Registering Course thru Short Messaging System

By

Faizrizarina Binti Mohamad Fauzi

Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Information Technology)

JANUARY 2004

Universiti Teknologi PETRONAS
Bandar Seri Iskandar
31750 Tronoh
Perak Darul Ridzuan

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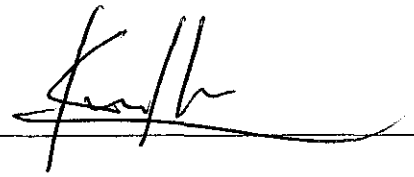
Signature		
Name	FAIZRIZARINA BINTI FAUZI	
Student ID	1699	
Date	15 JUN 2004	

CERTIFICATION OF APPROVAL

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Faizrizarina Binti Mohamad Fauzi (1699)

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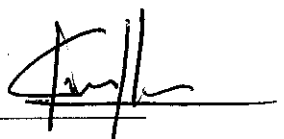
Approved by,



(Mr. Faizal Ahmad Fadzil)

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Bandar Seri Iskandar
31750 Tronoh
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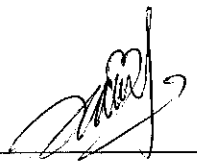

FAIZRIZARINA BINTI MOHAMAD FAUZI

ABSTRACT

The project, Register Course thru short messaging system, is to enhance the registering process. Mostly the users of this application are students. The student can register courses anywhere, independent of mobile operator or phone model. The current online registering systems that are used in UTP are tedious and time consuming. Sometime UTP website cannot be accessed by the student when network down. Looking at this problem, the short messaging application is an alternative tool to handle this problem. The objective of this project is to develop a short messaging system application that manages course registration. The student can use this application on their mobile phone. They need to submit some parameters that include their details and course code that they want to register to a SMS provider such as 39777, and then they will get the response that shows their registration status whether have been accepted or not. The methodology used is System Development Life Cycle (SDLC). It includes project definition and planning, project analysis, project design, and project implementation. The tools used are Active Server Pages, Microsoft Access, hand phone and web server (www.utp.teksi.net). The short messaging system is very important as it gives lots of benefits and opportunities to many industries use this new technology. For this project, registering courses thru SMS is used to provide an alternative solution for course registration and it will benefit this institution.

ACKNOWLEDGEMENT

I am indebted to many people those involved in my final year project. They are people of my respects who involve directly throughout this project or otherwise. In particular, I would like to thank the following personnel for their help and support on this project especially Ms. Vivian and Mr.Shuib bin Basri as the FYP coordinator.

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Finally, heartfelt thanks to Mr. Alvis Goh Kok Leong and Mr.Bala Isme from my previous host company during my internship program that helps me in few areas where my skills were deficient. Apart from that I also wants to thanks Mr. Chan Lup Man from Maxis Communications Berhad, Mr. Rosmi and Ms. Ruhil from University Putra Malaysia and also Mr. Mansur B. Mohd Noh, SMS specialists from www.creative.com

I would like to take this opportunity to thank all my friends who has contributed to this project and my parents, Mohamad Fauzi B. Ibrahim and Fauziah Bt. Harun for give me moral support to complete this project. Your assistance is duly acknowledged and noted.

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INTRODUCTION

1.1 BACKGROUND OF STUDY

The Short Message Service (SMS) is the ability to send and receive text messages to and from mobile telephones and computer. The text can comprise of words or numbers or an alphanumeric combination. SMS was created as part of the GSM Phase 1 standard. The first short message is believed to have been sent in December 1992 from a Personal Computer (PC) to a mobile phone on the Vodafone GSM network in the UK. Each short message is up to 160 characters is length when Latin alphabets are used and 70 characters in length when non-Latin alphabets such as Arabic and Chinese are used.

Nowadays the short messaging service is really usable and important. It is a very powerful, convenient, and cost-effective communication tool or popularly known as text messaging. This powerful new technology is being used by many industries around the world.

Many company uses this short messaging service application, such as to check summon, share prices, sports scores, weather, flight information, news headlines, lottery results, jokes to horoscopes check their license status, news, travel, weather and many more. Even though some university also use this application to check result, intake result status and so on.

This project will concentrate on the development an SMS application and also the web application by using active server page.

Following the needs and also after studying the potential and importance of short messaging service application in our live, I would like to propose this project that can be used in this university.

1.2 PROBLEM STATEMENT

Traditionally, the students need to register course thru UTP website every semester. But sometime it is difficult for student to access the website, because sometime the network down. Therefore the student cannot access the website and register the course. And one more problem that the students face that the course that they had registered or add is not updated. So it will delay the registration process. As we know student still prefer to register manually because of this problem.

Looking at the opportunities, short messaging service registration system is an alternative total solution that will solve the problem. It is because when the student registered the courses thru SMS, they will get the registration status on the spot. So that the student not need to worry about their registration status.

1.3 OBJECTIVE

The objectives of this project are as follows:

- To develop an application that the student can register course thru short messaging system from their mobile phone.
- To develop a system that can be used by the student in anyplace as long as they have a mobile phone.
- To make the registering process more effective and save time.
- To get the flexible in registering the course.
- The application should be easy to learn and use for everybody.

1.4 SCOPE OF STUDY

In order to complete this project, there are several topics and issues that must be considered throughout the project. The scope of study depends mainly on these few areas:

- Short messaging service system application analysis.
  - To analyze the benefit, problem of using this short messaging service system.

- Design and development using Active Server Pages.
  - To develop SMS and web application by using active server page.
  - To do a research of how to create and develop this application using Active Server Pages.

- Database design and management.
  - To create the database and also how to manage the database.
  - To store and retrieve data from database.

CHAPTER 2
LITERATURE REVIEW

CHAPTER 2

LITERATURE REVIEW

2.1 Using SMS as a marketing tool

With the innovative SMS solutions, our business or industry can exploit the speed, efficiency and popularity of SMS as a versatile marketing and promotional tool.

Using SMS as a communications channel presents a world of opportunities and benefits for our business. The Hyperfactory enables to leverage on their clients' existing brand and message to develop a truly unique and revolutionary personal connection with the customer.

By "mobilising" traditional campaigns, targeting our specific markets through permission based campaigns, SMS marketing presents a medium with a response rate 5 times the rate of traditional direct mail and high brand recall of as much as 96% of respondents[1]. The SMS medium stimulates more traffic at a vast cost advantage above all other communication channels. With full management and reporting functionality, we offer visible, measurable and immediate results.

SMS IS HERE TO STAY

SMS is here today, to stay, it's everything is in the world ever asked for: cost effective, instantaneous, interactive, and the message is delivered straight to the user's pocket. SMS is a dream for the marketing and industry world, and in New Zealand, SMS marketing is still in its infancy with huge potential and already market leading brands, including Blockbuster Video, GeorgeFM and Sony Music have taken the opportunity.

The major benefit is that SMS messaging allows communication to be timely, event-driven, personalized and cost-effective. SMS is cheaper than making a phone call! Message to a pocket means interactive communication at any time and any place, a valuable tool for any business looking to harness their CRM success.

2.2 Cost benefit analysis of using SMS

Based on the article write by Erick S.Kalugdan it almost impossible to do business without a telephone, fax machine, or email address. Instead of being in business, you may fall out of business.

Now, short messaging system is a very powerful, convenient, and cost-effective communication tool. It also popularly known as text messaging. Not only can SMS be used in sending personal messages, but also with the advancements in computer software engineering, it is now possible for businesses to use SMS as an alternative communication medium in transacting with customers or coordinating with industry partners.

2.3 Using SMS is faster

A survey finds students would rather call a friend at the bar to place a drinks order than queue them selves. Three quarters of the 1,000 students asked said they would make a quick call on their mobile if helped get a beer quicker. Nearly half say they would resort to calling their flat mates on their mobiles when they are too hangover to get out of bed.

The Orange survey claims students are finding ever more creative ways of avoiding effort and improving time management through mobile phones. In the survey,

91% admit to having called someone in another part of the house rather than speak to them in person, with over a quarter doing it on a daily basis.

Forty percent confess to picking up their mobile because they are indolent, while a fifth felt calling or texting is a cheap and easy way to avoid unnecessary effort.

