UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ADVANCE SWIFT COMMUNICATION SYSTEM

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Computer Engineering Technology (Computer System) with Honours.

by

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ABSTRAK

Pada masa era teknologi ini, telefon pintar telah menjadi satu keperluan asas untuk memulakan kehidupan sosial. Mereka menggunakan telefon pintar untuk menghubungi antara satu sama lain and mengkongsi maklumat antara bulatan sosial. Kita terdapat banyak aplikasi komunikasi seperti Messenger, WeChat dan WhatsApp. Semua aplikasi ini akan guna internet telefon untuk pengguna hantar mesej kepada kawan dan ahli keluarganya. Kalua tidak ada internet, pengguna tiadak boleh hantar atau terima mesej dari orang lain. Selain itu, aplikasi-aplikasi ini terdapat fungsi untuk membisukan pemberitahuan. Kalua pemberitahuan telah disenyap, pengguna tertentu tidak akan dapat menerima maklumat pada masa. Di samping itu, kalau terdapat lebih daripada 100 mesej yang belum dibaca, pengguna akan terlepas beberapa msej penting. Sistem ini mengandungi sebuah aplikasi android yang membolehkan pengguna memasukkan mesej dan memilih kumpulan penerima dari pangkalan data. Mesej yang dimasukkan dan penerima kumpulan yang telah pengguna pilih akan dihantar dengan perkhidmatan SMS dari telefon bimbit. Dengan sistem ini, penerima terus boleh menrima mesej dari pengguna sistem. Di samping itu, sebuah laman web juga dibina untuk admin mengemas kini penerima yang telah disimpan dalam pangkalan data seperti menambah atau memadam kumpulan penerima. Dengan melengkapkan projek ini, penerima tidak akan terlepas apa-apa mesej segera walaupun mereka tiada rangkaian internet pada masa itu.

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ABSTRACT

In this era of technology, smartphone became the basic necessity for the person who started their social life. They use smartphone to communicate with each other and sharing information among the social circle. We had a lot of free messaging applications such as Messenger, WeChat and WhatsApp. All of them use phone's internet connection to let people message friends and family. If no internet connection, people cannot use them to send message or receive message from others. Besides, there is a function to mute the group notification. If notification is muted, when urgent message is sent, people may not alert on time. Moreover, when there is 100 more unread message in group chat, user may also miss some message. This system contains an Android application that allow user to enter message and select the recipients group from the database. After the message is entered and recipients was selected, the message will send out via the SMS services of the mobile devices. This allows recipients directly receive the importance message from system user. Besides, a web page was developed for the administrator to update the recipients stored in the database such as add in, edit and delete from the database. By completing this project, recipients will not miss out any urgent message even when they are short of internet network connection.

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DEDICATION

To my beloved parents and all my family members who always encourage and support me during my project.

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LIST OF ABBREVIATIONS, SYMBOLS AND NOMENCLATURE

ADT `	-	Android Development Tools
APK	-	Android Application Package
ASCS	-	Advance Swift Communication System
AVD	-	Android Virtual Device
CSS	-	Cascading Style Sheet
CSS	-	Cascading Style Sheet
DBMS	-	Database Management System
DCL	-	Data Control Language
DDL	-	Data Definition Language
DML	-	Data Manipulation Language
GSM	-	Global System for Mobile communications
GUI	-	Graphical User Interface
HTML	-	Hyper Text Markup Language
HTTP	-	HyperText Transfer Protocol
IDE	-	Integrated Development Environment
JDBC	-	Java Database Connectivity
JS	-	JavaScript
JSON	-	Javascript Object Notation
MCMC	-	Malaysian Communications and Multimedia Commission
MIT	-	Massachusetts Institute of Technology
NDK	-	Native Development Kit
ODBC	-	Open Database Connectivity
PHP	-	Hypertext Preprocessor
RDMS	-	Relational Database Management System\
REST	-	Representation State Transfer

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SDK	-	Software Development Kit
SIM	-	Subscriber Identification Module
SMS	-	Short Message Service
SOAP	-	Simple Object Access Protocol
SQL	-	Structured Query Language
TCL	-	Transaction Control
XML	-	Extensible Markup Language

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CHAPTER 1
INTRODUCTION

1.0 Introduction

Advanced swift communication system (ASCS) based on android is an application that provides a very effective way in sending SMS from application to a group of recipients. To use this application, the user first requires to create a new account and will be authorized when try to log into the application. The user being authenticated will bring to a user menu which included several functions such as send new message, draft, view profile and usage history. A database is provided which it stored all the contacts group inside and allow users to choose which group to send the message. This chapter mainly covers the general background of this project, the problem statement, project objectives, work scopes, project significance and conclusion.

1.1 Background of Study

In year 2015, out of 21.7 million from the among of 30.3 million people in Malaysia owned a smartphone. This means that almost every adult owns a smartphone and some may more than one phone. It had become the basic necessity for the people nowadays. Moreover, according to Malaysian Communications and Multimedia Commission (MCMC) Hand Phone User Survey (2014, pp34), it states that smartphone is the most used device to access the Internet which had occupied 74.3% of the smartphone users. Besides, the percentage of free messaging application of users have increased 56.3% to 71.1% from year 2012 to year 2013 as stated in the same survey (pp22).

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From the statistics above, it can be said that most of the handphone users use the internet services on the free messaging applications such as WeChat, WhatsApp and Messenger. All of these applications provide a medium for the user to communicate with each other under internet access and it almost displaces the SMS. This is because SMS may cause a loss in cost and fee for messaging is calculated per message. The free messaging applications really provide a convenient medium for the user, but how if there is not internet connection on the recipients?

