WINDOWS MOBILE POCKET PC HEALTH CARE

MAZDIAR BINTI OMAR

This Report Is Submitted In Partial Fulfillment of Requirements For The Bachelor Degree of Electronic Engineering (Telecommunication Electronic)

Fakulti Kejuruteraan Elektronik dan Kejuruteraan Komputer
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UNIVERSTI TEKNIKAL MALAYSIA MELAKA
FAKULTI KEJURUTERAAN ELEKTRONIK DAN KEJURUTERAAN KOMPUTER

BORANG PENGESAHAN STATUS LAPORAN
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"For my beloved mom and dad"

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ABSTRACT

A Personal Digital Assistant (PDA) allows user to efficiently access, organize, collect, store and process various kinds of information, and work with it run any of thousands of various kinds of software applications currently available for it. A Personal Digital Assistant are also offer a clinicians the ability to enter and manage medical information at point of care. Although PDA has always been designed to be interactive and easy to use, recent advances in technology have been made them even more accessible. Even many stand-alone systems exist for PDAs, none are designed to work in an integrated client/server environment and purposely built for common users. The purpose of this project is to develop software for personal medical assistant which is rare in medical history. This software will content smart user personal medical information, which offer a clinical problems solving monitor and organized personal health care such as a first aid early detection, an emergencies medical assistant and a diet manager. The software development's environment will be completed based on helping the user enhance their healthy life management towards their detailed medical records. This can be done with promoting simple medical tasks into software that to be executed toward proving its powerful and usability to users.

ABSTRAK

Pembantu Digital Peribadi atau dikenali sebagai *Personal Digital Assistant* menyediakan kemudahan kepada pengguna secara berkesan untuk mengakses, merancang,mengumpul dan menyimpan pelbagai maklumat. Ia berfungsi bersama pelbagai perisian yang berkualiti dan konsisten. Perisian *Windows Mobile Pocket PC Health Care* ini menawarkan perisian penjagaan kesihatan dan klinikal yang konsisten dan berkualiti. Di samping itu, perisian ini juga menyediakan kemudahan menguruskan dan melaksanakan maklumat kesihatan dari segi penjagaan seharian. Tambahan pula, Pembantu Digital Peribadi telah direkabentuk lebih interaktif dan mudah digunakan. Walaupun, kebanyakan sistem *stand-alone* digunakan dalam Pembantu Digital Peribadi ini, tiada lagi jenis perisian yang direkabentuk serta memenuhi kehendak pengguna yang mempunyai pembangunan *client/server*. Objektif projek ini adalah untuk membangunkan perisian yang member kemudahan pembantu perubatan peribadi. Perisian ini mengandungi sistem maklumat kesihatan peribadi pengguna yang juga menawarkan sistem penyelesaian masalah klinikal dan sistem menguruskan penjagaan kesihatan harian. Tambahan lagi, perisian kesihatan ini menyediakan sistem carian maklumat mengenai pencegahan dan tindakan dalam situasi kecemasan dan pengurusan diet harian pengguna. Pembagunan perisian ini sepenuhnya akan membantu pengguna meningkatkan taraf kesihatan dalam menjana kehidupan yang sihat dan bersahsiah.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURE

LIST OF ACRONYMS

PC	– Personal Computer
PDA	– Personal Digital Assistant
CD	– Compact Disk
VB	– Visual Basic
HP	– Hewlett Packard
GPS	– Global Positioning System
WWAN	– Web Wide Area Network
LAN	– Local Area Network
IR	– Infrared Signal
SDP	– Service Discovery Protocol
OS	– Operating System
GUI	– Graphical User Interface
OOP	– Object Oriented Programming
SQL	– Structured Query Language
IDE	– Integrated Development Environment
CLR	– Common Language Runtime
CPU	– Central Processor Unit
BI	– Business Intelligence
XML	– Extensible Markup Language
HTTP	– HyperText Transfer Protocol
SOAP	– Service Oriented Architecture Protocol

CHAPTER I

INTRODUCTION

This chapter discuses briefly about the project developed with the overview of included as well.

1.1 PROJECT INTRODUCTION

This Windows Mobile Pocket PC Health Care project popularly named as Health Care Pocket gives quick and convenient access to important information on common medications to mobile users. It is meant to serve and assist common users in terms of medical aids and medical data management. The informational language of this project is to provide helpful insights for patients taking medications combined with the hand-made selection of medications, its compact size, ease of use and affordable product for wide range of users. It's practically and usability is appropriate for users nowadays who fast becoming acquainted with PDA or Pocket PC and acknowledge the importance to enhance and upgrade one's health care.

