SMART BODY MONITORING SYSTEM

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FAKULTI KEJURUTERAAN ELEKTRONIK DAN KEJURUTERAAN KOMPUTER

BORANG PENGESAHAN STATUS LAPORAN

PROJEK SARJANA MUDA II

Tajuk Projek : SMART BODY MONITORING SYSTEM

Sesi Pengajian :

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ABSTRACT

This project is concerned with design a smart body monitoring system by implementing a database system. The project concept is applied to any users, especially Android users. The system will store all data on the state of the body of the user manually where the user must enter their data into created Website. User can check the data after the data is stored into the database system. At the same time all user data can be reviewed by the admin to monitor a user if something happens. This system can also be used in Android smartphones where users can enter data and view the data. Therefore, the project is expected to create a new system that can monitor the human body system.

ABSTRAK

Projek ini adalah berkenaan dengan membina satu sistem pemantauan badan pintar dengan melaksanakan sistem pangkalan data. Konsep projek ini adalah digunakan kepada mana-mana pengguna terutamanya pengguna Android . Sistem ini akan menyimpan semua data keadaan badan daripada pengguna secara manual di mana pengguna perlu memasukkan data mereka.di laman sesawang yang dicipta Pengguna boleh menyemak data selepas data disimpan ke dalam sistem pengkalan data. Pada masa yang sama semua data pengguna boleh disemak oleh admin untuk memantau pengguna jika sesuatu berlaku. Sistem ini juga boleh berfungsi di telefon pintar di mana pengguna boleh memasukkan data dan melihat data. Oleh itu , projek ini dijangka mewujudkan satu sistem baru untuk mengawal keadaan tubuh manusia.

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INTRODUCTION

1.1 Background

As healthy as someone may look, periodic medical check-ups with regular doctor's visits are essential to maintain someone's health. Going for regular check-ups can help to identify early signs of common ailments as well as spotting rare and deadly diseases at early stage. Some of the illnesses may be highly treatable if identified earlier before they got so severe.

Commonly, to get or view someone medical histories required a trip to the clinic or hospital, just to get a look at the patient medical file. This pose a problem if emergency happens and the hospital or doctors need to know about the patient's medical history immediately. Looking for the patient's medical histories prove to be hard and time consuming.

Current trends in advancement of technology in smartphones and electronic devices are tilting towards the ability to retrieve information on the go especially towards health-related application. Utilizing from this, the project aims to impose an

application that can acquire medical history known as Smart Body Monitoring System, making it easier to directly access the information from just about anywhere.

The system comprises of an application installed on a smartphone, a database and a website. This will enabled the patients and doctors to view and enters new information. The system contains basic information like height, weight, BMI, heart rate, body temperature, blood oxygen and location. With the existence of such system operation, it enables doctors to monitor the patient's health condition consistently and patient can access the data for easy reference.

This project concentrates on creating a Website that can log patient data manually into the database. From the data, it will facilitate patient to maintain the level of their health. Furthermore, this system is aided by simple Android Application that can record and save the patient information, display patient's current condition and record patient's location when they update about their condition. The recorded data are stored in the database on web server. Patient and doctor can monitor from both Android smartphone and personal computer as the data is synchronize between the smartphone and the web server.

1.2 Problem Statement

It is difficult to constantly monitor one's well-being on daily basis because of hectic lifestyle. Even basic medical check-up procedure such as monitoring heart-rate and taking body temperature readings can sometimes take a while to get done.

Normally, patient had to go to the hospital to get their medical information and it takes quite a while for the assistant to check and retrieve the data. This is because the assistant need to go through the recorded data one by one. Having this application, patients or doctors can check and retrieved the information either by logging into the website or viewing it through the Android Application.

With the existent of Smart Body Monitoring System, doctors and patients can logged in and view the same information and schedule a follow up treatment when necessary.

1.3 Objective

The aim is to develop a database of body health monitoring system that can be accessed using Android application and personal computer. Below are the objectives for this project.

- To design a database system that able to save from manually logs the patient's health information.
- To establish the communication between Android Application and Website.
- To develop a system that able to show the patient's current location.

1.4 Scope of Project

This project focuses only on monitoring simple body condition by using Android OS. These projects contain two parts which is using developing companion Android application and database system to store all the recorded data. The application and database will be developed in Java programming language.

The first part of this project is to build the database system to store patient's recorded data. The database is built by using Oracle and Eclipse software and will be synchronize between Android Application and Website.

The second part focuses on connecting the Website and Android Application through the database. The Android Application is developed by using Android Studio while the Website is developed by using Eclipse Indigo.

1.5 `Report Structure

In this report, there are divide into five chapters. Chapter 1 is about introduction of Smart Monitoring Body System. It also explains about the objectives, problem statement and scope.

For Chapter 2, it covered literature review. It focuses on a previous study about the application and system. Moreover, the comparison between old systems was made.