Students are also no longer passing notes behind the lecturer's back, but is secretly text messaging. Of the 86% who admitted sending a sneaky text, only 14% were study related. Over 80% of the messages revolved around campus gossip, with the boys equally as guilty as the girls. [2]

David Taylor, commercial director at Orange UK, said: " Increasingly, students are relying on their mobile phones for even the most basic communication needs."

2.4 Trend of mobile phone usage in Malaysia[3]

Malaysia Commission of Multimedia & Communications (MCMC) reported that there are about 9.1 million mobile phone subscribers in Malaysia alone sending average 500 million of SMS per month. That far outweighs the number of Internet Subscribers in Malaysia by 3 times. The same pattern can be seen across most of the major Asia Pacific countries.

Thus, SMS and Multimedia Messages (MMS) will be a very important communication channel for communications, commerce and infotainment. Analyzing the current figures, the total number of mobile phone users is expected to increase by some 18 per cent in year 2003, followed by an additional 12 per cent in 2004. That's the potential reach for the SMS medium and it's huge when compared to the TV, radio and the print medium.

2.5 Advantages of Using SMS [4].

Text messages do have some unique properties and instances where they are particularly useful. These include the following:

SMS is immediate

Unlike an e-mail, SMS is much more likely to be read by a person at any one time, since the majority of people have their mobile phones at arms reach 24 hours a day. Of course the same also applies to a phone call.

Messages are instantly recorded

SMS message is automatically stored where it can be re-read. This proves particularly useful in the case of fairly detailed information that might otherwise be forgotten. Here are a few everyday examples that would prove very handy via SMS rather than voice:

- The odds on the 7 horses in the 4pm derby.
- Directions to the 8 pm party.
- Our friend's new mobile number.

SMS is Discreet

Unlike a phone call we do not have to run out of the restaurant where we are eating to field the call, yet you still know when SMS has arrived. The discreet nature of text messaging ensures we stay in touch with minimal disturbance.

CHAPTER 3
METHODOLOGY/PROJECT WORK

CHAPTER 3

METHODOLOGY

3.1 METHODOLOGY

In order to complete this final year project, I have chosen System Development Life Cycle (SDLC) as my methodology. System life cycle is an organizational process of developing and maintaining systems. It helps in establishing a system project plan, because it gives overall list of processes and sub-processes required developing a system.

System development life cycle means combination of various activities. In other words we can say that various activities put together are referred as system development life cycle. In the System Analysis and Design terminology, the system development life cycle means software development life cycle.

Following are the different phases of software development cycle:

- System study
- Feasibility study
- System analysis
- System design
- Coding
- Testing
- Implementation
- Maintenance

The different phases of software development life cycle

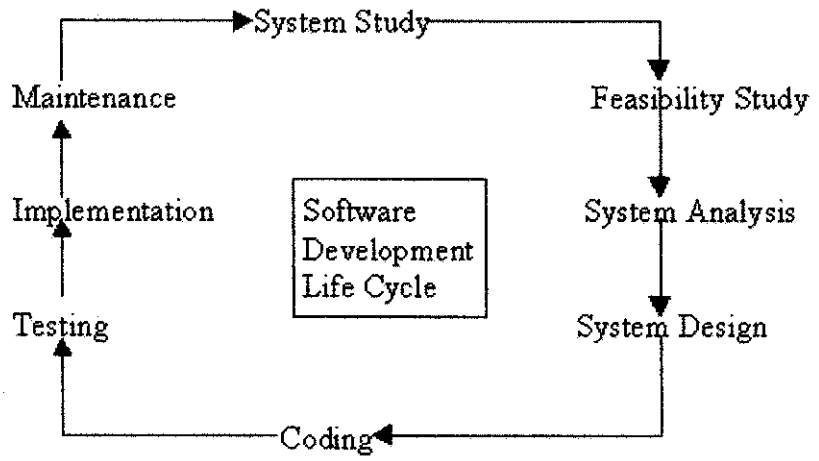

Fig. 3.1 Different phases of Software development Life Cycle

The related activities that I have done in system development life cycle in detail are:

(a) System Study

System study is the first stage of system development life cycle. This gives a clear picture of what actually the physical system is. In practice, the system study is done in two phases. In the first phase, I have done the preliminary survey of the system which helps in identifying the scope of the system.

The second phase of the system study is more detailed and in-depth study in which the identification of user's requirement and the limitations and problems of the present system are studied. At this phase, I have identified the user requirement when using registration system and also the problem occurred when using it such as, courses are not registered successfully, network down and so on.

After completing the system study, I have prepared a system proposal. The proposed system contains the findings of the present system and recommendations to overcome the limitations and problems of the present system in the light of the user's requirements.

To system study phase passes through the following steps:

- Problem identification and project initiation.

  I had studied the previous online registration system that used in UTP. I find out and then identifies the limitations of the online registration in UTP and also problem that occurred when using the system. After that I had overcome with the problem statement.

- Background analysis

  After studied the current registration system, I had narrow down my scope of study for this system. I am focus on how to make the registering process more reliable and effective. Than I find out that SMS registration is the effective solution to the problem.

- Inference or findings

  From the problem statement, I had find that SMS is the effective tool in order to solve the limitation of the current online registration system.

(b) Feasibility Study

On the basis of result of the initial study, feasibility study takes place. In this phase I have tested the proposed system in the light of its workability, meeting user's requirements, effective use of resources and .of course, and the cost effectiveness. The

main goal of feasibility study is to achieve the scope. In the process of feasibility study, I have estimated the cost and benefits with greater accuracy.

(c) System Analysis

The next phase is system analysis. Analysis involved a detailed study of the current online registration system, leading to specifications of a new system. Analysis is a detailed study of various operations performed by a system and their relationships within and outside the system.

During analysis, I have collected all data on the available files, decision points and transactions handled by the present system. The tools that I have used in this analysis phase are interviews, on-site observation and questionnaires. At this phase I have distribute questionnaires to some UTP students regarding the UTP online registration system. The questionnaires are part of survey on the use of UTP online registration system, in order to detect problem of using it and also survey on benefit of SMS registration system. Besides that I also have done the interviews with the 100 students from Universiti Putra Malaysian and also 100 students from Universiti Utara Malaysia. I have explained the sample of result and output in the result and discussion chapter.

Using the following steps it becomes easy to draw the exact boundary of the new system under consideration:

- Keeping in view the problems and new requirements
- Workout the pros and cons including new areas of the system

All procedures, requirements must be analyzed and documented in the form of detailed data flow diagrams (DFDs), data dictionary, logical data structures and

miniature specifications. System Analysis also includes sub-dividing of complex process involving the entire system, identification of data store and manual processes.

The main points to be discussed in system analysis are:

- Specification of what the new system is to accomplish based on the user requirements.
- Functional hierarchy showing the functions to be performed by the new system and their relationship with each other.
- Function network, which are similar to function hierarchy but they highlight those functions, which are common to more than one procedure.

(d) System Design

Based on the user requirements and the detailed analysis of a new system that I have done, the new system must be designed. This is the phase of system designing. It is a most crucial phase in the development of a system. Normally, the design proceeds in two stages:

- Preliminary or general design
- Structure or detailed design

Preliminary or general design: In the preliminary or general design, I have specified the features of the new system. The costs of implementing these features and the benefits to be derived are estimated. I make sure the project is still considered to be feasible, we move to the detailed design stage.

Structure or Detailed design: In the detailed design stage, computer oriented work begins in earnest. At this stage, the design of the system becomes more structured. Input, output and processing specifications are drawn up in detail. In the design stage, I had decided to use active server pages to develop the application.

There are several tools and techniques used for designing. These tools and techniques are:

- Flowchart
- Data flow diagram (DFDs)
- Decision tree

Flowchart for this Registering Course thru Short Messaging Service system.

