UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACTORY 1 MAPPING USING ANDROID FOR FTK COMMUNITY

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor"s of Electronics Engineering Technology (Telecommunications) with Honours.

by

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DECLARATION

I hereby, declared this report entitled "Factory 1 Mapping FTK Community Using Android (MIT Inventor)" is the result of my own research and except as cited in references.

Signature	:	………………………………….
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Date	:	………………………………….

APPROVAL

This report is submitted to the Faculty of Engineering Technology of UTeM as a partial fulfilment of the requirements for the degree of Bachelor of Electronics Engineering Technology (Telecommunications) with Honours. The member of the supervisory is a follow:

………………………………

(Project Supervisor)

ABSTRAK

Projek ini memberi penerangan menyeluruh mengenai aplikasi android iaitu MIT Inventor. Tajuk projek ini adalah factory 1 mapping using android for FTK community. pembangunan perisian Android adalah proses di mana permohonan baru yang dicipta untuk sistem operasi Android. Aplikasi biasanya dibangunkan dalam bahasa pengaturcaraan Java menggunakan kit pembangunan perisian Android (SDK), tetapi persekitaran pembangunan lain juga disediakan. dalam pengkomputeran dan pengurusan data, pemetaan data adalah proses mewujudkan pemetaan elemen data antara dua model data yang berbeza. pemetaan Data digunakan sebagai langkah pertama untuk pelbagai integrasi. Projek ini menggunaka android (MIT Inventor) di mana ia akan memetakan untuk kejuruteraan Factory 1 FTK, UTEM. Projek ini telah dicipta untuk membantu pelajar baru untuk mencari lokasi dan mengetahui kedudukan FTK makmal di kilang 1. Selain daripada itu projek ini juga boleh mengetahui pembantu makmal yang bertanggungjawab. Dengan aplikasi ini, ia boleh membuat ia lebih mudah bagi kedua-dua pelajar dan pensyarah. Dengan aplikasi android ini kita boleh dengan mudah membuat apa-apa permohonan sama ada untuk telefon bimbit atau komputer. Ahirnya satu aplikasi telah berjaya dicipta dengan jayanya.

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ABSTRACT

This project gives a thorough description of the MIT Inventor android application. The project title is factory 1 mapping using android for FTK community. Android software development is the process by which new applications are created for the Android operating system. Applications are usually developed in the Java programming language using the Android software development kit (SDK), but other development environments are also available. in computing and data management, data mapping is the process of creating a mapping of data elements between two different data models. Data mapping is used as the first step to a variety of integration. The project is using android (MIT Inventor) where it will be mapped to Factory 1 FTK engineering, UTEM. The project was created to help new students to locate and identify the position of the laboratory at the plant FTK 1. Apart from this project can also find out who is responsible laboratory assistant. With this application, it can make it easier for both students and lecturers. With this android application we can easily create any application whether for mobile phones or computers. Finally an application has been created successfully.

DEDICATION

This report is dedicated to my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time. They also helped me financially and supported throughout finishing this project report

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CHAPTER 1

INTRODUCTION

1.1 Background

Nowadays, the gadgets are rolling the world. Many people cannot imagine even one day without their favorite mobile device. We use them for everything: find information, stay connected with our friends and families, find the way around, decide what to do, and many other things. But very often we come to the point when we would like to have an application for particular situation or for certain need, but there is no such one. This project is about the android application, in this project using the android. Android is an integrated development environment (IDE) for the Android platform. Android Studio provides integrated Android developer tools for development and debugging.

Android software development is the process by which new applications are created for the Android Operating System. Applications are usually developed in Java programming language using the Android software development kit (SDK), but other development environments are also available. in computing and data management, data mapping is the process of creating data element mappings between two distinct data models. Data mapping is used as a first step for a wide variety of integration. This project is using the android where it will map for engineering Factory 1 FTK, UTEM. This project was created to help new student to find the location and knowing the position of FTK lab in factory 1. Other than that this project also can know the lab assistant in charge. With this application, it can make it easier for both students and lecturers. With the android studio we can easily make any application either for mobile phone or computer.

1.2 Problem Statement

This project was made because we know the new students and also the seniors do not recognize the location of the existing laboratories in the FTK. Other than that limited mapping and not overall factory. As we can see, we can only find the map of factory 1 in certain place or location only. It also takes time for student to attend lab session and cause delay.