In Chapter 3, methodology of project discussed and explained in details. This section explains in detail about the flow of the project.

Result and discussion of the project are shown in chapter 4. The finding of this project will be placed and analysed in this chapter.

Lastly, the fifth chapter will comprise the conclusion and recommendation for this project.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter describe about some of the previous study that using a database system to store and display data through website and Android application in smartphone and also some activity tracking purpose. Based on the literature review, we can conclude that the basic idea of the project development is doable. Besides that, there is also some study that also discuss on the suitable software that can be used to develop this project.

2.2 Android Operating System Technology

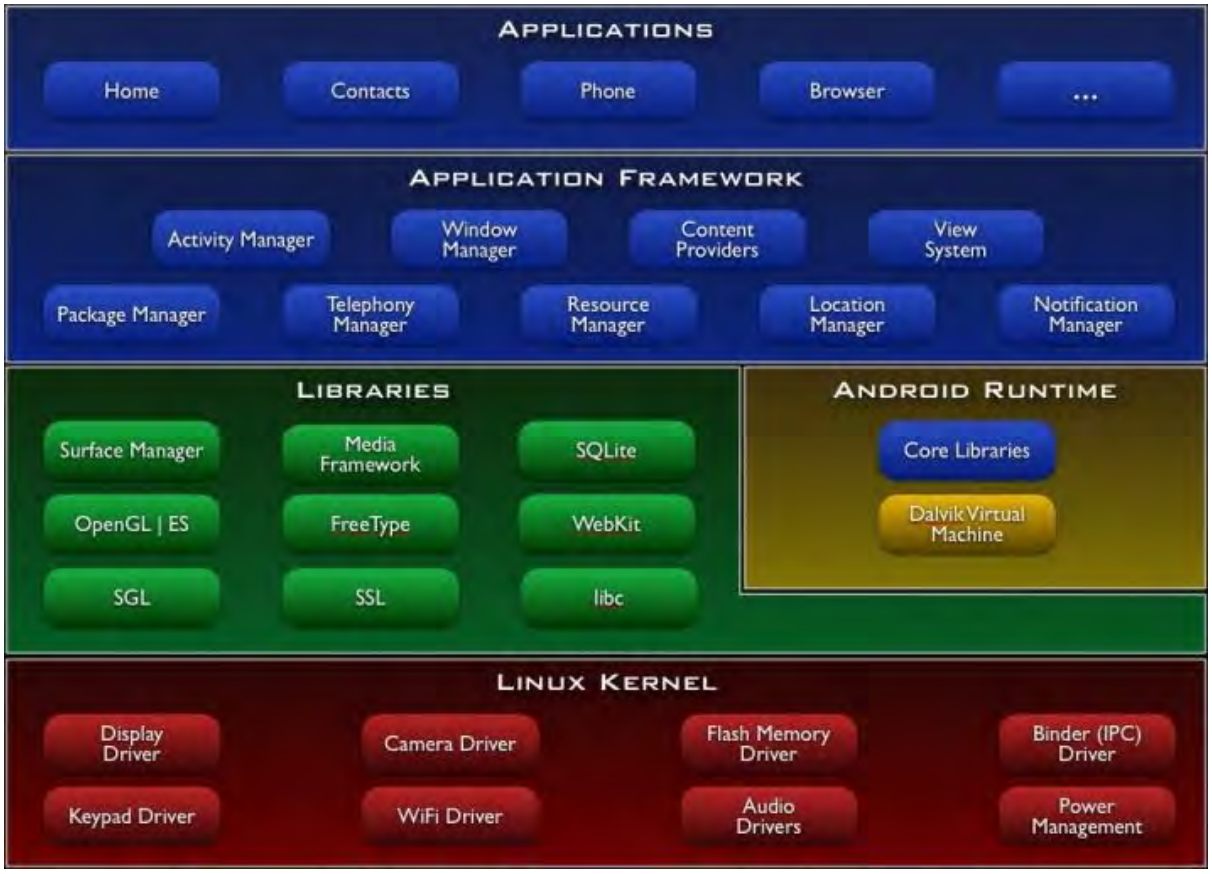

Figure 2.1: Architecture of Android System [1]

Android is one of the operating system that operate in smartphones and some others embedded system device. This operating system is based on Linux that provide a computer alike architecture. This technology is maintained and developed by Android Open Source Project (AOSP). Developer may write and manage the code using Java language that controlling the device using Google developed Java libraries.

Android SDK was released by Open Handset Alliance in November 2007. This platform actually developed using Linux and it has some feature:

- Free for licensing, release approval and distribution.
- GSM and3G networks for telephone.
- IPC message passing.

- Background process and application.
- Complete multimedia hardware control.
- Share data store.
- API's for location based server.

