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JUDUL: MOBILE GLOBAL POSITIONING SYSTEM (GPS) SYSTEM

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MOBILE GLOBAL POSITIONING SYSTEM (GPS) SYSTEM

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This report is submitted in partial fulfilment of the requirements for the
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2013

DECLARATION

I hereby declare that this project report entitled

MOBILE GLOBAL POSITIONING SYSTEM (GPS) SYSTEM

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

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DEDICATION

My dedication goes to my beloved parents Mr Che Mohd Noor Bin Muda and Mrs Rozaimah binti Abd. Ghani. They give continuous support to complete my final year project. I really thank to them and dedicate this project to them as symbol of my love to them. Besides, fellow friends and my housemate that is really helpful in finishing my final year project. Furthermore, a special thanks to my supervisor Madam Mashanum Binti Osman and all my classmate for support me direct and indirect to finish my project successfully.

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ABSTRACT

Mobile GPS System is a mobile based application for the Android OS that will be focusing in the geo-location where Google maps is integrated and able to show users current location using the GPS or internet, and current places near the user. Although GPS system is still new, the demands of user that want this kind of system grow rapidly. Mobility has become a trend nowadays and people bring their mobile phones, personal digital assistant (PDA), netbook everywhere they go. Global positioning system (GPS) has been used widely especially in mobile sectors. The satellite is used to provide information about the location. User needs a GPS receiver which usually has been integrated on most phones. Numerous of tasks can be done by GPS such integrate in the maps to allow the user to know their locations, to navigate and to track. This application also provides information about the current traffic in certain area, places of interest, tourist information such as places of interest, facts and related website and also map layers such as normal, hybrid, satellite and terrain. In addition, user are able to search any available spot in the application such as hotel, restaurant, zoo and historical place.

ABSTRAK

Mobile GPS Sistem adalah sebuah aplikasi berasaskan telefon mudah alih untuk OS Android yang akan memberi tumpuan dalam geo-lokasi di mana Google maps adalah bersepadu dan dapat menunjukkan lokasi semasa pengguna menggunakan GPS atau internet, dan tempat-tempat yang berhampiran semasa pengguna. Walaupun sistem GPS masih baru, permintaan pengguna yang mahu sistem seperti ini berkembang pesat. Mobiliti telah menjadi trend masa kini dan orang membawa telefon bimbit mereka, pembantu digital peribadi (PDA), netbook mana-mana mereka pergi. Sistem kedudukan global (GPS) telah digunakan secara meluas terutama dalam sektor mudah alih. Satelit ini digunakan untuk memberikan maklumat tentang lokasi. Pengguna memerlukan penerima GPS yang biasanya telah bersepadu pada kebanyakan telefon. Banyak tugas yang boleh dilakukan oleh GPS seperti mengintegrasikan dalam peta untuk membenarkan pengguna untuk mengetahui lokasi mereka, untuk mengemudi dan untuk mengesan. Permohonan ini juga menyediakan maklumat tentang lalu lintas semasa di kawasan tertentu, tempat-tempat menarik, maklumat pelancongan seperti tempat-tempat menarik, fakta dan laman web yang berkaitan dan juga lapisan peta seperti biasa, hibrid, satelit dan kawasan. Di samping itu, pengguna dapat mencari mana-mana tempat yang ada dalam aplikasi seperti hotel, restoran, zoo dan tempat bersejarah.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

PSM	-	Projek Sarjana Muda
GPS	-	Global Positioning System
PDA	-	Personal Digital Assistant
SDK	-	Software Development Kit
JDK	-	Java Development Kit
USB	-	Universal Serial Bus
GIS	-	Geographic Information System
OS	-	Operating System
HTC	-	High Tech Computer Corporation
LG	-	Lucky Geumseong Corporation
WRT	-	Web Runtime
IDE	-	Interactive Development Environment
SDM	-	Software design methodology
SSADM	-	Structured System Analysis and Design Methodology
RAD	-	Rapid Application Development
OOAD	-	Object Oriented Analysis and Design

CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

Global positioning system (GPS) has been used widely especially in mobile sectors. GPS is a space-based global navigation satellite system. It used the satellite to provide information about our location. To access these, the user will need a GPS receiver which nowadays has been integrated on most phones. There is a lot of things that can be done by GPS such as it can be integrate in maps to allow the user know their locations, can be used in navigation in transport, as a tracking device, GPS tours where user can know the point of interest and other geographical related things.

