

**M-LEARNING FOR HEALTHCARE – THE DEVELOPMENT OF MOBILE
LEARNING SYSTEM FOR PREGNANCY SUPPORT**

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M-LEARNING FOR HEALTHCARE – THE DEVELOPMENT OF MOBILE
LEARNING SYSTEM FOR PREGNANCY SUPPORT

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

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2008


DECLARATION

I hereby declare that this project report entitled

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is written by me and is my own effort and that no part has been plagiarized
without citations.

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DEDICATION

*To my beloved parents,
Abdul Hamid bin Abdul Rahim and Wan Mariam Binti Ibrahim.*

*To my brother and sister,
Nurul Hidayati, Nor Hilmi, Nor Hafiz, Nor Hasliana, Mohd Nor Hanif and Mohd
Ikhwan.*

*To my lecturers in Kutkm / UTeM,
Thank you very much.*

*To my all friends,
especially DIT student(2003-2006), roommates
and who inspired me with their love of learning and teaching.*

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ABSTRACT

For the first time being mother, pregnancy can be very challenging to them. Many rely on information that is passed down from one to another which may not be accurate as experience from each pregnancy can be different from one pregnancy to the other and from one person to another. This project presents mobile phone based pregnancy support or MoLePs system based on preliminary study conducted among the pregnant mothers and their spouses in a local private hospital. This study provided the basis for the personalized content development for mobile phone on the health care for pregnant mothers such as the type of illness, information each stage of pregnancy, the nutrition and exercise and tip information. MoLePs can position itself as a major breakthrough approach to educate women on pregnancy and monitor their own and child's progress. This will reduce the anxiety and stress among pregnant mothers. Women in rural area can benefit through this system greatly by preparing for child birth. MoLePs system incorporates two main modules, including web admin system and mobile client application. The web admin system is created for administrator to maintain the pregnancy information into database and for mobile users to download the application in order to obtain the information. MoLePs mobile client application is developed using mobile technologies such as J2ME. The MoLePs mobile client application is believed to become other option or alternatives to obtain the pregnancy information anywhere and anytime. The pregnancy information is stored into database where can be perform administrative capabilities and keep the database updated. This MoLePs system is believed to provide services in order to educate pregnancy women or individual who interested about pregnancy that is easily be accessed anywhere and anytime.

ABSTRAK

Untuk ibu yang mengandung untuk kali pertama, kehamilan merupakan cabaran yang berat buat mereka. Kebanyakan informasi yang tidak tepat disampaikan oleh satu pihak ke pihak lain berdasarkan pengalaman berbeza setiap kehamilan. Projek ini merupakan pembelajaran telefon mudah alih untuk kehamilan atau disebut sebagai MoLePs sistem yang merujuk kepada permulaan kajian yang dijalankan ke atas ibu-ibu mengandung termasuk di hospital. Kajian ini memberikan asas untuk menerima dan mengawal pembangunan isi kandungan untuk telefon mudah alih yang berkaitan dengan kesihatan untuk wanita mengandung seperti jenis penyakit, informasi setiap minggu kehamilan, nutrisi dan senaman serta tip. MoLePs boleh digunakan sebagai salah satu cabang untuk memberi pengajaran kepada wanita berkenaan kehamilan dan mengetahui setiap pembangunan ibu dan anak. Ini akan mengurangkan kerisauan dan tekanan dikalangan ibu mengandung. Wanita mengandung yang berada di kawasan tertentu mendapat kebaikan daripada sistem dengan cara menyediakannya untuk kelahiran bayi. Sistem MoLeP ini terbahagi kepada dua modul utama iaitu sistem berdasarkan laman web dan aplikasi telefon mudah alih untuk pengguna. Sistem berdasarkan laman web dibangunkan bagi membolehkan pentadbir untuk mengekalkan informasi kehamilan yang disimpan di dalam pangkalan data dan memudahkan pengguna telefon mudah alih untuk muat turun aplikasi telefon mudah alih di dalam usaha mencapai informasi kehamilan. Aplikasi telefon mudah alih dibangunkan menggunakan teknologi seperti J2ME dan sambungan talian seperti GPRS, tanpa wayar and talian Internet. Aplikasi telefon mudah alih ini dipercayai dapat memberikan pilihan lain atau alternatif lain untuk mendapatkan informasi kehamilan pada bila-bila masa dan di mana sahaja. Informasi kehamilan ini telah disimpan di dalam pangkalan data di mana ia membenarkan pentadbir menjalankan tugas pentadbirannya dan pangkalan data berkenaan sentiasa dikemaskini. Metodologi yang digunakan di dalam sistem MoLePs ini ialah Analisa dan Rekabentuk berdasarkan Objek yang diterangkan menggunakan model pembangunan lingkaran. Sistem MoLePs ini dipercayai menyediakan perkhidmatan di dalam mengajar wanita mengandung dan sesiapa yang berminat tentang kehamilan yang mudah di capai pada bila-bila masa dan di mana sahaja.