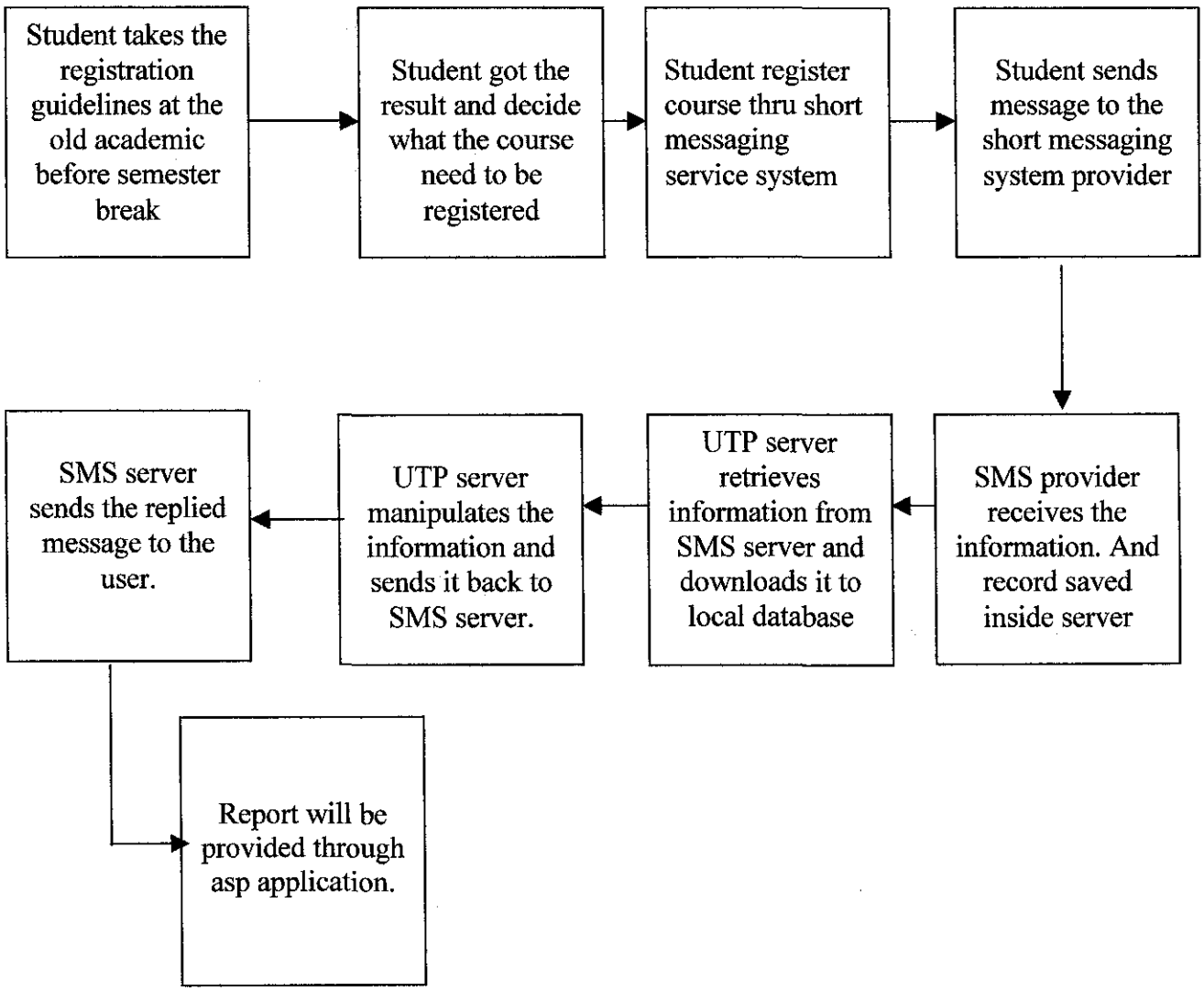

Figure 3.2 Flowchart for Registering Course thru Short Messaging System.