Besides, Global positioning system is a system focusing to locate the location of the user. It can store geographical data of the user. The system used a GPS antenna and sent the signal to satellite to determine the location of the user. Although GPS system is still new, the demands of user that want these kinds of systems grow rapidly. Mobility has become a trend nowadays and people bring their mobile phones, personal digital assistant (PDA), netbook everywhere they go. So the system will be designed to suit these needs thus it will be developed for mobile phone user.

Therefore, this mobile based application will be focusing in the geo-location where Google maps will be integrate, show users current location using the GPS or internet, show current places near the user and the picture of the places thus allow the user to know the places more easily.

1.2 PROBLEM STATEMENT

1.2.1 Lack of map understanding

User hard to understand the map itself. A normal traditional map is complicated to use as the user usually can't point where their exact locations on the map is.

1.2.2 Misguided

The user have to figure out which route need to take either it is a traffic jam or not and even worse user end up in the middle of nowhere.

1.2.3 Lack of traffic information

User can't even know how to avoid a traffic jam during pick hour and of course can't do anything if user stack in the traffic jam because user don't know what is current traffic information.

1.2.4 Time Consuming

So much time has been wasted to figure out which route, travel time just to get to a certain destination which should be done in a minute.

1.2.5 Wasted in term of cost and space

User need to have map in different scale because sometime certain user is looking for the nearest train station, hotel or restaurant.

1.3 OBJECTIVES

1.3.2 Objective 1

To create a mobile map that allow the user to know their location with the help of GPS.

1.3.3 Objective 2

To provide a place of interest in the maps on map marker such as restaurant, shopping mall and so on.

1.3.1 Objective 3

To allow the user to pin-point their location where they can gain information about their location.

1.3.4 Objective 4

To reduce travelling time and save cost.

1.3.5 Objective 5

To provide search method for users to find a place that has given.

1.4 SCOPES

1.4.1 User

i. Location View

a) User can view the location by opening the map application on mobile phone.

b) User will need Google Maps on the mobile phone as this system will integrate GPS with the maps. (All android phone has a built-in Google Maps).

ii. User Interface

a) Provide a simple user-interface for the user to navigate through the system even for the first time.

iii. Mobility

a) User can bring anywhere as it is intended for mobile phone user.

b) No need to bring a map anymore as it can fit in the pocket.

1.4.2 Modules

i. User will able to find and retrieve their location information with mobile phone via internet and GPS.

ii. User can also search the location all over the world with the application.

iii. User will able to zoom-in for detailed view and zoom-out to see overall map by tapping the screen.

iv. User able to see places of interest of icon marker provided on selected area. (Malacca)

1.4.3 Software

In order to develop the software android software development kit (SDK) is needed. As android application is based on java, java development kit (JDK) is also needed. Eclipse is used to develop this application as it provides the android plugin in the compiler. With the use of android plugin we can use the android emulator to debug the code. So it is optional to use android mobile phone as we already have the emulator that work exactly as the real phone.

i. Windows 7
ii. Java
iii. Eclipse (with Android plugin)
iv. Android SDK
v. Android OS (4.0.3 Ice Cream Sandwich)

1.4.4 Hardware

i. Android Mobile Phone
ii. Laptop
iii. Mobile Phone USB Cable

1.5 PROJECT SIGNIFICANT

i. With this application, user can view the alternative route and use it to arrive the destination as user can zoom in and out to see the road. So user can decide which road to take. As user move along the path, the system will auto update the current location so user will know where the user are.

1.6 EXPECTED OUTPUT

Expected output from this project is the system will be able to change the manual use of traditional map into computerized such as mobile phone-based system using android operating system that will be focusing in the geo-location where Google maps will be integrate, show users current location using the GPS or internet, show current places near the user and the picture of the places thus allow the user to know the places more easily.

1.7 CONCLUSION

As the conclusion, hopefully this system which is Mobile GPS System will able to show users current location using the GPS or internet, show current places near the user and the picture of the places thus allow the user to know the places more easily.

