Prototype of M-Registration Application (Mobile-Student Registration) using Java Microedition (J2ME)

Case Study : Widyatama University, Bandung, Indonesia

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Abstract—**Now, in every beginning of semester, Widyatama University Bandung students, carry on the student registration manually. This condition become complicated for many students, since a lot of them returned to their hometown during registration date.**

We developed mobile registration application using Java Microedition (J2ME) Platform to make registration process easier and faster. They can access it directly from their own hand set anywhere, anytime.

This application consist of user interfface for input all required data for registration process and then the application enable for sending the data have been inputed via sms.

Keywords- m-registration, J2ME, SMS, Mobile application, M-education

I. INTRODUCTION

Currently Indonesia has become one of the ten largest countries in the world of mobile phone users. In 2009 there were more than 100 million users of Mobile Phones in Indonesia. According to the survey, the mobile phone market in Indonesia has grown substantially in recent years, with access to households doubled between 2006 and 2009. Indonesia is a growth market is quite competitive, with estimates that the number of mobile subscribers that country could increase to 130.5 million in 2010. According to market research firm Nielsen, 29.7% of cellular subscribers now use a smartphone with a full operating system, while the majority 70.3 %, still features its own mobile phone.

Indonesia is largest archipelagic country in the world consisting of 17,508 islands. Total of 72,000 villages in Indonesia, until now there has been any affordable Internet services

In connection with the need to build a mobile J2ME application that is dynamic registration which can be used as an alternative service to regulate all matters relating to the implementation of activities at the college, such as student registration. It aims to improve the quality of services to students and enhance the image of the college. Some systems are currently running is still carried out manually. This leads to the slow process carried out and to impact on student satisfaction and faculty it serves, such as student registration activities.

Registration activities is still manual raises various issues, among other things a long queue if students are to register in large numbers, while the number of counters that are available are not proportional to the number of students who do the registration. In addition, many students from outside the region and outside the island of Java is too late to register due to their distance away.

Therefore, it is necessary to apply the registration of students who are mobile so that all matters relating to the affairs of the registration can be completed by using mobile phones. So this allows the student can perform registration activities from a distance without the student must come to campus.

II. J2ME ARCHITECTURE AND SERVICE SUPPORT

This chapter describes about system architecture and implementation of mobile registration system we developed at Widyatama University. The system architecture of the mobile quiz system is shown at Fig.1 [7].

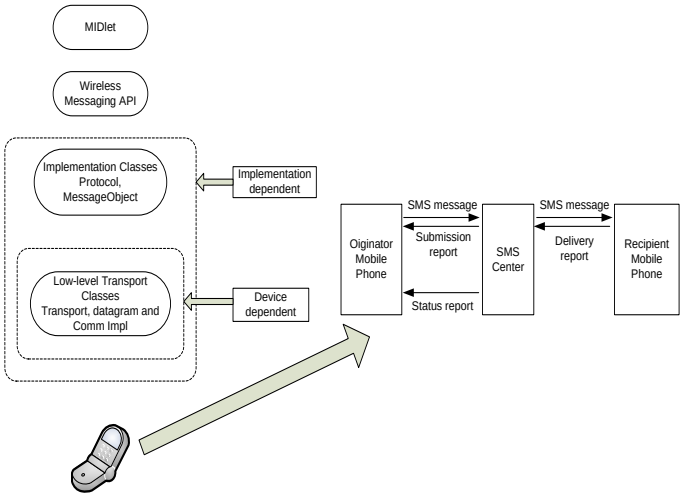


Figure 1: SMS Based Mobile Registration Architecture

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.

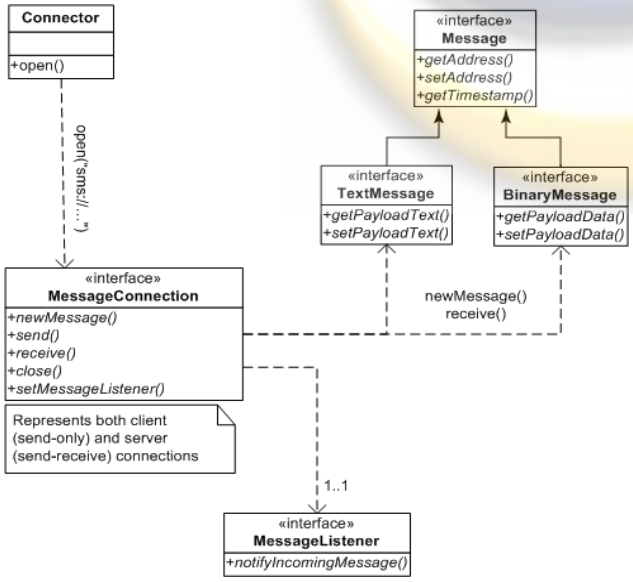


Figure 2 : UML Diagram for J2ME SMS Interface [7]

III. APPLICATION SYSTEM DESIGN

This section discuss system planning and development description and diagram/graph description of application's separate element that collected to the whole application completion.

A. System Work Mechanism

The main menu of the m-registration application is described below

1) Registration

User will register as an active student. In this process, user carryout student data input, and continue to choose the lecture that they want to take, corresponds to semester they have input before

2) Payment

User choose the payment date according to the University Registration Schedule.