CONTEXT LEVEL DIAGRAM FOR REGISTERING COURSE THRU SMS

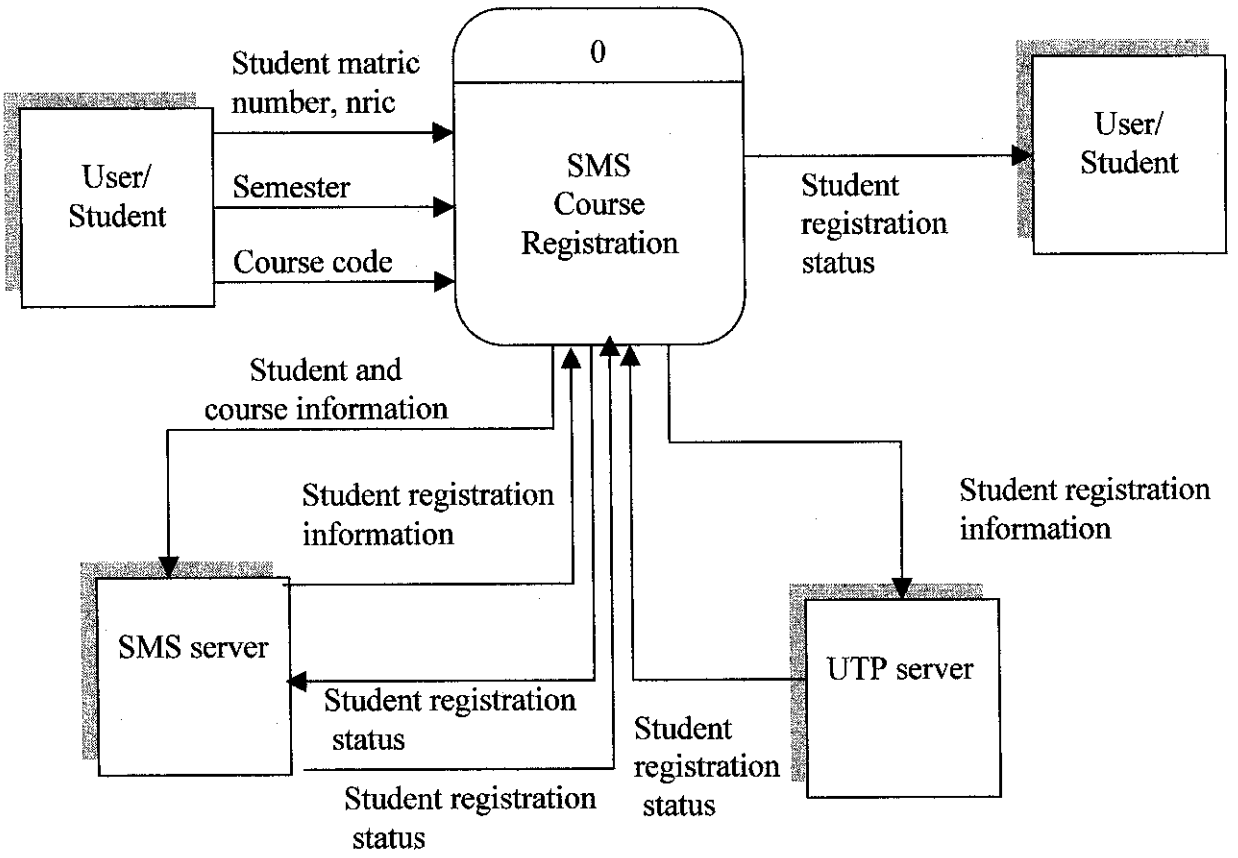

Figure 3.3 Context Level Diagram for Registering Course thru SMS

Diagram 0 for registering course thru short messaging service system

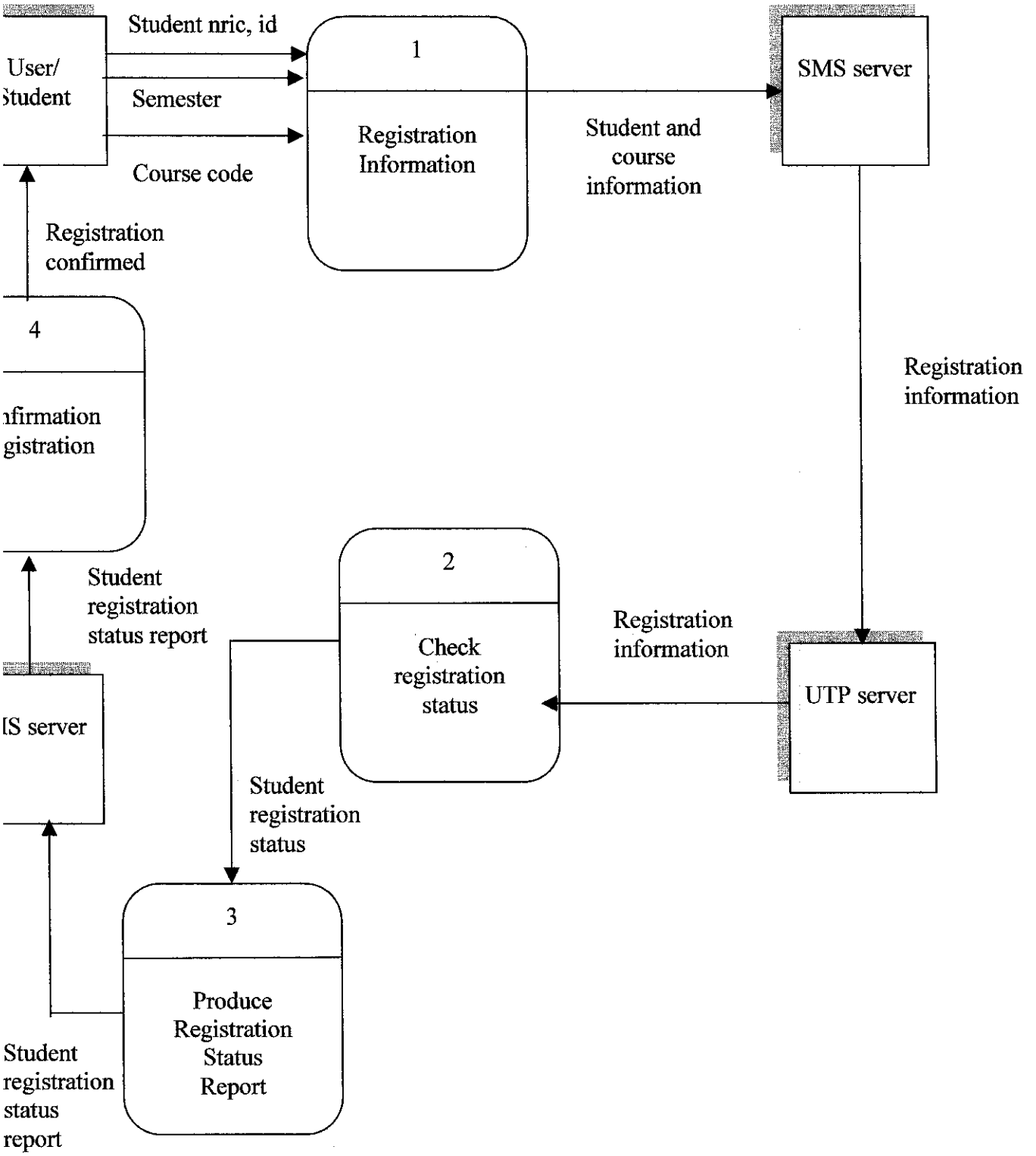

Figure 3.4 Diagram 0 for registering course thru short messaging service system

Diagram 1 for registering course thru short messaging service system

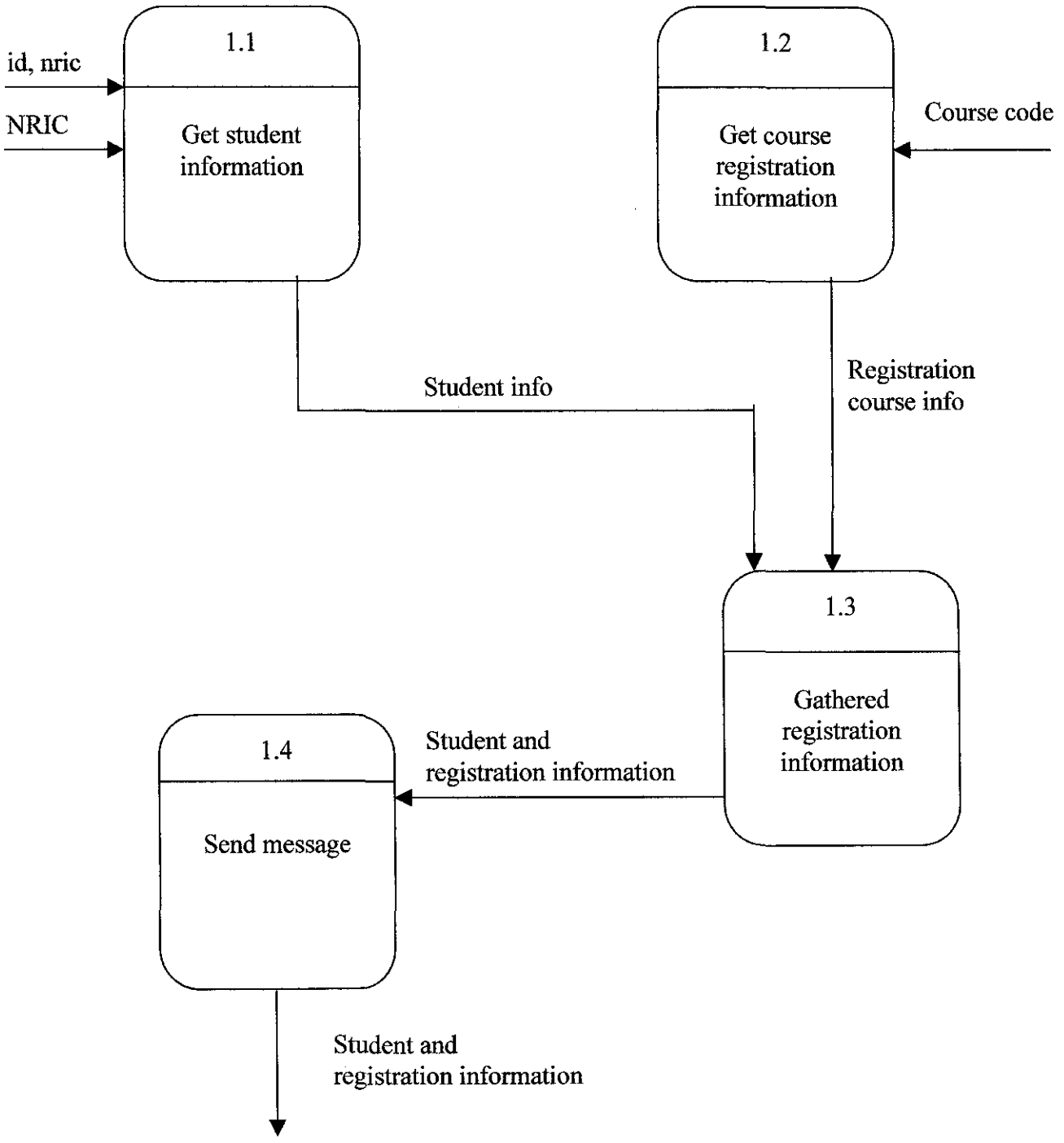

