

MOBILE QUIZ APPLICATION FOR ENHANCING ANYTIME ANYWHERE LEARNING ACTIVITY

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ABSTRACT

We have developed a mobile quiz system on cell phone to assist learning anytime and anywhere. In this paper we present about the quiz system in mobile learning we developed for enhancing student learning process in Network Security lecture. We also have polled university students regarding their use of mobile devices. After the implementation of the mobile quiz system, the evaluation strategies were conducted to rate users' satisfaction and applicatiin achievement

Keywords: mobile learning, mobile quiz, J2ME application, SMS application.

INTRODUCTION

Indonesia have become one of the ten largest phone cell user country in the world. In 2009 there are more than 100 million phonedcell users in Indonesia . The mobile phone market in Indonesia has grown substantially in recent years, with household access doubling between 2006 and 2009; according to survey results. Indonesia is a moderately competitive growth market, with estimates that the country's mobile subscriber base may increase to 130.5 million in 2010. [wireless inteligent]. According to market research firm Nielsen, 29.7 percent of mobile subscribers now own smartphones with a full operating system, while the majority, 70.3 percent, still own feature phones. [8]

Mobile learning transform the traditional way of teaching in the classroom, where the students is positioned only as listeners or objects. There is only one way communication exists in the lecture, passive, lacks interaction and some complicated contents can not be taught efficiently. Highly mobile activity of lecturers and students sometime drive ineffective teaching learning process due to lack of communication and face to face meeting. Very tight schedule and high amount of material course reduce the portion of exercise and quiz in one course. We proposed mobile quiz system as a solution to this problem.

There are many mobile quiz system, for example [1] for learning foreign culture, [2, 3] for vocabulary learning, [4] for math learning. In this research we proposed the mobile quiz for network security learning, which has high quantity lecture section. Base on this situation, the students will need more exposure and getting familiar with to every terms and principles in this lecture. Anytime and anywhere study ability, such as the mobile quiz system is assumed to be the best approach.

The aim of this mobile quiz is to help student to excercise the lecture material anytime and anywhere and to help teacher to evaluate exercise results and give the students feedback personally via SMS regarding the results.

SYSTEM ARCHITECTURE AND SERVICE

This chapter describes about system architecture and implementation of mobile quiz system we developed at Widyatama University.

The student will carry out the mobile quiz after three course and the system will directly send the result to corresponding lecturer via sms. We use the Java 2 Micro Edition (J2ME) technology to build our obile quiz system to make it possible to implement at different platforms that can be accessed through any J2ME-enables mobile phones.

The system architecture of the mobile quiz system is shown at Fig.1 [10].