1.3 Objectives

The main of this project is:

- To study and understand the function of Android.
- To design an android mapping system application.
- To create a mapping system application for factory 1 FTK.

1.4 Scope

This project will focus primarily on the application that helps new student's even lecturers in FTK, UTEM to identify the location of laboratories. This project also uses the android, android SDK and android Java JDK. Android SDK is a process to create the new application for Android operating system. It usually developed in java programming language. For android Java JDK, is a implementation of either one of java platform and also software for java programming. For this project we only mapping for factory 1 FTK, UTEM.

1.5 Report Structure

This thesis contains of five chapters. Chapter one will describe about introduction of The Study on android for mapping , problem statement of the project, objective of the project that describe the reason for developing this project, scope of the project and the report structure.

Chapter two is literature review about the android studio and android application and device system that available to capture the information this chapter review on previous research of the device and journal about the topic related to the project. Various methods and approaches that related to the project is discussed and reviewed.

Chapter three explains the methodology of this project. This project methodology includes all the information that gathered from all the sources such as journal, research and other theory that related to this project. In this chapter, it also will introduce the method used to gather the data, processing method and data analysis. For example, the model, flow chart and other diagram that related.

Chapter four explains the expected result and analysis of this project. This project will used all the research that being done to get all the result. The analysis from the information is very important to produce the data that needed and related to the topic of this project. The flow chart of the project and the diagram use to explain in this chapter.

Chapter five is about the conclusion for the whole research and the proposed for the future progress for the project.

CHAPTER 2
LITERATURE REVIEW

2.0 Introduction

This chapter will provide the review of previous research that is related to this final year project. There are previous researches understanding on android studio, basic part of android and also about the android application.

2.1 Android

As we know android is a mobile operating system (OS) currently developed by Google, based on the Linux kernel and designed primarily for touch screen mobile devices such as smart phones and tablets. Android's user interface is mainly based on direct manipulation, using touch gestures that loosely correspond to real-world actions, such as swiping, tapping and pinching, to manipulate on-screen objects, along with a virtual keyboard for text input. In addition to touch screen devices, Google has further developed Android TV for televisions, Android Auto for cars, and android Wear for wrist watches, each with a specialized user interface. Android devices boot to the home screen, the primary navigation and information "hub" on Android devices that is analogous to the desktop found on personal computers. (Android also runs on regular personal computers, as described below).

Furthermore android home screens are typically made up of app icons and widgets; app icons launch the associated app, whereas widgets display live, auto-updating content, such as the weather forecast, the user's email inbox, or a news ticker directly on the home screen. A home screen may be made up of several pages, between which the

user can swipe back and forth, though Android's home screen interface is heavily customizable, allowing users to adjust the look and feel of the devices to their tastes. Lastly Third-party apps available on Google Play and other app stores can extensively re-theme the home screen, and even mimic the look of other operating systems, such as Windows Phone.

2.2.1 Design and Implementation of Mobile Phones based Attendance Marking System.

Based on Mohammad Ausaf Anwar (2015) [1] reported that The use of android phones for such purposes can ease them to do work quicker. Usage of mobile phones for applications like attendance marking system shows enhanced utility of Smart phones. Moreover smart phones are gaining more popularity and attraction because of its broad application areas and increased capacity in terms of computational power, sensors and communication quality. Despite being open source; Android based Smart phones provide advanced connectivity and computational capability as compared to other mobile as.
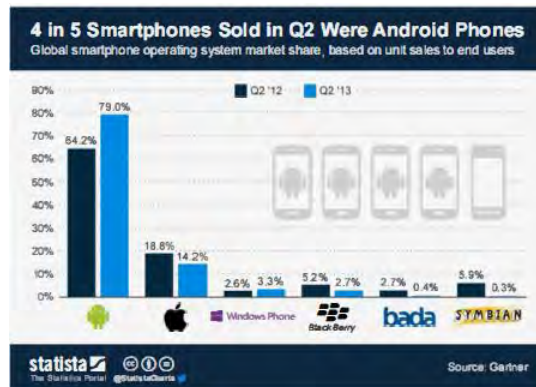

Fig. 1: Global Platform based Smartphone Market Share

For figure 1, the authors have made a comparison of popular runtime environments which clarifies with the various options available for developing applications that run on resource constrained mobile devices. The android provides easy communication between hardware and software with user friendly interface.