Figure 3.5 Diagram 1 for registering course thru short messaging system

Diagram 2 for registering course thru short messaging service system

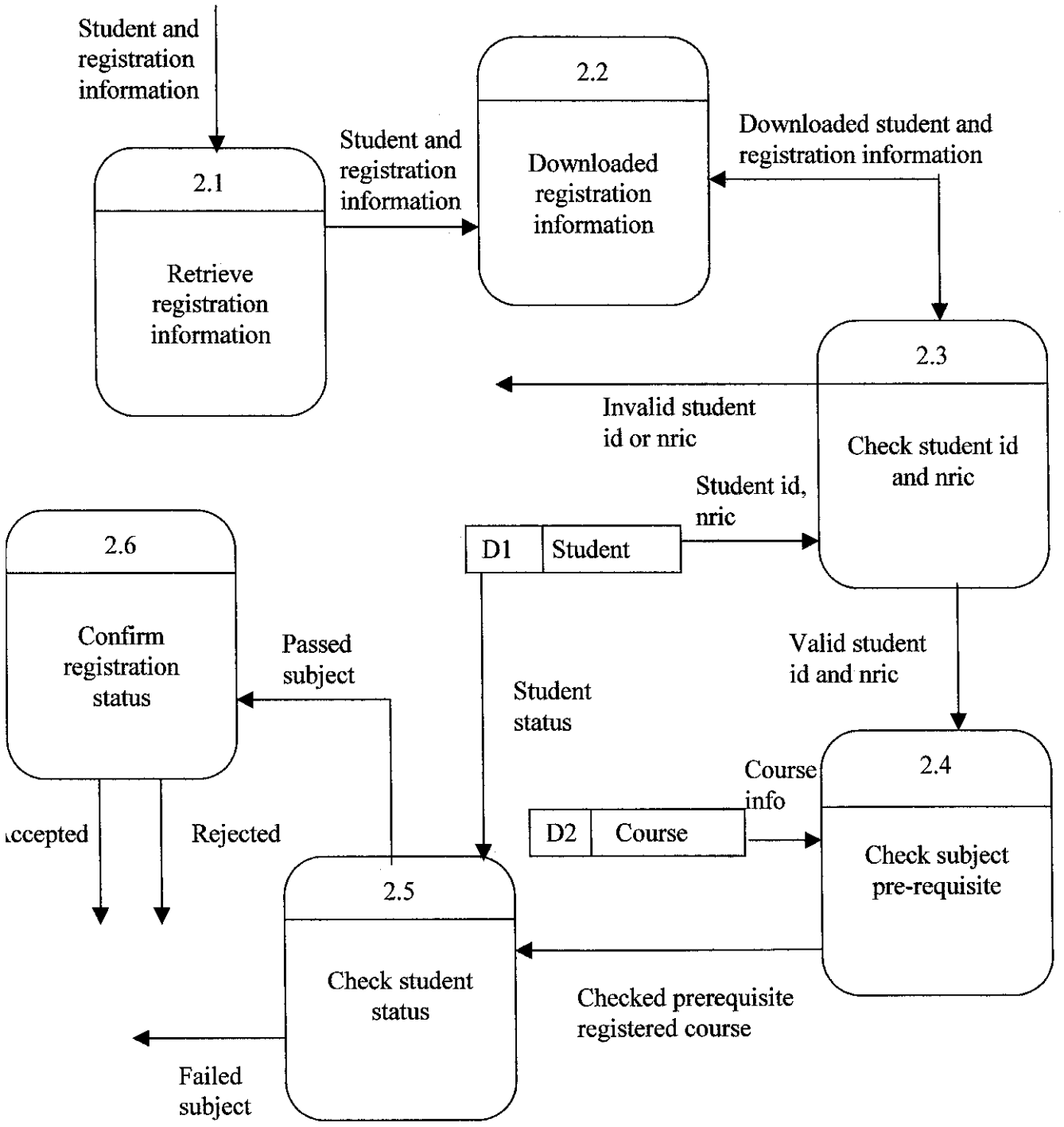

Figure 3.6 Diagram 2 for registering course thru short messaging system.

Diagram 3 for registering course thru short messaging service system

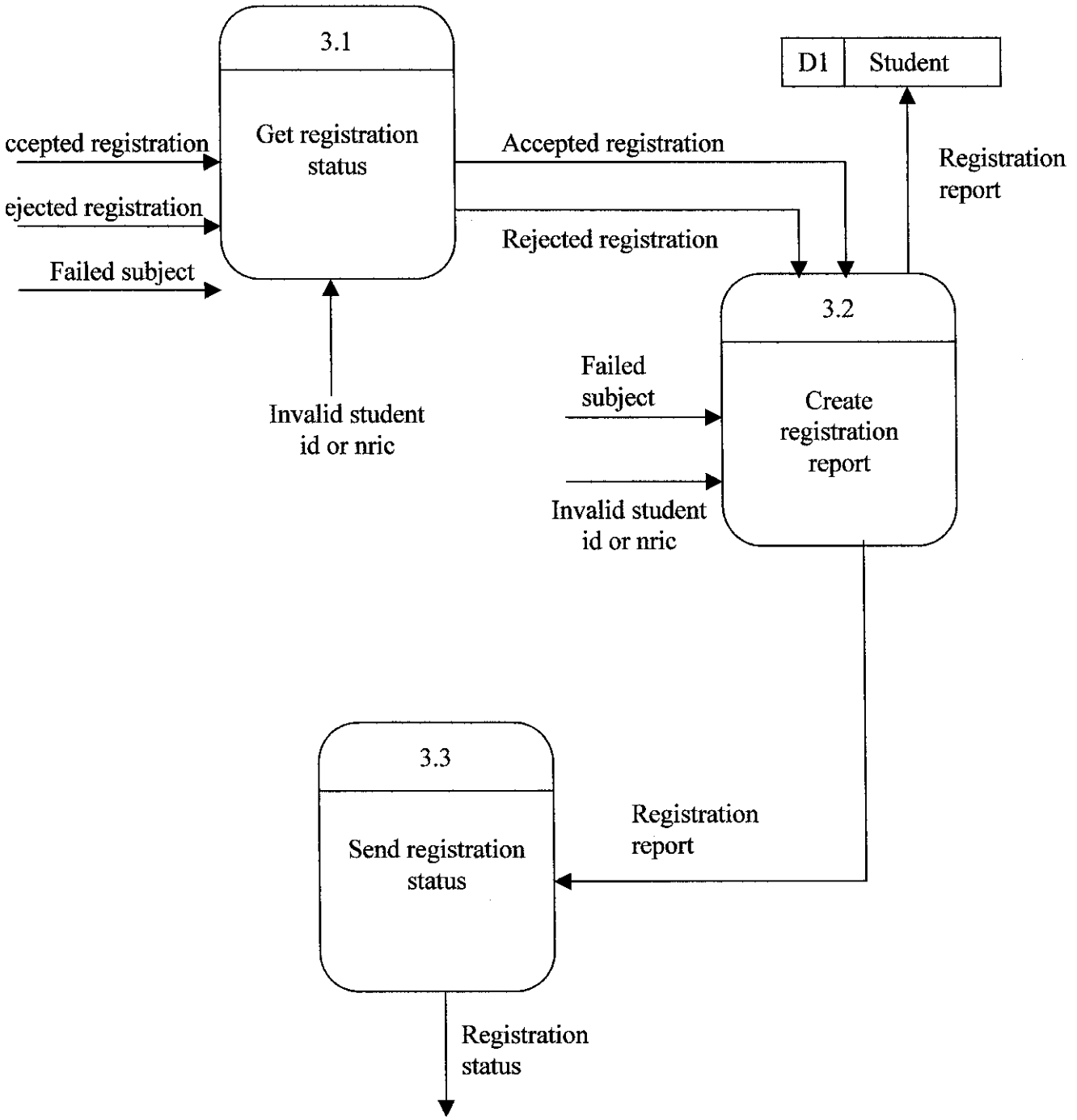

Figure 3.7 Diagram 3 for registering course thru short messaging system.

