

Mobile Learning Application.

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Abstract- This paper presents the design and development of Mobile Learning Application on Android Platform using Java Programming Language to help students in computer courses at the Department of Computer Engineering. Our approach is to incorporate multimedia animations concept with command language to create the pervasive learning environment in presenting the mobile learning application. With this mobile learning application, student could learn at his or her own pace, anywhere and anytime. This mobile learning application intends to complement the current traditional classroom and e-learning systems.

Index Terms- Android Platform, Java Programming Language, Mobile Learning Application, Social Engineering.

I. INTRODUCTION

The use of computing technology for learning has been observed in various ways. In the past few decades, electronic learning or e-learning had been adopted and used by public schools and university students in many parts of the world. They were familiar with both the e-learning terminology and technology but in recent years, the rapid progress in mobile technology has created a new area which is known as mobile learning technology. Mobile learning is the next generation of e-learning that are based on mobile devices (Sharples, M.,2005). Wireless technologies such as IEEE 802.11, Bluetooth, and GPRS are used in a project for development of informal classroom and eSchoolbag system at the Aletheia University in Taiwan (Chang C., Sheu J., 2007). A pilot case study called Math4Mobile was conducted in a novel environment to support mobile learning (Botzer, G., 2007). The Math4Mobile environment includes cellular applications designed to support mathematics learning. The main steps in development of a distributed mobile learning application for Android presented by P. Pocatilu, F. Alecu and M. Vetrici (2010). The client application communicates with the server using Web services. The prototype developed includes the testing module. Using Web services for mobile learning applications helps the process of development by providing a standardized way of communication between mobile clients and servers. It is a research on how to use mobile devices and mobile application development as a mechanism to teach introductory programming to computer science students (Mahmoud, Q.H and Popowicz, P.,2010). The objective of their research is to integrate mobile devices into computing education that could provide more benefits to the students than other teaching techniques. In their research the approach involves Java Micro Edition (ME) platform and the Blackberry smartphone as a device. The application associated software tools such as Blackberry Java Development

Environment for building Java ME and Blackberry based applications and Blackberry Smartphone Simulator. There is a project from University of Tennessee at Martin that has developed mobile learning applications for the Googles Android and Apples iOS platforms to be used in electrical engineering courses will be investigated their effects on student performance. These applications are quiz style and touch based applications that ask students questions relevant to electrical engineering subjects. There are several different problems to choose from, including digital logic gate analysis, discrete signal convolution, and digital filter design. Once students complete the work, the score results can be sent to the instructors email automatically (Potts, J, Moore, N and Sukittanon, S., 2011).

1.1 Need Of Mobile Learning

E-Learning exploits interactive technologies and communication systems to improve the learning experience. It has the potential to transform the way we teach and learn across the board. It can raise standards, and widen participation in lifelong learning. It cannot replace teachers and lecturers, but alongside existing methods it can enhance the quality and reach of their teaching. Social networking services (SNS) are increasingly popular amongst Australian young people regardless of geographical location, background and age. They include services such as Facebook.com, MySpace.com and Bebo.com which have many millions of members each. It also includes services, such as Elftown.com (for fans of fantasy and science fiction) and Ravelry.com (for fans of knitting!) with small numbers of members, often connected by a specific common interest. Furthermore, many services created for media sharing (e.g. Flickr for photo sharing, Last.FM for music listening habits and YouTube for video sharing) have incorporated profile and networking features and may be thought of as part of this wider conceptualization of SNS themselves (boyd Ellison 2008:216). Indeed, SNS in a Web 2.0 environment have transformed processes of communication and social interaction particularly with the increasing integration of social media functionality to these services. Research on the introduction of ICT in education (Salomon, 1990; Welch Brownell, 2000) has shown that it is effective only when developers understand the strengths and weaknesses of the technology and integrate technology into appropriate pedagogical practices. To address these concerns, an application framework is proposed for m-learning. This framework consists of two levels of research and analysis. First, is the mobile connectivity which focuses on the applications and technology used by commercial establishments to extend electronic commerce and second is the e-learning, which focuses on the use of Internet and other ICT in education.