CHAPTER 2

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 INTRODUCTION

This chapter will discuss on literature review conducted and methodology used to develop the Mobile GPS System. The project methodology is an approach to meet the goals and objectives for this system. Besides, project requirements are such as software, hardware and other related requirement will be identified in this chapter.

A project methodology explain how to manage projects from start to finish. It describes every step in the project life cycle in depth. It also helps to complete tasks faster than before. In the proposed project, Prototyping has selected as the methodology.

In today's phone, it is common to have a built in GPS. But in the early days about 10-15 years ago when the GPS was being introduced, the price of the GPS device was really expensive. Furthermore when GPS was first introduced it doesn't really compact and mobile like GPS today. The size of GPS device is bulky and big. Back then, GPS is one separate device such as Garmin or PapaGo. After a few years later, GPS is started being used in a car. GPS become more and more popular. Although GPS is small enough to be fit in a car, people still can't bring it to whenever they want. They want all in one device. Mobile phone is one of the perfect choices to become all in one device. Hence, the phone manufacturer started to create a phone with built-in GPS.

From that, GPS become a trend in mobile phone these days. Aside from the hardware, more applications regarding GPS is being developed. For example, an application that allow user to see traffics and Geographic Information System (GIS).

2.2 FACTS FINDING

Fact finding is an extremely important component of the communication process which presents its own special set of problems and opportunities to people working to increase the constructiveness of intractable conflicts. Furthermore, the facts and finding also can be based on the major components of the enhanced system such as backup and recovery, system architecture, export and import data and integrity within different applications.

2.2.1 Domain

Mobile GPS System is an application that develops for android user especially Malacca's tourist. Module that has been specified in this system is based on a research or application to help user on finding places of interest around Bandar Hilir, Malacca and providing route towards certain place or area systematically. Mobile GPS system is concern about online GPS system which guiding user towards place of interest and other related places. Planning phase need to be done properly so the best solution can be made and problems can overcome without doubt.

2.2.2 Operating System

The operating system (OS) is the core system of today's smartphone. The OS allow the user to have the experience of having similar experience to computer for example similar computer based function in their phone, to control overall operation of the phone, to be responsible for the management of hardware and other various component in the computer. There are lots of popular mobile OS such as android which is developed by Google and widely used by High Tech Computer Corporation (HTC), Lucky Geumseong Corporation (LG), Samsung Corporation, and Sony Ericsson Corporation, iOS is widely used by Apple in their iPhone and iPad. Bada is a smartphone platform newly developed OS by Samsung and last but not least Symbian a popular OS that has been used in many Nokia phones. All of them have their own advantages and disadvantages. The best OS need to be chosen in order to develop the GPS application.

2.2.3 Symbian

Symbian OS is an open source OS developed by Symbian Ltd. It was formed in 1998 with its shareholder Ericsson, Nokia, Panasonic, Motorola, Psion, Siemens and Sony Ericsson. Symbian Ltd was acquired by Nokia in 2008 and since then Symbian become an open source OS. This means Symbian has become a platform where anyone can write or sell or even giveaway end user applications.

Symbian devices can be programmed by using Phyton, Java Mobile Edition, Flash Lite, and .NET, Web Runtime (WRT), Widgets and standard C or C++. Symbian is written mainly in C++ and optimised for use in small-battery powered devices with extensive communication capabilities. This can be seen in most smartphone nowadays where Symbian powered mobile phone have a longer battery life compared to other OS. Symbian has provided a free Software Development Kit (SDK) which allows anyone to develop application under Windows environment using the Symbian Emulator. Programming Symbian devices required a basic knowledge of C++.

The Symbian OS have a different segment for various levels of mobile phones. There are three types of Symbian OS which is Pearl, Quartz and Crystal. Pearl is targeted for low level or average handset, Quart (S60) is developed for smartphone also can be considered as middle level and Crystal is developed for handheld pc which is the high end level.

2.2.4 iOS

Apple is a late comer in a smartphone market yet it still provides a great competitor to other mobile OS and become the second popular smartphones OS in the market after Nokia. iOS is an operating system developed by Apple. iOS is originally developed for iPhone. After become successful with iPhone they used it in iPad, iPod Touch and Apple TV. Unlike Symbian, iOS is not an open source OS which mean apple have the full control of the software and the hardware. There is much restriction in order to developed application for iPhone as it is a close OS. All