Diagram 4 for registering course thru short messaging service system

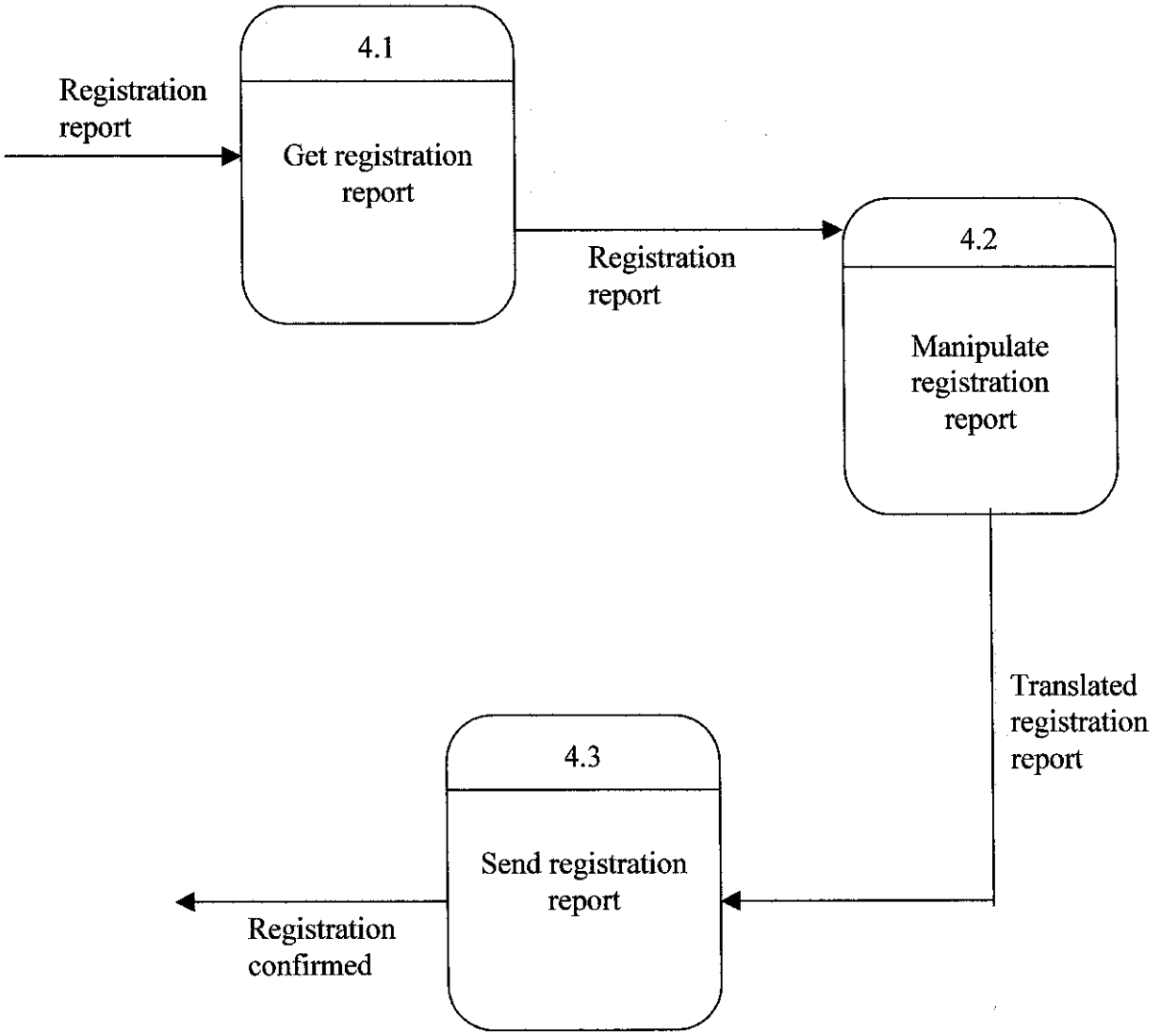

Figure 3.8 Diagram 4 for registering course thru short messaging system.

(e) Coding

After designing the system, the whole system is required to be converted into computer understanding language. Coding the system into computer programming language does this. It is an important stage where the defined procedures are transformed into control specifications by the help of a computer language. The programs coordinate the data movements and control the entire process in a system. It is generally felt that the programs must be modular in nature.

In this phase, I write the coding for the SMS applications by using asp script. I write the asp script in the coding section to stored and retrieve data from database. Besides that I also write the SMS script by using asp in this phase.

(f) Testing

Before actually implementing the new system into operations, a test run of the system is done removing all the bugs, if any. It is an important phase of a successful system. After codifying the whole programs of the system, a test plan should be developed and run on a given set of test data. The output of the test run should match the expected results.

Using the following test run are carried out:

- Unit test
- System test

Unit test: When the programs have been coded and compiled and brought to working conditions. I have tested them individually with the prepared test data. Any undesirable happening must be noted and debugged (error corrections). For instance, after I completed the script for every page in the web application, I have tested it

whether the input data are stored in the database or not. If it is not working properly, I have to identify the error and make corrections. I need to test it many times after there is no error on it. Besides that I also need to try send SMS by using web before send the SMS by handphone(appendices).

System Test: After carrying out the unit test for each of the programs of the system and when errors are removed, then system test is done. At this stage the test is done on actual data. I have tested the complete system and also try to send SMS by using handphone. The complete system is executed on the actual data. At each stage of the execution, the results or output of the system is analyzed.

During the result analysis, it may be found that the outputs are not matching the expected out of the system. In such case, I have identified the errors in the particular programs and further tested for the expected output.

When it is ensured that the system is running error-free, the users are called with their own actual data so that the system could be shown running as per their requirements.

(g) Implementation

After having the user acceptance of the system developed, the implementation phase begins. Implementation is the stage of a project during which theory is turned into practice. During this phase, all the programs of the system are loaded onto the user's computer. After loading the system, training of the users starts.

(h) Maintenance

Maintenance is necessary to eliminate errors in the system during its working life and to tune the system to any variations in its working environment. It has been seen that there are always some errors found in the system that must be noted and corrected. It also means the review of the system from time to time. The review of the system is done for:

- knowing the full capabilities of the system
- knowing the required changes or the additional requirements
- studying the performance

If a major change to a system is needed, a new project may have to be set up to carry out the change. The new project will then proceed through all the above life cycle phases.

3.2 TOOLS AND EQUIPMENT

The tools and equipments used throughout the development of the project are as follows:

3.2.1 Development software: Macromedia Dreamweaver and active server pages.

In order to complete this project, I had chosen the active server pages and also Macromedia Dreamweaver to develop the application the web based application. I save this application in asp file. An ASP file can contain text, HTML tags and scripts. Scripts in an ASP file are executed on the server.

In this web application it shows all the course that are successfully registered by the student, list course offered, registration information, user feedback and user manual for SMS registration. Apart from that, asp application can easily link with Microsoft Access.

3.2.2 Database: Microsoft Access.

I am using Microsoft Access to store and retrieve the database. Microsoft Access is easy to use. I can easily find the fault of the database since the software is familiar to me. It also can link with asp.

The Microsoft Access enables to easily manage data. It can be used to perform ad-hoc queries against databases and save them to file system, export and import database schema and data, manage users and roles, view, create and edit stored procedures. It also can make the system more efficient and flexible.

3.2.3 Gateway: SMS provider '39777'

For this SMS application the SMS need to be send to the SMS server by using gateway. After that the SMS server will send the SMS to the local webserver http://utp.teksi.net and then the local webserver manipulated the SMS and then send back to SMS server. After that the SMS server send the SMS to the user. I had discussed with SMS specialist from www.creative.com.my to use their gateway. For this gateway I had charged RM1.50 for each testing.

3.2.4 Webserver: http://teksi.net

The web application, need to be upload in the Internet. For this project I have subscribe to the http://teksi.net. I get the domain http://utp.teksi.net. I used this website to upload my web based application. This web server also will manipulated the data from the SMS server.

3.2.5 Equipment: Hand phone Samsung model SGH-E700.

This hand phones model I used to make a testing to the application in the implementation phase. I had chosen this hand phone model because it has large screen, and easy to use.

CHAPTER 4
RESULT AND DISCUSSION

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1 Findings.

4.1.1 Questionnaires

I have made some questionnaires (appendices) and distribute it to some UTP students, from year 1 until year 5. The number of students are involved in this survey are about 200 students. The questionnaires is part of the survey on the use of UTP online registration, in order to detect problem of using it and also survey on benefit of SMS registration system.

4.1.1.1 Survey on SMS benefit

This survey is to find out how many students are agreed that the SMS give many benefits to them.