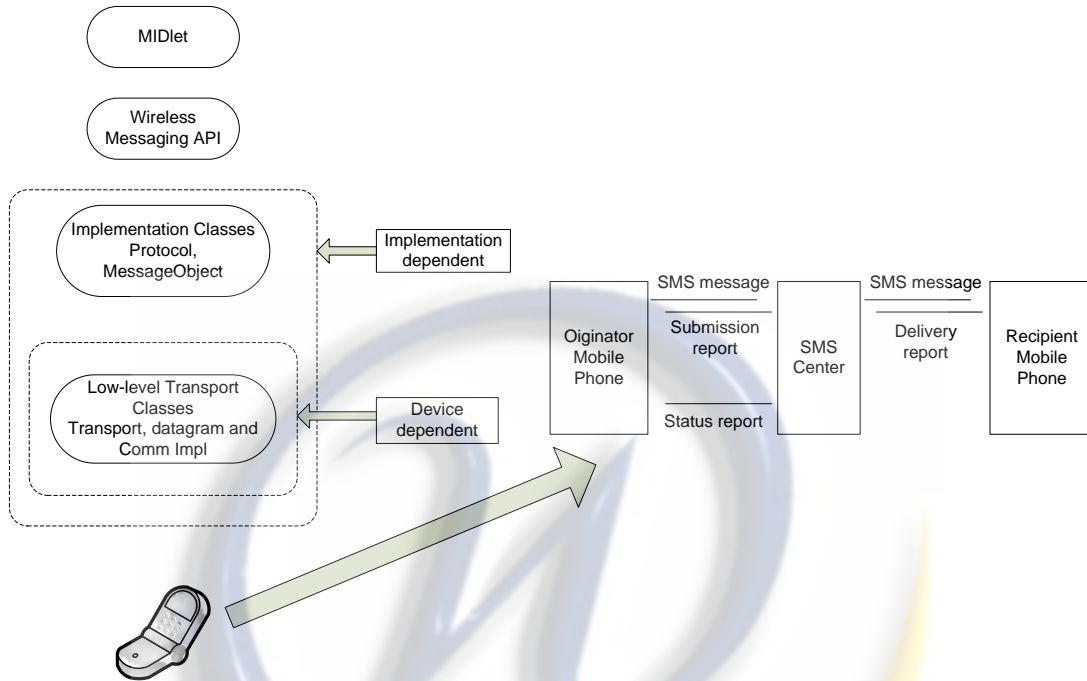


Figure 1 : SMS Based Mobile Quiz Architecture

The J2ME Wireless Messaging API (WMA) provides SMS capabilities for mobile Java clients. One very important feature of the WMA is that it allows J2ME devices to run SMS-based server applications. You would use an SMS server to automatically process and respond to incoming messages in your J2ME application. Unlike traditional HTTP servers, SMS servers do not rely on the IP network. Server addresses are identified by telephone numbers. The WMA specification has been developed by the Java Community Process (JCP) under JSR 120. It is supported by such major phone vendors as Motorola, Siemens, and Nokia . With the WMA, you can specify a port number for each SMS message that you send. If an SMS message is sent to a phone number without a port number, it is interpreted as an inbox message and handled by the receiving phone's native inbox client. No WMA server connection should pick up such inbox messages. WMA peers communicate with each through preagreed private SMS ports.

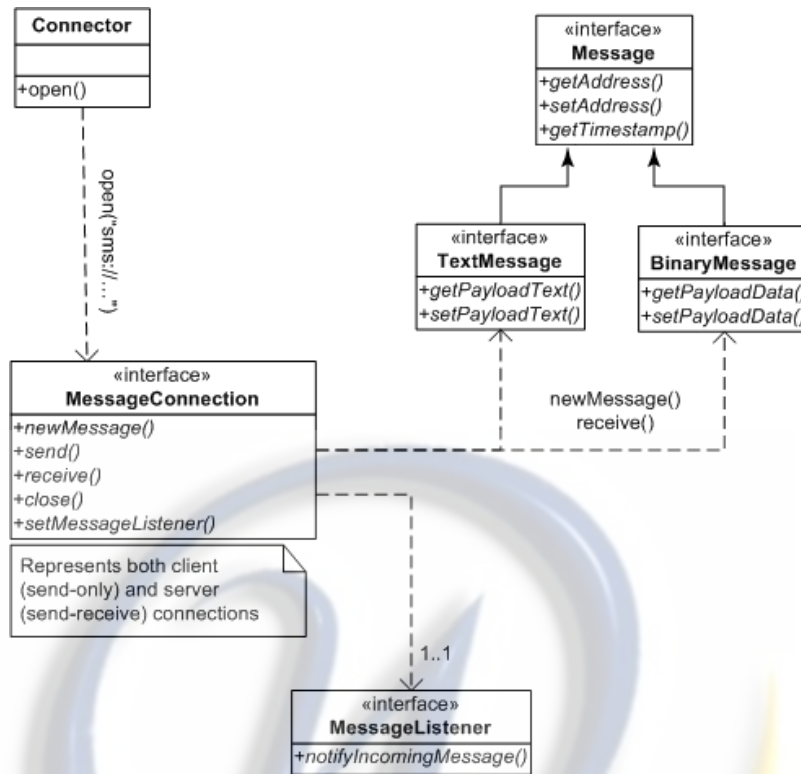


Figure 2 : UML Diagram for J2ME SMS Interface [7]