1.2 BRIEF OVERVIEW OF THE PROJECT

First, it is importance to create and build the interface of the medical aid that linked into Personal Digital Assistant which is able to assist common users. These steps are provided by using Macromedia Fireworks MX Version 7.02 while the health care software is developing by using the Microsoft Visual Basic.Net programming. Secondly, the medical care software will content smart user personal medical information, which also offer a clinical problems solving monitor and organized personal health which will purpose on stand alone database system that act as a server and co-interact on Personal Digital Assistant. Its software is Windows based operating system and its hardware's type is eTen glofish X500 model. This project is different from other typical medical based software because it purposely serves the common users well known as the public. There maybe such software exists but non are widely developed as a marketable software product to be used. Hence, this project suggests the initiative to do the different and build such software for the user knowledge and usage.

1.3 PROBLEM STATEMENT

The obstacles occur when a person is busy with work or study whereas people have to meet the specialist doctor in order to get treatment. This may influenced the time management of healthy life daily. Moreover, people have to arrange an appointment a week before meet the specialist doctor. This project comes out with a new invention of medical health care assistant especially for common diseases.

After been treated, people were advices to have right medicine intake. But, for sure, sometimes forgotten to take medicine given by pharmacist and sometimes they eat the medicine not according to the right time. Early first detection in emergencies cases especially in home or traveling, a person properly might refer to the books or magazines

important to understand because this part needs to accept the developed program of Microsoft Visual Basic.NET later on.

3. To collect as much information on medical and medicine for client/server base data storage. This is for inputs in Medical Assistant section of First Aid/Emergency. It also acts as a medical library based on the simple understanding for common users.
4. To develop Medical Assistant/Care software based on software development for common user. The server acts as storage area for the section Aid/Emergency information.
5. Lastly, to integrate developed software into the PDA. This is the final stage when both program of Microsoft Visual Basic.net and the PDA is working and functioning well. The PDA will then link to a server.

1.5 SCOPE OF WORK

The scope of this project is to develop medical health care software that can guides users be able to perform the simple tasks:

1. To handle own medical data information in order to access and monitor clinical report.
2. To build a friendly reminder to set medical appointments or medicine intake towards health problem. This is convenient as it is set aside medical reminder from the typical reminder in the PDA.
3. First aid guide or medical library on common sickness and remedies for user's knowledge being the additional purpose to this project. It can give more advantage to the user who is going to travel.

Multiple tools as below are needed to reach the purpose of this project:

1. Software: Microsoft Visual Basic.Net, Macromedia (Adobe Photoshop 7.0, Fireworks MX 2004 Version 7.02) and Microsoft Office Access 2003

To build software system and develop path in PDA for software to understanding of the device and programming is compulsory. Microsoft Visual Basic.net can automatically design user interfaces of pocket pc applications, and all is left is the knowledge of linking it to the PDA as a stand alone system that works both in PDA and in the computer. The database programming is providing from Microsoft Access tools.

2. Hardware: Personal Digital Assistant (PDA)

Without the actual PDA, parallel port implementation and interfacing cannot be tested. PDA device model glofish X500 is use to implement project software through linking and the software can be tested on the PDA as well.

3. Hardcopy: Basic medical care and medicine knowledge

References such as books, journals, magazines and compact disk (CD) on medical health care are needed importantly when project is developed. The information is vital to understand the user's needs and potential medical requirement of the software. Information to store as sample in the database is important too.

1.6 METHODOLOGY

Methodology applied and used to build up this project consists of several methods and ways to get the work done. Below are all the methods in completing this project explained in brief:

1. Literature review and finding source of project.

   Literature review and research on PDAs, medical and medicine information and programming of PDAs are carried out simultaneously. This is the initial action in every project so as to be more familiar with the project's title. Firstly, understanding the purpose of project's title and what the appropriate step to be taken is important to accomplish the project.

2. Study Microsoft Visual Basic.net software development.

   It is an object-oriented computer language that can be viewed as an evolution of Microsoft's Visual Basic (VB) implemented on the Microsoft .NET framework. [1] Like all .NET languages, programs written in VB.NET require the .NET framework to execute. Improvements were also made to the performance and reliability of the .NET IDE particularly the background compiler and runtime.

