

BORANG PENGESAHAN STATUS TESIS

JUDUL: ELECTRONIC MEDICAL ASSISTANT (eMedic)

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ELECTRONIC MEDICAL ASSISTANT

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This report is submitted in partial fulfilment of the requirements for the
Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2013

DECLARATION

I hereby declare that this project report entitled

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DEDICATION

I would like to express this dedication to my beloved parents for supporting and encouraging me to achieve my PSM project. For my fellow friends, thank you for their great help in the process of building this program until it was completed. Lastly, my special thanks dedicate to my PSM supervisor for giving brilliant ideas, inspiration and guide throughout the PSM session.

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ABSTRACT

Smartphone technology development helps community a lot in implementing their daily works. Smartphones with android operating system increasingly popular in Malaysian society nowadays. The Android operating system enables users to create their own software without requiring a license to distribute their software on the internet. Electronic Medical Assistant (eMedic) was developed using android operating system where the reference to develop this software can be found widely in the internet. The eMedic is developed aims to help ease a patient's health care which requires medical treatment usually group of unhealthy people where they will face difficulties in case they need to undergo an unnecessary medical check up again. This application can be used in an emergency situation. It can determine the current location of the patient through GPS coordinates by using the emergency message function. This application can enhance communication between the patient and hospital management so that they feel more comfortable while they are waiting for their treatment. The Strength of this application is very useful to help the patient in a critical situation. Apart from that, patients can access their medical records from any places at any time they need.

ABSTRAK

Perkembangan teknologi telefon pintar telah banyak membantu masyarakat dalam melaksanakan tugas seharian mereka. Telefon pintar menggunakan sistem pengendalian android semakin popular dikalangan masyarakat Malaysia. Sistem pengendalian android membolehkan pengguna untuk membina perisian sendiri tanpa memerlukan lesen untuk menerbitkan perisian mereka di dalam talian internet. Electronic Medical Assistant (eMedic) dibangunkan menggunakan sistem pengendalian android di mana sumber untuk membangunkan perisian ini boleh di dapati secara meluas di dalam talian internet. eMedic dibangunkan bertujuan untuk membantu memudahkan pengurusan pesakit yang memerlukan rawatan perubatan terutama golongan yang mempunyai masalah kesihatan di mana mereka akan mengalami kesukaran sekiranya terpaksa menjalani pemeriksaan kesihatan secara menyeluruh seperti menjalani prosedur yang menyakitkan berulang kali. Aplikasi ini boleh digunakan apabila berlakunya kecemasan dan pengguna lain dapat mengetahui lokasi pesakit melalui koordinat GPS kecemasan yang diberikan menggunakan fungsi pesanan ringkas kecemasan. Aplikasi ini dapat mempertingkatkan hubungan antara pesakit dan pihak hospital supaya pesakit lebih selesa ketika menunggu giliran untuk menerima rawatan. Kekuatan aplikasi ini sangat berguna untuk membantu pesakit dalam situasi kecemasan. Selain itu, pesakit dapat memperolehi maklumat kesihatan dari mana-mana lokasi pada bila-bila masa yang perlukan.

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CHAPTER I

INTRODUCTION

1.1 Project Background

Nowadays, various types of Smartphone exist in the market. Smartphone is a mobile phone that builds on mobile operating system with advanced computing capability connected with the phone features. The first Smartphone built is a combination of personal digital assistant with a mobile phone. Then the Smartphone functionality growth by the addition of compact digital cameras, portable media players, and GPS navigation units to create one multi-function device. In the modern Smartphone, the phones are running on mobile operating systems built by two biggest companies with their mobile operating system which are Google's Android and Apple's iOS. There are other companies, which also develop their own operating systems such as Microsoft's with Windows Phone OS, Nokia's with Symbian OS and Samsung's with Bada OS.

Android and iOS are the most popular mobile operating system until now. The Android mobile operating system began by releasing their Android beta in November 2007 and release Android 1.0 in September 2008. Google cooperates with

Open Handset Alliance (OHA) to develop Android and seen a number of updates growth since its original release. Android versions have been developed under a Codename and released in alphabetical order since April 2009. From Cupcake, Donut, Eclair, Froyo, Gingerbread, Honeycomb, Ice Cream Sandwich and later in 2013 are Jelly Bean.

This project was developed using eclipse software with android Java coding and can be run on all Android Smartphone with the aim to assist patients to gain access to their health information regardless where to get the treatments. The benefit of this project is it will improve the process of patient treatment by eliminating unnecessary health check due to the difficulty of accessing patient records. By using this application staff in the clinic only need to scan the QR barcode given to the patient in their Smartphone using android based application and the clinic will use the information and medical records of the patient instantly.

1.2 Problem Statements

Based on the current system on healthcare environment, the patient need to go to the hospital or clinic to know their health status and need to see the doctor if their health is in critical condition. There is no appropriated system for the patient to know their health condition while they are at home or any place they go. These are the problem that have been identified which lead to the development of Electronic Medical Assistant on Smartphone.

1.2.1 Undergo unnecessary health screening

When we are getting older, there would be a problem when the patient need to go to the other different health care provider that they never experience before, and the health care providers will conduct unnecessary health care screening to the patient especially the older generation. They need to undergo painful screening tests again before there can get their medical result.

1.2.2 Lack of device to access medical records

When the patient went to a new healthcare provider, their medical record would not exist for the new health care provider, so they need to register as a new patient so that the healthcare workers needs to do several examination to obtain the patient healthcare condition and key in the data to the provider database for tracking the patient condition.