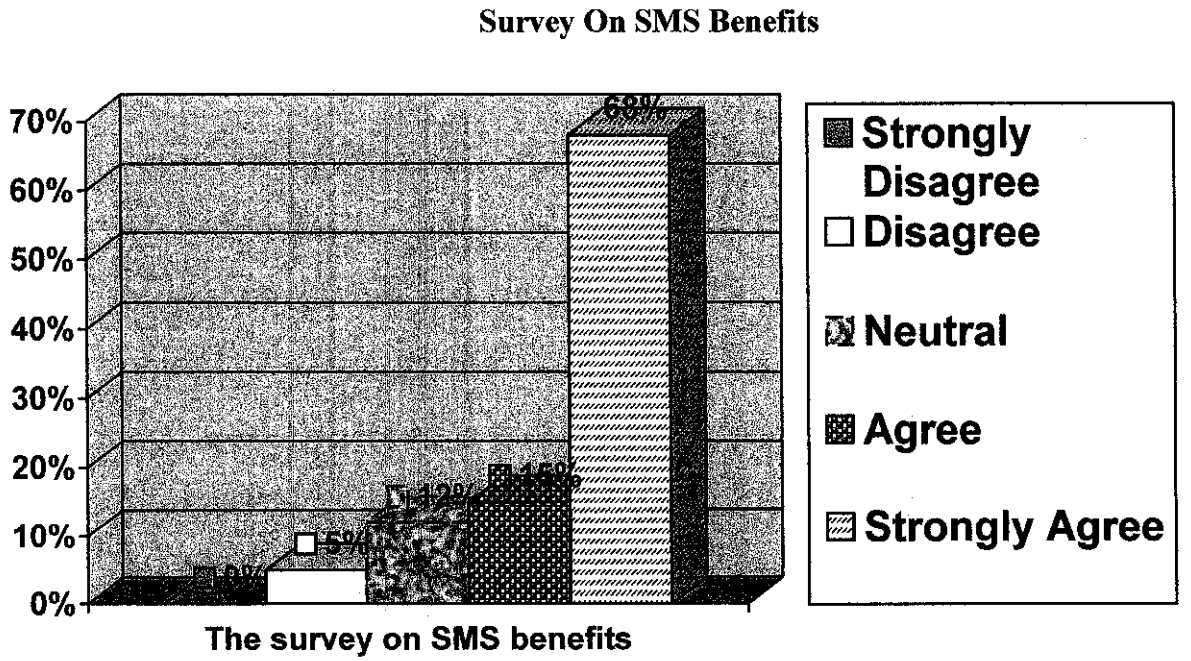

Figure 4.1 Survey on SMS gives many benefits.

Data Gathered:

The graph shows that about 68% of the students are strongly agreed that the SMS have many benefits to them. 15% are agreed, 12% are neutral and other 5% are not agreed.

Data Rationale:

From that result I can conclude that, SMS is a service that can give the student in this university many benefits such as, save time, money and also easy to use.

4.1.1.2 Survey on applied SMS registration in UTP.

This survey is to find out how many students are agreed if SMS registration are applied in UTP.

Survey On Apply SMS Registration in UTP.

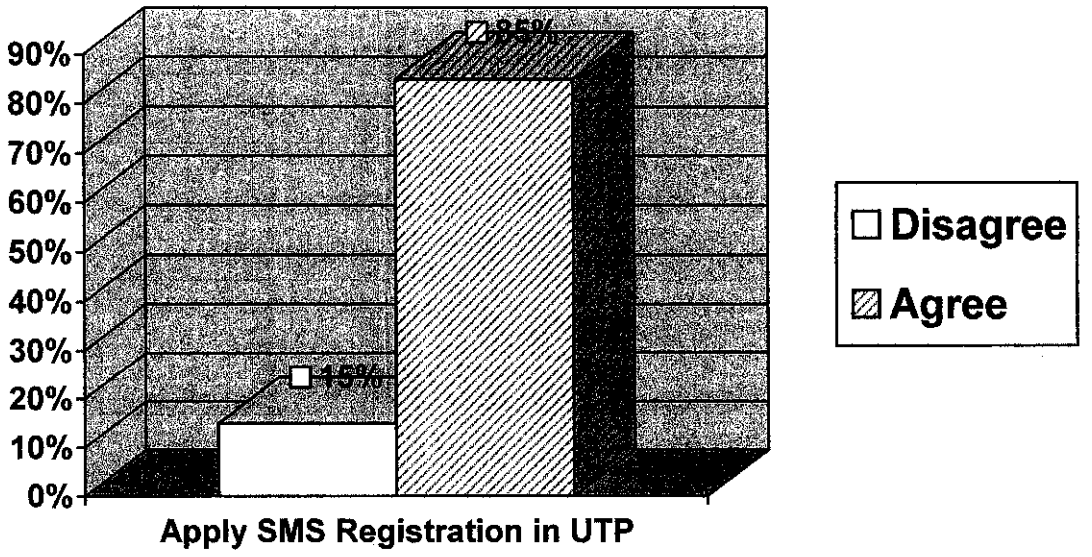

Figure 4.2 Survey on Applied SMS Registration in UTP.

Data Gathered:

The graph shows that about 85% of the students in the survey are agreed if the SMS registration system is applied in this university ant other 15% are not agree.

Data Rationale:

From that survey, I can conclude that SMS registration is suitable and good system to apply in this university. Because one of the major problem that students encountered when using the currently online registration system are the course that they are registered are not regularly registered and updated and sometime the UTP website cannot be accessed.

Besides that, I have asked the student what they think of SMS registration. Mostly they agreed if this SMS system applied in UTP, and they also prefer to use this system than online registration system.

From the questionnaires I can conclude that mostly the UTP students prefer to use SMS registration system other than online registration system. Because it is very easy to use and can save their time.

4.1.2 Interviews

I also make interviews to some university student. All of them are from different universities in this country such as Universiti Putra Malaysia and Universiti Utara Malaysia. Actually I have chosen the students from these universities because these university had applied SMS registration in their registration system. The number of students are involved in this interview are about 200 students, 100 students from UUM and other 100 students from UPM.

4.1.2.1 Using SMS registration in Universities

I have done this interview with the students to got their opinion about the using of SMS registration system in their universities.

Using SMS Registration in Universities that have applied this system.

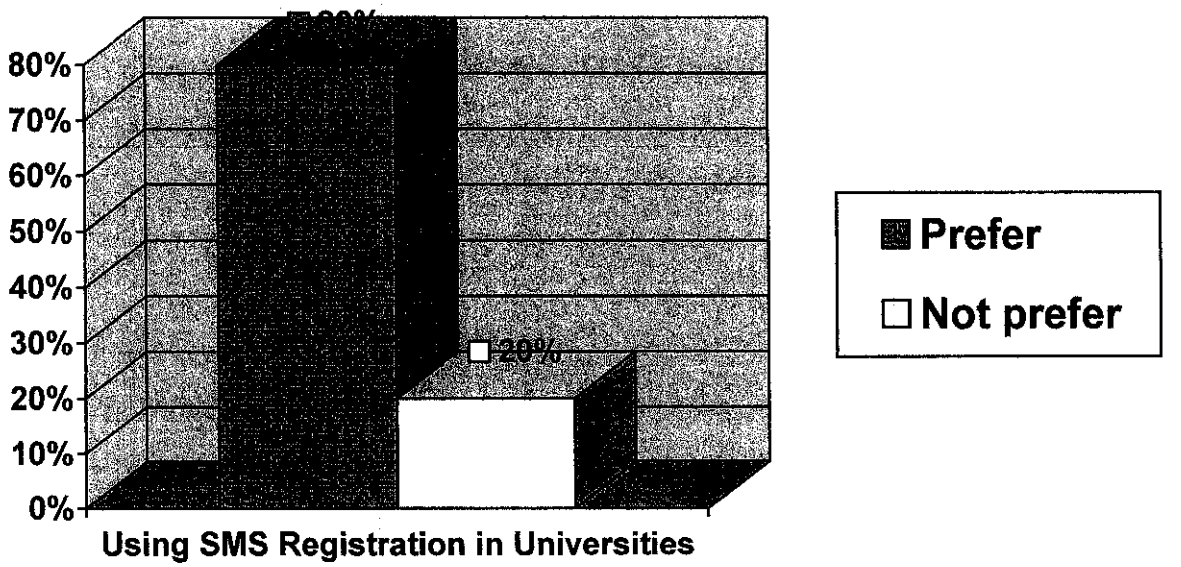

Figure 4.3 Survey on Using SMS Registration in universities that have applied the system.

Data Gathered:

The graph show that about 80% of the interviewed student prefer to use SMS registration system and other 20% are not prefer to use it.

Data Rationale:

From these interviews, about 80% student prefer to use SMS system, because it is good system and easily to use. Then other 20% prefer to use online registration system because SMS need to pay money.

4.1.3 Research

4.1.3.1Active server pages

Definition of Active Server Pages (ASP).