3. Study of Microsoft Office Access 2003

   Microsoft Access (current full name Microsoft Office Access) is a relational database management system from Microsoft, packaged with Microsoft Office Professional which combines the relational Microsoft Jet Database Engine with a graphical user interface. One design technique is to divide an Access application between data and programs. One database should contain only tables and relationships, while another would have all programs, forms, reports and queries, and links to the first database tables.

4. Develop programming by using Microsoft Visual Basic.Net

   Developing software for Medical Care information by using Microsoft Visual Basic.Net is the important step during this project. This software is to be applied into PDA and predicted to be function well like an extension program inside the PDA. Visual Basic 2005 introduced features meant to fill in the gaps between it and other more powerful .NET languages.

5. Study PDA (its functions, specifications, operating system).

   This is the platform of the project as it links to the software that will be developed and to the server as well. This part is concentrate on to understand PDA well and its characteristic as well as understanding and practices. Besides Microsoft Visual Basic.net programming, PDA programming is considered equally important in this project. This is because PDA programming is what determines whether an external programming can coincide in the PDA or not.

6. Study and integrate client/server base with developed software into PDA

   The following phase of this project is to link the package of software programming that is developed to a server in a client/server base. This part is intended from the Microsoft Access studies. Information will be stored in a server and the PDA will be able to access the required information using the developed Visual Basic program.

7. Implement Visual Basic software into PDA.

   The programming that has been developed will be implemented inside the PDA and be made sure it functions according to the users specifications as programmed previously.

8. Performance, evaluation and testing.

   The performance of the software has been evaluated and tested on the PDA for final result. Next, the phase is completed by implementing and applying all the stages of the software in one functional system.

CHAPTER II

LITERATURE REVIEW

This chapter discuses about the background research and concepts of the project and will explain further the project's perspective and methods used in research.

2.1 BRIEF HISTORY OF PERSONAL DIGITAL ASSISTANT (PDA)

The evolution of the PDA, which is also referred to as 'Personal Digital Assistant' spans almost 3 decades (1975 to the present). During this time, the handheld computer has seen many changes to what it is today. And during this time, several pioneering companies have played significant roles. The Newton Message Pad is the first in a family of communications assistants from Apple. By combining Newton Intelligence technology with sophisticated communications capabilities, the Newton Message Pads helps to stay in touch with friends and colleagues, organize our life, and keep track of our ideas.

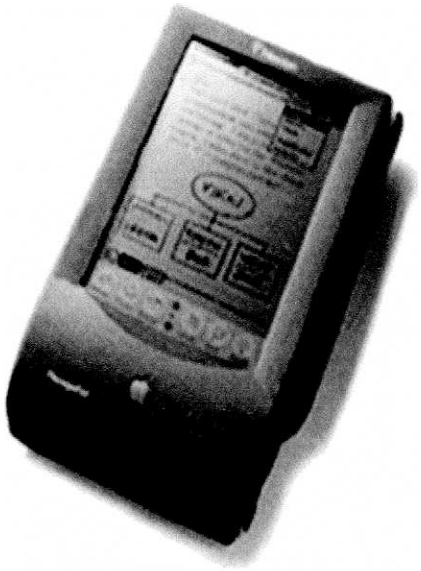

Figure 2.0 Apple Newton Message Pad the Original PDA

The term "personal digital assistant" was a *coined* on *January 7, 1992* by then *Apple Computer CEO John Sculley* at the *Consumer Electronics Show* in *Las Vegas, Nevada*, referring to the *Apple Newton*. In 1989, the Atari Portfolio, although technically classed a palmtop, was an early harbinger imitating the form of some of the more modern pocket devices. Earlier devices like the Psion and Sharp Wizard already had the functionality to be considered as PDAs. In fact, PDAs by other names were available as early as the mid-1970s first as very advanced calculators, then as electronic organizers, and later as palmtops. PDA is some times referred to as "Palms" or "Palm Pilot" after an early PDA created by Palm, Inc. [3]

And wherever users go, the powerful, under-one-pound personal digital assistant goes too, tucked in our pocket or briefcase. Almost as easy to use as pencil and paper, the Newton Message Pad lets us leave our notes handwritten or reads our handwriting and transforms it into typed text. If prefer, words can be type on-screen keyboard. It even cleans up the rough sketches. Because the Newton Message Pad is designed to know how the work going, it can help the work smarter. For example, the Newton MessagePad can find a phone number and dial the phone, fax a note, format a letter, and