They have made a comparison of popular runtime environments which clarifies with the various options available for developing applications that run on resource constrained mobile devices. Furthermore there are many applications developed for various utilities in the sector of education, but a very few have done work for attendance purposes. Eventually have made an implementation of mobile learning platform over mobile phones. The various other applications based on android, had been developed so far are based on Google doc and thus require network connectivity for its work.

2.2.2 A Web Base Android Application Development System.

Wen-Pinn Fang1,Sheng-Hsuan Lu2, Ming-Hao Liu3, Ting-Hung Lai4, Shan-Chun Hung5, Yin-Feng Huang6,Chii-Jen Chen7 (2014) [2] reported that cloud system, web based development tool, and on line help. The cloud system is a type of Paas. It has backup support, redundant support, load balance support, online compiler support, storage support, database support ,web site support and auto deploy support. In development tool, it provides users to design their android application by a browser. In online help, there are electronic books to teach users how to use the system. There are four levels in the system.

Users can design android application in different levels. In the first level, users can design the application by drag and drop. In the second level, users can design the events by themselves. In the third level, users can implement the function of application by select or adjust coefficients. In the fourth level, users can read or modify the java source code. To achieve the goal that transfer graphic component to java source code, a code generate engine is implemented in this paper. There are two sets of OP code: layout of activity and logical OP code. The layout code is transferred from the XML of android layout definition. The logical OP code is constructed by macro concept.

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2.2.3 Android Application for Event Management and Information Propagation.

Phanuphong Hathaiwichian, Lapas Siriwittayacharoen Apinat Wongwachirawanich, and Chaiyong Ragkhitwetsagul (2014) [3] proposed that this application focuses on solving problems of event registration and management by using QR code, and also providing news, information of events, and project ideas which are the given senior project topics for university students. First of all, users will be able to reserve and manage their event participation via this application, also receive the QR code to participate in each event after reservation.

Additionally, this application provides significant information and news of many interesting events from the event provider. Moreover, the topics for senior projects will be provided as one of this application features. Students who are interested in any topic will be able to get the brief information and project provider's contact information from this application. In conclusion, this application will help the event providers by using QR code in verification. Moreover, it will provide significant information of each event and project topics to users to be able to reach from anywhere, any time. These are the main features of this application which will improve the event management and registration for event providers and event participants.

2.2.4 An event-driven university campus navigation system on android platform

Based on Susovan Jana (2015)[4] reported that Every year lots of new students get admitted in the university. Many new buildings are built, new courses are started and some departments may be relocated inside the campus. There are no facilities to find places like administrative building, departments, library, canteen, etc. in the campus and how to find those places from current location. It creates problem to the new comer to reach easily and timely in the desired location. The new faculty member, staff and visitors also face same problem inside campuses. Moreover, there does not exist an efficient system to inform about any event which will happen just few minutes or few

hours later in the university campus with its proper location and shortest path from current location. The figure 2 shows the design campus map. Google map API V2 has been taken as a temple to shows campus map.

Figure 2 shows campus map

Nowadays, most of the students, faculty members and staff use android phone for personal purpose. A Global Positioning System (GPS) based map application will be most helpful to locate desired place and shortest path from current location and to get updates of events on map with its location. Thus, it will reduce frustration and confusion of anybody inside the campus. This paper presents the architecture and design of a Google Map based application on Android Platform. The application has been implemented using Android SDK and has been tested for two campuses of Jadavpur University (Main campus and Salt Lake campus).

2.2.5 Campus Assistant Application on an Android Platform

Based on Mihaela Cardei, Iana Zankina, Ionut Cardei, and Daniel Ravi (2013) [5] reported that Today̋ˇs drivers are well equipped for travel thanks to the GPS units many have in their cars. GPS applications allow users to enter a destination and based on their current coordinates display the fastest way to the destination[. Additional features have evolved over time, such as displaying congested routes, which allow users to make smart driving decisions and improve driving safety. This saves time and stress when going to unfamiliar places or taking long trips. Google Maps and GPS systems have become

indispensable in recent years, with vast amounts of users relying on them for directions, but their capabilities have not yet been fully applied to university campuses. Directions within campuses are not available using the Google maps application. Taking for example the Boca Raton campus at Florida Atlantic University (FAU),when the Engineering East Building, which is the home of the Computer and Electrical Engineering and Computer Science Department, is entered as the Destination no complete directions are provided. The directions lead to the FAU campus, but not to the building. In addition, not all the buildings and parking lots are shown on Google Maps.