Application layer is a set of core application such as email client, SMS program, calendar, map, browser, contact and others. These applications built using create from Java. Application that aims to boast the performance for the specific task to do.

Application framework layer include program that manage Android device basic function like telephone application, resource allocation, switching between process and others. Developers have a full access to the application framework and it allows them to take benefits of Android processing capabilities and futures when creating the Android application.

The other layer is the libraries of Android. These shared libraries are written in C or C++, and then compiled for particular hardware architecture used by Android device and preinstall by phone vendor.

Android runtime layer include in Dalvik Virtual Machines (DVM) and set of Java core libraries. All Android application has its own instance of DVM. It has been written in such a way that each device can run multiple virtual machines efficiently and executes file with Dalvik Executable Format (.dex) for minimum memory.

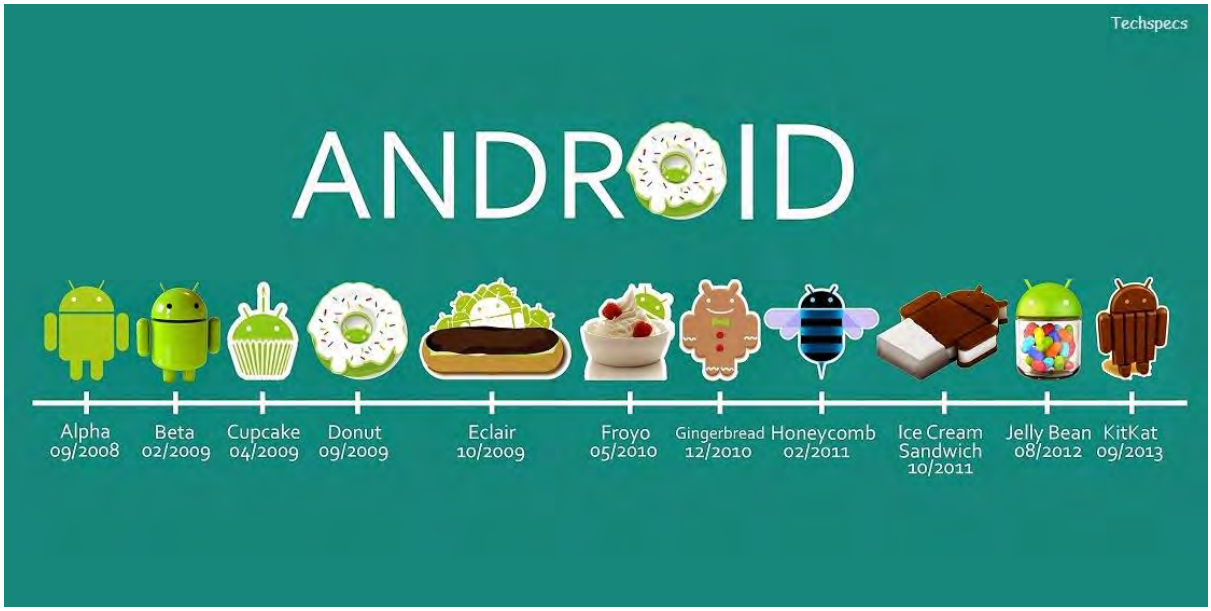

Figure 2.2: Android Timeline [1]

In October 2003, Android Inc. was found by Andy Rubin [2], Nick Sears [3], Rich Miner [4] and Chris White [5] at Palo Alto, California. In Rubin's words "*smarter mobile device that are more aware of it owner's location and preferences*" [5]. In August 2005, Android Inc. was acquired by Google. The key employees of Android Inc. include Rubin, Miner, and White stayed at the company after acquisition [5]. Rubin is a team leader at Google to develop mobile device platform based on Linux Kernel. Google promise to provide a flexible and upgradable system and also line up a series of hardware and software partner on their part. In October 2008, Google introduced the first marketed phone use Android technology which is HTC Dream [6]. After that, it has been expanded to other smartphones, tablet computer, E-reader, notebooks and many other devices.

Android technology is increasingly applied in many range of device; the most common device that uses this platform is mobile phone or smartphone. Community of developers actually create application like a games, social network, and business mainly for Android smartphone. There are a lot of free Android application that can be downloaded including games and productivity types.

In 2007, the version of Android operating system began to grow. The first version of Android is 1.0 introduced in 2008. Only after the first version, Android version increase update under the codename and released according to alphabetical order. On November 2014, the newest version of Android operating system was release with a codename "*Lollipop*" and available only for selected device [1].

Android Codename	Android Version
Cupcake	1.5
Donut	1.6
Éclair	2.0-2.1
Froyo	2.2-2.2.3
Gingerbread	2.3-2.3.7
Honeycomb	3.0-3.2.6
Ice Cream Sandwich	4.0-4.0.4
Jelly Bean	4.1-4.3
Kit Kat	4.4
Lollipop	5.0

Table 2.1: Android Codename and Version