MOBILE QUIZ IMPLEMENTATION

This project provides an multiple choice quiz by SMS for Network Security System lecture at Widyatama University. The mobile quiz system code, were written by J2ME programming language and have tried on a Motorola Razr V3x mobile phone. For compiling the program, we use Sun Java Wireless Toolkit for CLDC 2.5.2. which also require Java 2 Platform Standard Edition Development Kit 5.0. For compiling program, we use Dun Java Wireless Toolkit dor CLDC 2.5.2

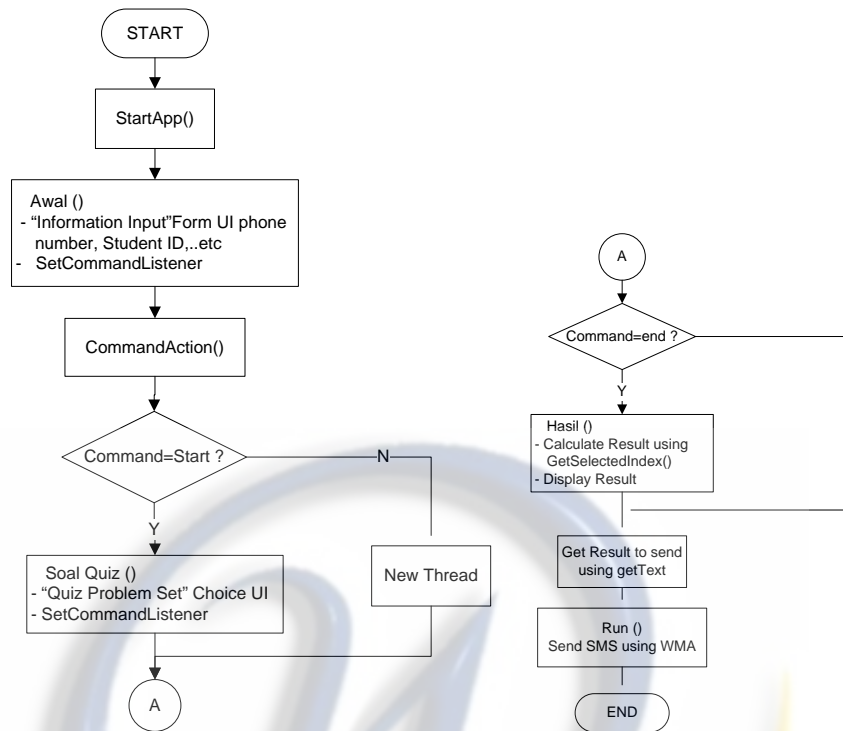


Figure 3 : Mobile Quiz Flow Chart

The software consist of midlet class comprise the questions, GUI, and messaging methods. The packages for messaging, WMA (Wireless Messaging API) enable users to work with SMS message. This midlet class will run four important functions. One of this functions, Awal(),responsible for implementation of GUI (Graphical User Interface), which receives necessary information such as Student Name and student ID. The next function, SoalQuiz(), is responsible for GUI program displays the question and receives answers from student. Next function, Hasil(), will calculate student grades and prepare the result display. Finally, the main function, run(), will send it to the instructor. Figure 3 shows flow chart of the mobile quiz application. We plan to set up a project website to allow the downloading of quiz .jad file. Fig. 4 shows the mobile quiz application for network security lecture. The student will input his/her name and proceed to conduct the quiz from the first GUI display. After that, the result sms will automatically sent to teacher's phone.