II. LITERATURE SURVEY

Today over 6 billion people have access to a connected mobile device and for every one person who accesses the internet from a computer two do so from a mobile device. Mobile technology is changing the way we live and it is beginning to change the way we learn. Mobile learning involves the use of mobile technology, either alone or in combination with other information and communication technology (ICT), to enable learning anytime and anywhere. Learning can unfold in a variety of ways: people can use mobile devices to access educational resources, connect with others, or create content, both inside and outside classrooms. Mobile learning also encompasses efforts to support broad educational goals such as the effective administration of school systems and improved communication between schools and families. Social Engineering (SE) is a blend of science, psychology and art. While it is amazing and complex, it is also very simple. We define it as, Any act that influences a person to take an action that may or may not be in their best interest. We have defined it in very broad and general terms because we feel that social engineering is not always negative, but encompasses how we communicate with our parents, therapists, children, spouses and others. A survey on US mobile industry found that mobile device sales grew by 402003, and predicted that PDA/mobile phone sales will outstrip PC sales by 2005 with the majority of companies switching to wireless networks by 2008 (Ellis, 2003). Computing devices have become ubiquitous on today's college campuses. From notebook computers to Wireless phones and Handheld devices 1 (or W/H devices for short), the massive infusion of computing devices and rapidly improving Internet capabilities have altered the nature of higher education (Green, 2000). Computer Assisted Learning (CAL) has proliferated tremendously in the last few decades with the use of Internet, email, multimedia technology, and intelligent tutoring system on campus. A 2000 Campus Computing Survey revealed that the majority of college professors use email to communicate with their students, and approximately one-third of college courses utilize CAL technology (Green, 1999). Similarly, Jones (2002) reports that a great majority of college students own computers and wireless devices with almost 80 percent believing that Internet use has enhanced their learning experience.

III. OVERVIEW OF THE MOBILE LEARNING APPLICATION

Our application can be installed only on android platform phones. This application consists of the real time e-learning plus social engineering concept that provide a reliable mobile learning application. In case you are offline then also one can learn from this app. This application basically consist of two part first part has tutorial part where the learning contents are place and in second part chat room is available for user. If any query occurs to user then he/she will fire it on the chat room. The user (expert) on the other side will provide the solution to the user's query thus this application is real time application and provide free of cost e-learning. The application we are going to develop is reduces all the drawbacks of existing system. This application is basically based on the smart phone. Now days most of people uses it . So

the application has lots Scope area. The Application provides the reliable and convenient way for the mobile learning.

3.1 Technology Used

In this application we are using the following technology.

3.1.1 Android

Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touchscreen mobile devices such as smartphones and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear). The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate onscreen objects, and a virtual keyboard. Despite being primarily designed for touchscreen input, it also has been used in game consoles, digital cameras, and other electronics. Android is the most popular mobile OS. As of 2013, Android devices sell more than Windows, iOS, and Mac OS devices combined, with sales in 2012, 2013 and 2014 close to the installed base of all PCs. As of July 2013 the Google Playstore has had over 1 million Android apps published, and over 50 billion apps downloaded. Androids source code is released by Google under open source licenses, although most Android devices ultimately ship with a combination of open source and proprietary software. Initially developed by Android, Inc., which Google backed financially and later bought in 2005, Android was unveiled in 2007 along with the founding of the Open Handset Alliance a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices. Android is popular with technology companies which require a ready-made, low-cost and customizable operating system for high-tech devices. Androids open nature has encouraged a large community of developers and enthusiasts to use the open-source code as a foundation for community-driven projects, which add new features for advanced users or bring Android to devices which were officially released running other operating systems. The operating systems success has made it a target for patent litigation as part of the so called smartphone wars between technology companies.

3.1.2 2G and 3G network

2G (or 2-G) is short for second-generation wireless telephone technology. Second generation 2G cellular telecom networks were commercially launched on the GSM standard in Finland by Radiolinja (now part of Elisa Oyj) in 1991. Three primary benefits of 2G networks over their predecessors were that phone conversations were digitally encrypted; 2G systems were significantly more efficient on the spectrum allowing for far greater mobile phone penetration levels; and 2G introduced data services for mobile, starting with SMS text messages. 2G technologies enabled the various mobile phone networks to provide the services such as text messages, picture messages and MMS (multi media messages). All text messages sent over 2G are digitally encrypted, allowing for the transfer of data in such a way that only the intended receiver can receive and read it. After 2G was launched, the previous mobile telephone systems were