2.3 Android Studio

Android Studio is an integrated development environment (IDE) for the Android platform. The Android Studio also provides integrated Android developer tools for development and debugging. Furthermore Android software development is the process by which new applications are created for the Android operating system. New features are expected to be rolled out with each release of Android Studio. Figure 3 show the software android studio.
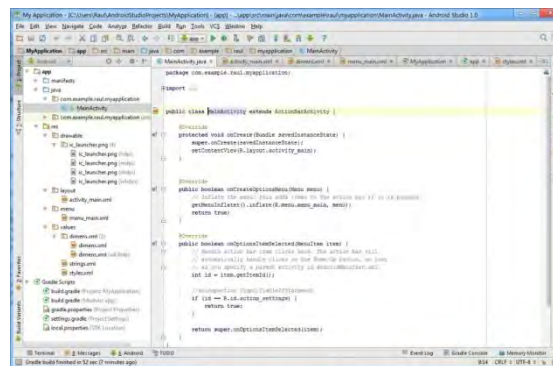

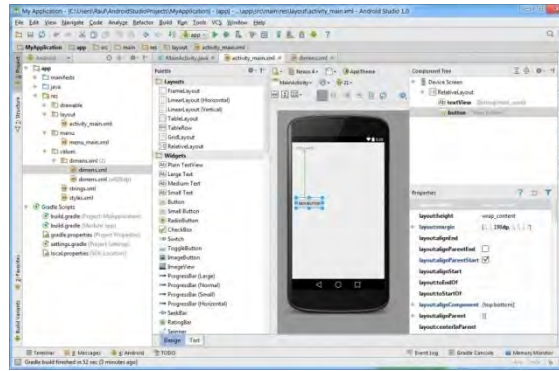**Figure 3: software of android studio**

Figure 4: design in android studio

In figure 4 shows that how to design the application in android studio software. The following features are provided in the current stable version is the grade-based build support, android-specific refactoring and quick fixes and Lint tools to catch performance, usability, version compatibility and other problems. Android studio contains all the Android SDK tools to design, test, debug and profile your app.

2.4 Android software development and Application.

Android software development is the process by which new applications are created for the Android operating system. Applications are usually developed in Java programming language using the Android software development kit (SDK), but other development environments are also available. The Android software development kit (SDK) includes a comprehensive set of development tools. Furthermore The SDK also supports older versions of the Android platform in case developers wish to target their applications at older devices. Development tools are downloadable components, so after one has downloaded the latest version and platform, older platforms and tools can also be downloaded for compatibility testing.

2.5 Basic Parts of Android Application

In this android application have four basic components. The basic components of any android application are the following:

- Activities
- Intent and broadcast receivers
- Services
- Content Providers
- Widgets and Notifications

Figure 5: principle ingredient of android application

2.5.1 Activities

An activity is the first stepping stone is building an Android user application. It provides the space to the user for doing anything and everything. For example, opening a contact, dialing a caller, etc. everything is done by interacting with a window and that very window is provided by an activity. A window is provided to each activity where user interfacing is done. Generally, every Android application has more than one activity.

2.5.2 Services

Another important component of an android application is service. It does not provide user interface. It does long running operations in background. Service doesn't terminate even if the component which initiated it got terminated or switched to another application. A service can be connected to a component which can even do inter process communication (IPC). For example, when you receive your email updates in inbox it is a service. You get the notification of new e-mail even if you are not using the e-mail app or doing something else.

2.5.3 Content Providers

These Android components bring the object oriented functionality to the system. Content Providers encapsulate data. Content providers as the name indicates provides content of one process to another hence it acts as an interface. It provides gateway to access data from a structured set. For accessing data in a content provider an object has to be created and this object acts as a client whereas content provider act as a server. It is this object which is going to receive the requests retrieves the results and returns the result. Android has content providers which manages video, audio, etc. These content providers are internal to android applications. For example, custom searches on device require content providers.

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