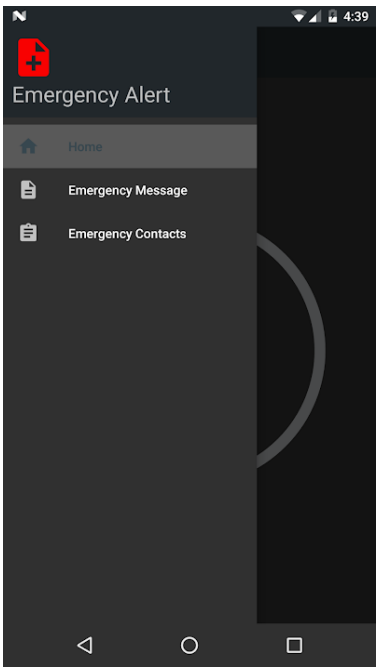

Figure 2:3: Navigation bar of Emergency Alert application

Figure 2.3 shows the navigation bar and different pages and functionality of the Emergency Alert application. There are three main pages for this application, which is Home, Emergency Message, and Emergency Contact. The brief functionality for each page is shown as table below.

Pages	**Redirect to / Brief functionality**
Home	Dashboard which allows user to press the emergency alert button.
Emergency Message	Allows user to customize the emergency messages.
Emergency Contact	Allows user to add emergency contact from user local contact on his own device.

Table 2-1: Different pages of Emergency alert

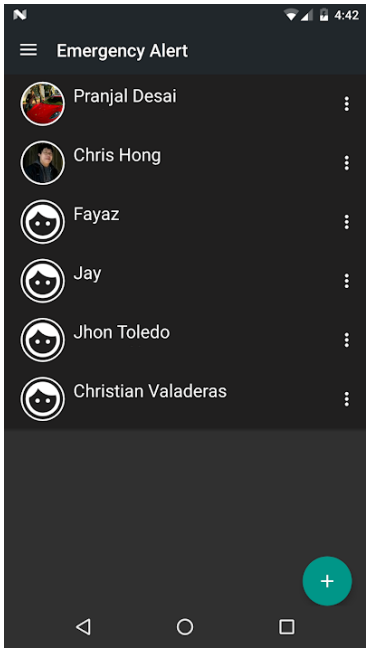

Figure 2:4: Emergency Alert application contact list

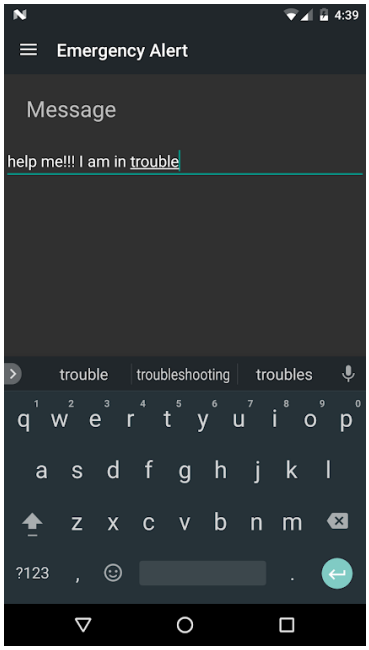

Figure 2:5: Customization of emergency message

Figure 2.4 above shows the contact list that user can add from his own local device's contact. Figure 2.5 shows the interface for the user to customize the emergency messages that use to send.

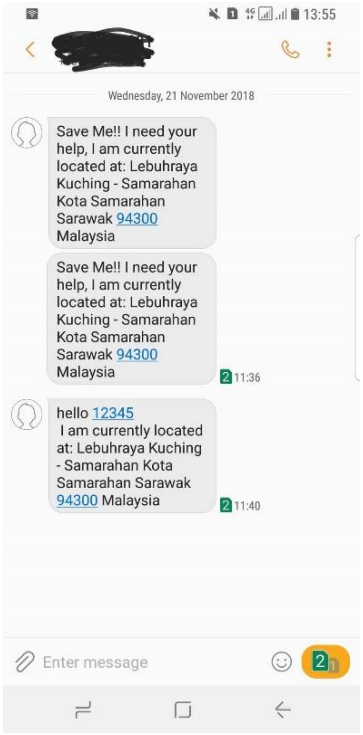

Figure 2:6: Emergency message from Emergency Alert

Figure 2.6 shows the emergency message from Emergency Alert. The content will be included user customize message and the user current location. Thus, the contact who received the message will get the current location of the user.

2.1.2 SOS Emergency App (SOSmate)

SOS Emergency App is an Android application which is developed by imcodebased.com at Australia. It's free and ads free and available is Google Play Store. It contains features such as, send an emergency SMS to the user contact in case any emergency happened, keep user current location, current country emergency contact number, a list of the emergency number for all the country, customization of emergency messages, whistle voice to attract attention and so on.