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LIST OF ABBREVIATION

1. MoLePs Mobile Learning for Pregnancy Support
2. CDC Connected Device Configuration
3. CLDC Connected, Limited Device Configuration
4. GPRS General Packet Radio Service
5. MIDP Mobile Information Device Profile
6. KVM K Virtual Machine
7. JSP Java Server Page
8. WAP Wireless Application Protocol
9. WWW World Wide Web
10. SMS Short Message Service
11. MMS Multimedia Messaging Service
12. VPN Virtual Private Network

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CHAPTER I

INTRODUCTION

1.1 Project Background

Healthcare is the prevention, treatment, and management of illness and preservation of mental and physical well being through the services offered by the medical, nursing and allied health professions [1]. Basically, the healthcare is embrace to promote the health directly to individual or group of individual. Healthcare were focus on many aspects by examine the global illness in the world such as leukemia, HIV/AIDS, cancer and diabetes by developing an organization to study and find the cure of the illness.

Pregnancy is the carrying of one or more offspring, known as a fetus or embryo, inside the uterus of a female human [2]. In other language, the pregnancy is one of the healthcare aspects that been study to face the pregnancy problems such as defect and decease to the baby. In reality, the information of pregnancy passed down from generation to generation based on previous experience where the information may difference from one pregnancy with the others. Generally, information also can be obtained by surfing on the internet or refer to the pregnancy book.

The technology devices become the highest demand for the entire consumer in the world. One of the highest demands of the technology devices today is mobile

phone. Moreover, the development of mobile phone technology had exposed the ability of mobile phone to distribute the information.

M-Learning for healthcare – The Development of Mobile Learning for Pregnancy Support (MoLePS) is a mobile-based application that covers the most personalized approach to motherhood issues. It can regard as an alternative approach to educate women on pregnancy, monitor their own and child's progress.

1.2 Problem Statement

There are a few weakness that been identified in the current information access and previous prototype application. The problems are listed below.

1.2.1 Many rely on informal information that is pass down from one to another[3]

Healthcare information is very large and global. The information about healthcare or more specific about pregnancy can be easily be found from pregnancy web page or book. Many rely on informal information that is pass down from one to another which may not accurate as experience from each pregnancy that different from the other. Matter are made worse when information past down is mixed with cultural taboos.

1.2.2 Information is general, too lengthy and complicated

There is lots of information that available in printed form but usually this information is general, too lengthy and complicated. One of the many easy and fast ways to access information about pregnancy is the Internet. However, the

information is focused on pregnancy in western world setting. Mostly, the information about pregnancy is also too complicated and hard to be understood. Sometime the information comes from a professional doctor or expert opinions that elaborate in scientific term or phrase.

1.2.3 Info is not easy to be accessed, available anytime and anywhere

Most of information that is available is hard to be accessed since the information is mostly come out in piece of paper or magazine. More than that, the information that preview on computer literacy is hard to be achieve and understand to the people who unfamiliar with the computer environment. The users need to have computers that connect to Internet to view the information.

1.3 Goal Statement and Objective

1.3.1 Goal Statement

The goal of the project is to develop a mobile phone based pregnancy support system.

1.3.2 Objective

The objective of MOLEPS to be achieved is listed as below.

1.3.2.1 Performing user analysis studies to identify basic learning modules on pregnancy support that should be includes in the system

This is an initial act that is taking by investigate on how the pregnancy information is implemented on mobile phone. Every pregnant women care about their health and baby. They care about the progress and changes that happen. This research is important to put only the reliable, clear and simple information on mobile phone. The functional and non-functional requirement will be captured and also be evaluating then for next development process.

1.3.2.2 Creating a friendly mobile and web interface to excite the user on using the system.

MOLEPS application will provide a friendly user interface that let user comfortable to access the information on mobile phone. It provides a simple and interesting user interface to interact the user using the application. It also makes MOLEPS application easy to navigate by pressing the navigation button that provide on mobile phone.

1.3.2.3 Delivery learning content via multimedia elements to enhance learning experience.

Multimedia consists of some part of elements such as audio, video, text and image. The information in mobile phone is described in text that comes up with support image and video element that make it more interesting and easy to understand

1.3.2.4 Supporting dynamic information by developing admin web system

For MoLePS application, dynamic information of pregnancy needs to be store on database. By developing admin web system, the mobile phone user can register their information to allow them access MoLePS application on mobile phone. While the information of pregnancy is managed by administrator such as add, update and delete the information of pregnancy. The information that is added on the database is in form of text, image and video that can easily be access by client mobile phone using MoLePS application.