In an example, people not only use the application on chatting but also to share information or importance message. Just think about it, if someone had no internet access and one of the group members share an importance message in a group, then the one who had no internet access at that time will definitely miss the message.

For another, someone had a phone always in internet access and are the group members in several groups. The group members are always chit-chatting inside the group. Those conversations may not in his business, so group notifications are muted. When an urgent message was shared in the group, someone may also miss the message. Furthermore, when that the group had hundred more unread messages, people may blunder away the importance message. With this ASCS system, the message in send out via SMS service with the database provided. People may get the alert either not under internet connection or group notification muted. For a built-in messaging application, it also can do this process without using the ASCS system. Why this system should be choosing?

In phone's SMS services, it allows directly message a person or a group of persons as long as the mobile network is working properly. It had two methods to store the contact numbers which are stored in the Subscriber Identification Module, SIM card and inside the phone's storage. If the contacts are saved inside the SIM card, it had a limit on that. If the contacts are saved inside the phone's storage, when change phone, the person need backup all the numbers and transfer to the new phone. On the other hand, if the phone is faulty, it may cause someone loses all the contacts saved. In this ASCS system, it provides a database to store all the contact numbers and the personal information. This can ensure that all the data will save safely.

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In addition, this system is suitable to be used in an institute or a department of the company. In this project, it will be done for a university's faculty use. The functionality of this system is the lecturer may use the system to share information or make a reminder to their student. For example, lecturers can use this system to make an alert to remind their students 30 minutes before the examination start. That message may include about the subject being taken, time, venue and the things need to bring. This message is sent via SMS service and directly send to the students one by one no matter he or she is under internet connection or not and the probability for them to miss the message is decrease.

Typically, the system contains two part, the application part and server part. The application part is the place where the user can send the SMS with the contact saved on the server while the server part is place for administrator to manage the application user and also the contact database. Figure 1.1 is the illustration of the ASCS system based on Android application and website.

Figure 1.1: Illustration of Advance Swift Communication System

This system is containing a database that stores all the contacts and information which later can call by the android application. For website, it will display all the information of application user, contact database and also the feedback from the application. The administrator can manage the database from the website such as insert,

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edit and delete the contact group. For the android application, it allows user send SMS. The application will get the recipients group from the database via web service call. With web service, application allows to get or post data to database. Then, the message will be sent to the recipients chose via SMS manager API called in the application and is done send to recipients' mobile device with the help of Global System for Mobile communications, GSM which built inside the mobile device. Other than send SMS, this application also allows the user to save the message as draft for next time use, manage the account and check the usage history.

In exploitation of this system, the focus is in develop an android application and website. With the supporting of database in this system, it is totally improved the convenient on using the system. As long as the application users are authenticated, every user can share the same database and link to the database wherever and whenever. It can be very useful for a team or a group of members. Thus, the advance swift communication system can be the succedaneum of the built-in mobile messaging system and solve the problem of no internet connection on the recipients.

1.2 Problem Statement

In this technology sophisticated era, the free messaging applications were getting more. Every user had their own choice on which types of applications is more comfortable and suitable to use. All of these free applications not only provide a very expedient way for the user contact to each other. Yes, all of these applications is free to use, but the first condition is the device is under network connection. If not on the internet accessed, the message could not be received.

Besides, people love to use group chat to share information or chit-chat with everyone inside the group. When the group members used the group for chit-chat more than sharing the information, the information shared may miss by some of the members. Moreover, all of these applications have the function to mute the notification of the group or the particular person. This function was always being used for a group chat by the

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person who does not really like be disturbed when chit-chatting is started in the group which is not really his or her business. Hence, if the notification is muted or network is not connected, that particular member may not receive the urgent information on time. This all can be solved if the urgent messages were sent directly to the recipients via SMS service.

This ASCS system is designed based on database and android application as user interface. It allows the user to send the message from the application to certain recipients group via SMS services. The advantages of using this system are the recipients may receive the message which the user wish to deliver to the recipients no matter that he or she is internet access or not.

1.3 Objectives

Based on the problem statements, the objectives of the project are as below:

- To develop a swift communication system that allows sending SMS from android application.
- To study how android application can send SMS with access to the database created.
- To analyze performance and functionality of project regarding advance swift communication system.

1.4 Work Scope

On development of advance swift communication system, the scope is covered cases study through the tutorial on developing an android application and database management. Moreover, literature reviews and journals on how android application can send SMS and how android application communicate with database is also studied.

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In addition, this project was divided into two parts, which are the application part and server part. The application part is the user interface which allows users to carry out the function of sending SMS with database while server is for administrator to manage the database and store information.

The work scope of the application part is to study the development of the android application. Java language will be used in develop the application. Furthermore, XAMPP server, PHP, MySQL and HTML may use for development of the website and manage database system. The application will provide several functions but the main is send SMS. In activity of send SMS, the interface will provide a space for the user to enter the messages and select the recipients group. Besides, the data stored in database should link with the application.

To get this system work perfectly, everything of these should work correctly. If any part of this failed to carry out their function properly, the system may be faulty. So every part of these should be studies, test and analysis over and over.

1.5 Conclusion

In this report, the introduction chapter covers the background, problem statement, objective and scope. With all the information stated in this chapter, the reader will be able to understand the basic idea of this ASCS system.

By completing this project, an advanced swift communication system that use to send messages should work with android application and database. Users can use this system to share the important information or urgent message from the developed application with recipients who were stored in database. These SMS can give an immediate alert to the recipients even when the recipients does not have internet network connection in their phone. As an expectation, by using the communication system of this project, the recipients will not miss out any urgent message even when they are short of internet network connection.

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