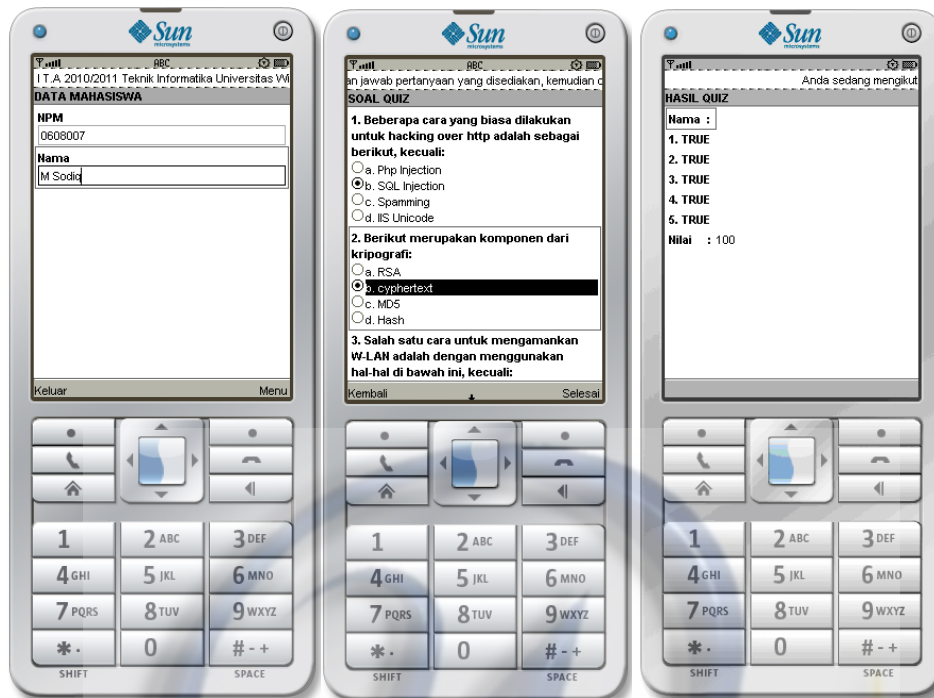


Figure 4 : Mobie Quiz Application on WTK 2.5.2 Emulator

The SMS based quiz mobile system has some advantage, especially in our campus condition, since we already conduct research at [9] that show sms is the most popular service and inexpensive, therefore, all students can be covered by this system.

Lecturer can evaluate each student by reviewing his/her grade and answer then can improve the teaching methods and course material by analyzing the student answer.

EVALUATION RESULT

A set of questionnaire were given to the students to obtain informations about the mobile quiz project implementation. These informations will determine the users' affective aspect, and their opinion about mobile quiz implementation cost.

Table 1 shows the result of the questionnaire. The rating is from 1 to 5. Rate 1 indicate the lowest score (disagreeing) and 5 indicate the highest score (agreeing).

Criteria	Mean	Agreeing percentage
It is a pleasure to use Using Mobile Quiz for Learning this lecture	3.88	75 %
Mobile Quiz Application can increase learning activity	3.83	75 %
Mobile Quiz application can increase feedback from lecturer about student quiz result	3.90	79 %
The cost of mobile quiz application implementation is acceptable	3.17	61 %
	Agreeing Percentage Mean	73%

Table 1 : Questionnaire Result

Overall we see the 73% users have agreed for mobile quiz criteria stated at table 1 above. It shows positive feedback from the users, and therefore shows a coherent finding that users were agreed with the satisfaction and achievement towards Mobile Quiz application that contribute to the learning activity.

The questionnaire other than stated at table 1, revealed that students mostly learn through mobile quiz at their home (58%) and they suggest to use the quiz as an additional point for their final grade (35.6%) and for additional exercise to enhance their knowledge of the lecture (60%).

The developed Mobile Quiz could be improved in the future in order to add its capability. More search on rendering technical picture and mathematical symbol can be done to support more advance topics of lecture which involves pictures and equations.

CONCLUSION AND DISCUSSION

This paper discuss a method for enhancing teaching learning activity by exploiting mobile device. We develop mobile quiz system to facilitate anytime and anywhere learning. The development of mobile quiz system has conducted at Widayatama University and has tried in Network Security Lecture. The student can carry out exercise which will improve their knowledge in the stated lecture. The result of the quiz will sent to the lecturer so he can analyze the exam and course for the future. This system can be implement to all j2me enabled cell phone and since the system is SMS based, which has low cost advantage, it will be covered almost all of the students.

Evaluation results show users were agreed with the satisfaction and achievement towards Mobile Quiz application that contribute to the learning activity. Further work must be done for evaluation process and web development for downloading the quiz jad file. Providing more variety in the types of activity more than quiz, such as text material, pod cast and flash video via cell phone are also possible for future work and study.

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