1.2.3 Need to wait to take medicine

After doctor checks the patient, they need to take a medication slip given by the doctor to the pharmacy department to take the medicine. At the pharmacy counter, the patient needs to take to deliver the medicine slip to the registration counter, and they would be given number to take the medicine. If they are many people at one time, they may have to wait for a long time to get their medication, and if they miss their number they need to acquire another number and wait again.

1.2.4 Call or message important person when emergency

When we are sick at home, family members can help to take care of our health until we fully cured without having to seek help from others. Meanwhile if we stay alone and our health problem does not allow us to ask for help it will cause the situation becomes worse and perhaps can cause death.

1.3 Objectives

There are three main objectives that need to be fulfilled to manage the project to success. The objectives of this project are:

- i. To improve accessibility of medical records by using android application technology to be accessed anywhere at any time.
- ii. To develop a mobile application that enables patients to take their medication anywhere at any time.
- iii. To provide additional functionality such as showing the BMI result based on patients weight and height.
- iv. To provide emergency functionality for use in emergency situations such as sending an emergency message and make calls to the important number by using this application.

1.4 Scopes

The scope for Electronic Medical Mobile Assistant project are :

User:

- The user of this application is a patient that will use eMedic and health care provider staff.

Platform:

- User needs to use Android Smartphone based version 4.0 and above to use this application.

Modules:

Below are the modules that will be developed for this application.

Patient Profile:

- The application is able to access patient personal information according to the patient number.

Vital Stats:

- The application should be able to keep tracking the patient medical details such as height, weight, blood type and pressure and vision.

Condition Status:

- The application will display the patient's health condition after they are done their medical examination.

Medicine Details:

- The application will display the medication details that the doctor gave so that they did not need to take the slip to the pharmacy.

Appointment Details:

- The application should be able to provide information about the patient next appointment with the doctor.

1.5 Project Significance

This project is significant as it can provide an application that will help the patient by making their task easier without having to undergo an unnecessary screening check up when they try to different health care providers. This project will save the user time to get their treatment and time to get their medication at peak hour when there are many people queue to take their medication according to the number given. This application also hopes will be a helpful application to the user and will act as it expected.

1.6 Expected Output

This project is expected to produce a based mobile health records application to use by the user to retrieve their medical information on their Smartphone at anywhere and anytime. The user can transfer their medical information to the new health care provider by scanning their QR generated code to the healthcare provider that using the same application.

1.7 Conclusion

The conclusion of this chapter is aiming to develop the application to make the patient easier to go to the nearest health care provider without worrying to undergo unnecessary health screening again to obtain their medical condition. The eMedic aim to provide benefits to the user so that they can retrieve their medical record at any place the go by connecting to the internet via Smartphone to retrieve their information. Another benefit that the user will get is they do not need to queue to take their medication if there are many people they can visit tomorrow again to take the medicine, or them can take it in other health care providers. The user also can use this application in an emergency condition with only required to push the emergency button that exists on the login screen and this application will send an emergency message or call to the number that have been set inside the application.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

In this chapter, we will discuss literature review, fact and finding and also project methodology in order to study and understand the current business of the existing system which is the fact later will be used as a guide to develop the application which is focus to the system that based on medical orientation. The literature review is a summarize of a body of research of an analysis available literature so that the reader can have the access of each individual report included in the review that will allow us to study the facts before we can develop a system based on the problem occur.

2.2 Facts and Findings

Facts and findings in a process where we need to decide whether the information that we collect is accurate data according to the fact. In this section, we will review on the current processes that have been used by the medical provider to provide medical information to the customer. The literature review will allow us to make a comparison and conclusion based on the theory and methodology in the next chapter.

2.3 Domain

In this modern age, software application on mobile phone becoming popular among the surrounding community. In this application development environment, there are two of the leading companies had developed their mobile application like Google Inc. and Apple Inc.. Google has built their own software based named Android while Apple had developed their software based on by name iOS. Based on research by company Canalys on August 1st 2011, they estimated in the second quarter of 2011 about 107.7 million units of smart phones are shipped in 56 countries. Among those countries, Android led in 35 of the 56 countries and achieved a global market share of 48% and for iPhone shipments of 20.3 million iPhones and market share of 19%. Asia Pacific (APAC) remained the largest market sector with 39.8 million units shipped there.

This project will focus on medical health care information for medical provider institutions. At present, most of the healthcare provider still using the old method by using a patient file for reference by the health care provider when the patient came to undergo their examination according to their appointment date set by their doctor. By using the old method, during the registration process carried out if the patient has come to the healthcare provider, they need to wait for a certain period of time to allow the healthcare workers searching for their medical record before the file sent to the doctor for further examination. If the patient is a new patient that not yet register, they must undergo the health screening from early according to the procedure by the health care provider before they can make their medical examination. They also need to wait for a long time to get their test results.

2.3.1 Existing System

In this modern world, there are different types of the application was developed using android based application and among them is a medical application system. Most of the medical application that currently in the market today has helped patient to understand their condition state of their health by merely using a Smartphone. Almost all medical applications now developed for personal use and for their monitoring health without having to go to the hospital to undergo health screening according to the time that is set by the doctor. In this case, a model of the existing system related to medical application has been used as a case study. The system is based on Health Tracking System, Medic SOS application and YourHealthRecord application.