

**E-CHARTING – AN ANDROID APPLICATION
FOR NURSING MANAGEMENT**



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**E-CHARTING – AN ANDROID APPLICATION
FOR NURSING MANAGEMENT**

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ABSTRACT

In the current time, development in the mobile environment and applications arises so fast. Most of these applications are gaming applications or for user's entertainment. Through these, we were given the idea to propose this project. The proposal focuses on developing a mobile based application for nurses in which they will have their accounts and for them to maximize the use of their Android devices. This application will be of help to them by improving and making their patient records more accurate through synchronization of data from the Android device to the database server. This application has given a creative and informative way of data presentation for more readable and understandable outputs. In developing this application, the proponents have researched and interviewed to know what the nurses are doing and what information needs to be checked. As a result, the proponents developed E-Chart – an application that automates the charting done by nurses. This application contains Patient Information Management, Patient Record Management, and Ward Management. This application will run on a device running an Android Operating System (OS). Through this application, the work of nurses will be done faster.

Keywords:

E-Chart, Android OS, Database Server, Patient Information Management, Patient Record Management, Ward Management

Chapter I

INTRODUCTION

1.1 Background of the Study

Android Operating System is one of the emerging technologies that we have today. It is widely used for mobile phones and other devices giving the android application demands a high increase. These applications are developed not only for games or for entertainment but also for applications that can be used by different professionals to make their easier and faster since the manual way will be eliminated and transformed into an automated way.

There are many fields and different professionals but this study focuses on the medical field specifically on the nurses. This will help not only the nurses but also the hospital. This will give a more accurate record of the patient(s) assigned to them – the nurses. This project aims to maintain patient's record in the hospital, specifically in the nurses' station. It is used for faster input and fewer errors and by making outputs presentable and readable with the use of the latest and emerging technologies.

Nursing management system exists but only for desktop computers. In this system, the nurse still does the bulk of work since the charting is still done manually. The scope is limited on managing nurses and having patient records. This is used by one person who does the encoding of patient record. And the new

data entered came from the nurses' update. In comparison to this system, the application E-Chart has been developed. In this application, if the internet connection is available a button for synchronization will be enabled, which gives the hospital an accurate record since update is done through synchronization, not manually. Otherwise, if internet connection is unavailable, the data will be saved temporarily in the SQLite database – the application's built-in database and the button for synchronization will be disabled.

1.2 Technology Application Context

Android phone was the main technology used in the implementation of the application. Therefore, Android was the environment in which the application was developed. Other technologies used are Android Software Development Kit (SDK) and Hypertext Preprocessor (PHP).

Android OS is basically used for mobile phones and tablets. Applications developed in this platform is much affordable than those which are developed in iOS. In implementing this study, the Version 2.3.5 of Android OS which is "Gingerbread" was used. The version was chosen mainly because it is used on the cheapest android phone currently available in the market. It also provides smoother user interface and the applications developed in this version has the capacity to run on higher versions. Other higher versions of android are mostly implemented on tablet phones which are more expensive than phones that contain Gingerbread OS.

The problem seen in the manual process is that it is very time consuming. It is time consuming because the nurse first checks the patient's health status, then records the data in their ledgers or notes and sometimes the records are not real time given that they have only few servers in which they manually put in all there newly taken patient's data.

Nursing module has been developed as a mobile application in an android platform. This application is called E-Chart. It addresses the challenging context by making the process of storing the data shorter, and by making data presentations unique as possible. The users of this application which are the nurses use an android phone and have the application installed. It is done for checking patients' status and the data entered is saved and synchronized for an accurate hospital records.

1.3 Objectives of the Study

The general objective of this study is to develop a nursing management application – the E-Chart for Android devices.

The following are the specific objectives of the application to be developed:

- To be able to manage patient's information while mobile.
- To be able to manage and view patient records and vital signs while mobile.
- To be able to manage patient's ward location.
- To be able to synchronize the data into the database server.

1.4 Significance of the Study

The application developed is an application which is not used for entertainment; rather an application that automates the manual process in a nurse's charting. This application is a big help in the fast growing android community.

It has been developed and used to help hospitals and the nurses, to maximize the use of their android phones – not only for fun gaming applications but in a productive way. For the users which are the nurses, it helps them in easier monitoring of their patients through graphical representations of their vital signs. Line graph is used therefore the state of the patient's health can be easily seen.

1.5 Scope and Limitations of the Study

This study focused on the nurse's account, monitoring of patients and ward management. The nurse's account is necessary before the application can be used. During login, internet connection should really be available. The monitoring of patients included the checking of vital signs – blood pressure (BP), pulse rate (PR), respiratory rate (RR), and cardiac rate (CR), patient's name, ward, and bed number. Ward management contains the viewing of available wards and assigning of patient to an available ward. The graphical representation is limited to the patient's vital signs.

1.6 Definition of Terms

Android – is a Linux-based operating system for mobile devices such as smartphones and tablet computers

Android SDK – is a software development kit that enables developers to create applications for the Android platform which includes sample projects with source code, development tools, an emulator, and required libraries to build Android applications

Database Server – is the term used to refer to the back-end system of a database application using client/server architecture and it perform tasks such as storage, data manipulation and other non-user specific tasks

E-Chart – is the automated version of the nursing module or the nurses' charting but is compressed and put into a mobile application

JSON Parser – is a lightweight data-interchanged format and used for machines to easily parse and generate

Nursing Module – nursing module is a module that contains the routine done by nurses working inside a hospital

PHP – is a general-purpose server-side scripting language originally designed for Web development to produce dynamic Web pages