3) Send

User send the input data. The data will automatically send by J2ME to University academic section.

B. Process Scenario Design

This section describes navigation diagram for user intarface (UI)page, that showed from figure below

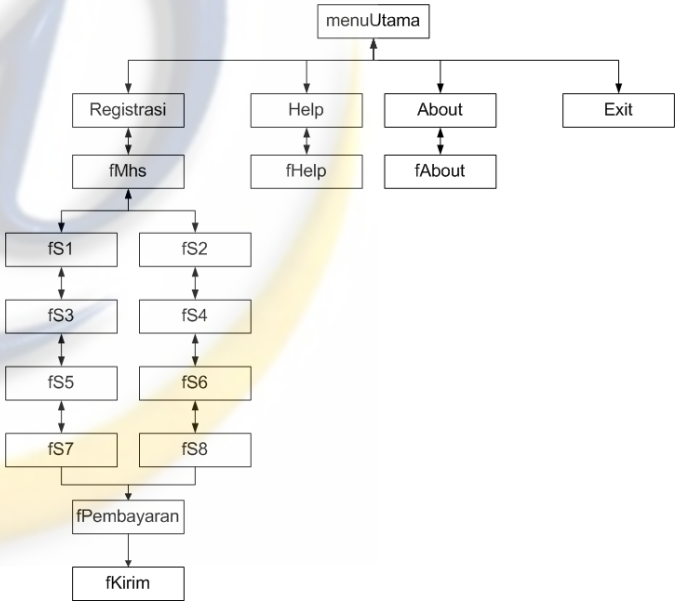


Figure 3 : Navigation Diagram for Application user Interface

Menu Utama is Main menu UI that consist of four menu : Registrasi for registration process, Help, About and Exit.

Registrasi will activate fMHs form for data input. After data input user will continue tp fSx form for choosing semester x lecture that will be taken by user. Next fPembayaran form will show up to choose payment date. Last process is fKirim form for sending all the data being input.

C. Application Testing

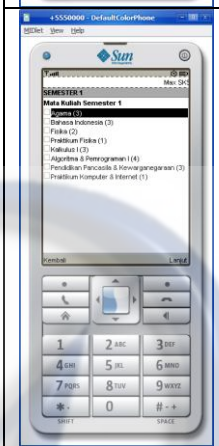
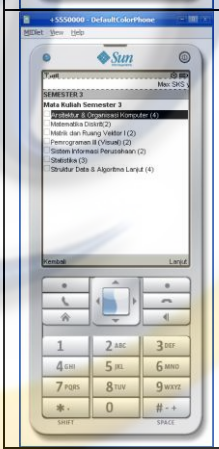
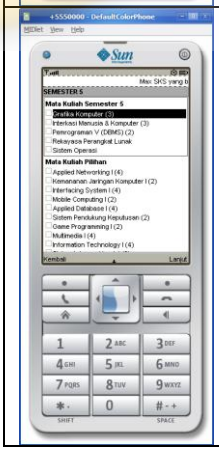
System testing is carried out in two way :

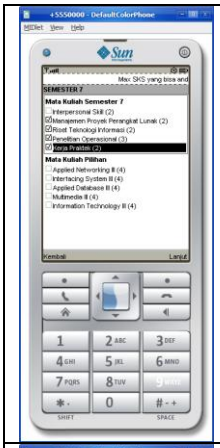
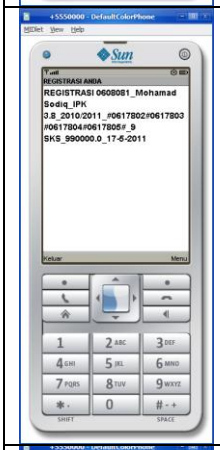
- By Emulator : The purpose of emulator testing is to affirm the accomplishment condition of the application.
- By J2ME enabled Handset : With this testing, system is expected to respond with speed that acceptable by user.

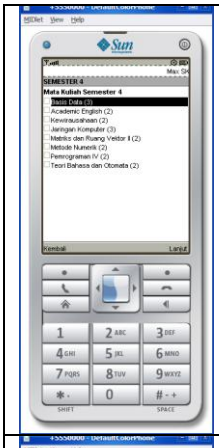
Tables below show application testing list result and emulator testing result

Problem	Condition	Application Event
Registration	User inputs personal and academic data	Success
Registration	User chooses lecture for corresponding semester	Success
Payment	User chooses payment date	Success
Send	User send the datas have been inputed before	Success
Help		Success
About		Success
Exit		Success

Picture	Description
	Display the application's main menu

	Form input student data
	Course selection form 1st semester
	Course selection form 3rd semester
	Course selection form 5th semester

	Course selection form 7th semester
	Form of payment options for tuition on a cost per credits amounting to Rp. 110.00, -
	Results of the user registration form to be sent via sms
	Course selection form 2nd semester

	Course selection form 4th semester
	Course selection form 6th semester
	Course selection form 8th semester

IV. CONCLUSION

J2ME based Mobile Registration enables students to carry out registration by using Mobile Device anywhere and anytime. This sistem can be accessed and operated with huge quantity and much faster than web based registration. This advantage will drive whole university registration system to achieve maximal functionality.

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