retrospectively dubbed 1G. While radio signals on 1G networks are analog, radio signals on 2G networks are digital. Both systems use digital signaling to connect the radio towers (which listen to the handsets) to the rest of the telephone system. 2G has been superseded by newer technologies such as 2.5G, 2.75G, 3G, and 4G; however, 2G networks are still used in many parts of the world. 3G, short form of third Generation, is the third generation of mobile telecommunications technology. This is based on a set of standards used for mobile devices and mobile telecommunications use services and networks that comply with the International Mobile Telecommunications-2000 (IMT-2000) specifications by the International Telecommunication Union. 3G finds application in wireless voice telephony, mobile Internet access, fixed wireless Internet access, video calls and mobile TV. 3G telecommunication networks support services that provide an information transfer rate of at least 200 kbit/s. Later 3G releases, often denoted 3.5G and 3.75G, also provide mobile broadband access of several Mbit/s to smartphones and mobile modems in laptop computers. This ensures it can be applied to wireless voice telephony, mobile Internet access, fixed wireless Internet access, video calls and mobile TV technologies. A new generation of cellular standards has appeared approximately every tenth year since 1G systems were introduced in 1981/1982. Each generation is characterized by new frequency bands, higher data rates and no backward-compatible transmission technology. An application on an Android device doesn't need to be running to receive message. The system will wake up the application via Intent broadcast when the message comes, as long as the application is set up with the proper broadcast receiver and permissions. It requires devices running Android version 2.2 or higher that also have the Market applications installed. However, you are not limited to deploy your applications through Market. It uses an existing connection for Google services. This requires users to set up their Google account on their mobile devices. C2DM has been officially deprecated as of 26 June 2012. This means that C2DM has stopped accepting new users and quota requests. No new features will be added to C2DM. However, apps using C2DM will continue to be working. Existing C2DM developers are encouraged to migrate to the new version of C2DM, called Google Cloud Messaging for Android (GCM).

IV. SYSTEM ARCHITECTURE

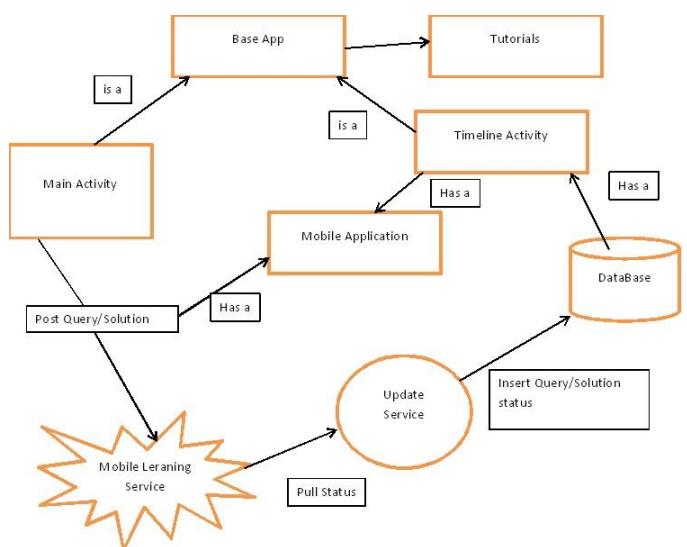


Fig. 4.1 System Architecture.

4.1 Existing System

As discussed in the introduction the existing systems are available in Mobile Learning are the Stand alone an Very Small Concept this system provide the services to the user for standalone mobile learning application from his mobile phone. In some cases both the system work same, and they provided much of services to the user. But because of the some problems they losing their popularity.

4.2 Proposed System

This application consists of the real time e-learning plus social engineering concept that provide a reliable mobile learning application. In case you are offline then also one can learn from this app. This application basically consist of two part first part has tutorial part where the learning contents are place and in second part chat room is available for user. If any query occur to user then he/she will fire it on the chat room .The user (expert) on the other side will provide the solution to the user's query thus this application is real time application and provide free of cost e-learning.

V. REVIEW

The development of mobile applications is not an easy task. In this paper we presents the main steps in development of a mobile learning application for Android. The client application communicates with the server using Web services to download the application. The system developed includes the testing module. The testing result showed that the system worked correctly. Next step, we are going to conduct an evaluation on the prototype to assess the learning efficiency and effectiveness of this system. This system will persist to grow and the future work will include improving the content of the system by adding more modules and multiple choice questions, creating more assortments of interactive learning options for the system, continuous enhancement of the system to continuously suit the students' needs and further experiments will be conducted for a longer period of time.

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