ASP stands for Active Server Pages. It is a program that runs inside Internet Information Service (IIS). IIS comes as a free component with Windows 2000. IIS is also a part of the Windows NT 4.0 Option Pack. The Option Pack can be downloaded from Microsoft. PWS is a smaller but fully functional -version of IIS .PWS can be found on your Windows 95/98 CD

ASP compatibility

- ASP is a Microsoft Technology
- To run IIS you must have Windows NT 4.0 or later
- To run PWS you must have Windows 95 or later
- Chili ASP is a technology that runs ASP without Windows OS
- Instant ASP is another technology that runs ASP without Windows

What is an Asp file

- An ASP file is just the same as an HTML file
- An ASP file can contain text, HTML, XML, and scripts
- Scripts in an ASP file are executed on the server
- An ASP file has the file extension ".asp"

What ASP can do

- Dynamically edit, change or add any content of a Web page
- Respond to user queries or data submitted from HTML forms
- Access any data or databases and return the results to a browser
- Customize a Web page to make it more useful for individual users
- The advantages of using ASP instead of CGI and Perl, are those of simplicity and speed
- Provides security since your ASP code can not be viewed from the browser
- Since ASP files are returned as plain HTML, they can be viewed in any browser
- Clever ASP programming can minimize the network traffic

4.1.3.2 Reverse charge SMS (Premium SMS)

Charge for sending or receiving text messages, and use this fantastically simply method to increase revenues and conversion rates for micro-payments. The reverse charge sms interface allows you to do any action upon receipt – sending an email, http posting of data, add to a distribution list, query a database.

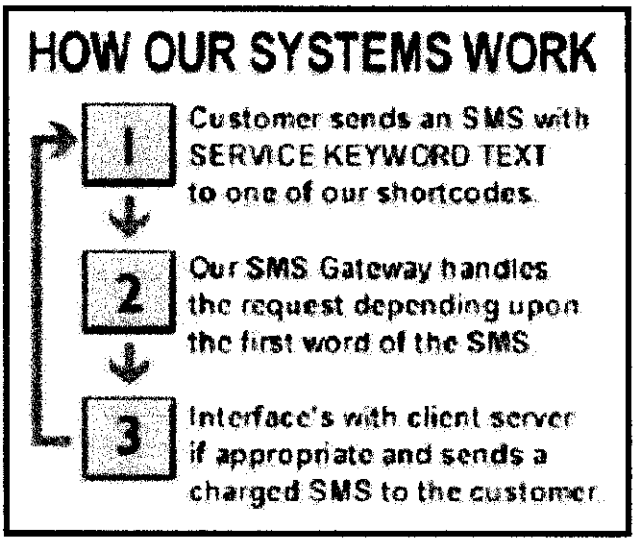

Figure 4.4: SMS system works.

4.1.3.3 Short Messaging System Gateway

What is the Short Messaging System Gateway

The gateway service allows corporate and enterprise servers to connect to our Mobile Internet Platform for send and receive SMS. The gateway support BULK and PREMIUM SMS to all major mobile operators in Malaysia i.e. Celcom, DiGi, Maxis and TMTOUCH.

Located at our Mobile Messaging Center, the gateway provides the necessary software components for applications to connect to our Mobile Internet Platform (MIP) servers through industry standard network protocols like TCP/IP. The servers manage the business critical message queuing, switching from the applications to the mobile operators' SMS centers in Malaysia. In addition, the unified gateway now supports EMS, MMS and WAP as well.

Who is it for

Mostly this gateway is used by Companies & enterprises that need high speed and reliable SMS (Short Message Service) and mobile technologies by having direct connections from their application servers to the SMS gateway. This set up is ideal from enterprises with an existing back end system (such as an ERP or CRM) that will interface with the MIP server to send/receive SMS. This product is ideal for:

- Call center
- Mobile content providers
- Application Service Providers(ASP)
- Internet Data Centers(IDC)
- Internet Service Provider(ISP)
- Information Service Providers
- Auction Sites
- e-Communities
- B2B Portals
- B2C Portals

Any organization that needs a reliable, dedicated access to SMS gateway.

What is provided

Gateway provide a virtual "port" for other servers to connect and submit SMS to their MIP servers. The physical connections can be through :

- Internet - where a fixed public IP is required
- Virtual Private Network (with 3DES Encryption)
- Direct leased line to our servers

Some customization is required on the enterprises' application server, which is usually done by the IT department. mobileExec systems engineers will work together with the IT department for the integration and end-to-end testing before going "live".

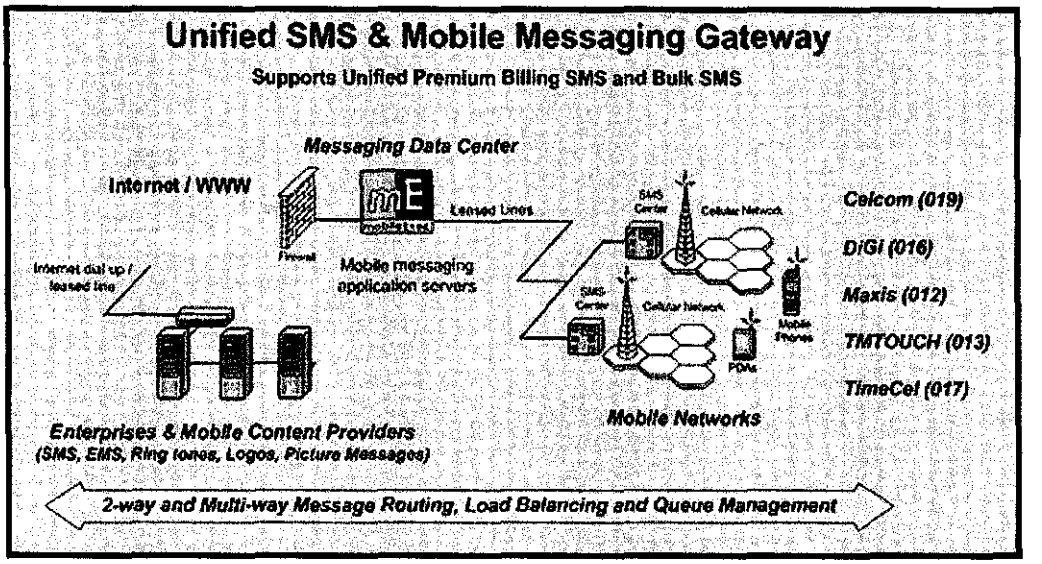

Figure 4.5 unified SMS & Mobile Messaging Gateway [4]

How much does it cost

As an ASP, the gateway service cost is significantly lower than an out right purchase of any gateway software. Our clients only need to pay for the initial setup charge PLUS a monthly network charge that covers technical support and all fixes, patches and future upgrades.

Why mobileExec Unified SMS Gateway

mobileExec is the leading enterprise messaging solutions provider where focuses in providing high performance, commercial grade messaging services to the business market. With that in mind, mobile Exec have invested in setting up a robust infrastructure and support systems to provide enterprises with:

- Proven service - with a customer base of more than 100 Malaysian and International clients.

- Carrier grade messaging service with high degree of reliability and speed with powerful, robust and proven wireless Internet gateway.

- Unified short code service - we provide the option of going thru a shared common short code OR we can get a dedicated unified short code just for your exclusive use.

- Mobile service aggregation with the technology and connectivity to multiple mobile operator's SMS Centers to send high volume messages. No need to negotiate and sign contract with multiple mobile operators! That means time to market and near zero development time!

- Affordable service - no need to make large, out right purchases on new hardware and software

- Fast time-to-market - get connected and deployed in 24 hours!

- Device and carrier independence - aggregate multiple wireless mobile networks with wide protocol and carrier network support for SMTP, SMPP, TAP, CDMA, TDMA, GSM, SMPP, UCP, OIS, AIM and more.

- Easy integration - employs well-defined application programming interfaces.

- Quality of service - accountable service levels with usage statistics and reporting.

- Scalable - the core architecture of the gateway is capable of supporting high volume messaging, and the system can scale to provide additional function and capacity without significant additional effort.

- Open and Platform Independent - the gateway is based on open standard-based platform that easily integrates with any legacy system and operates on any Internet enabled devices.

4.1.3.4 Gateway Benefits.

SMS can be send through modem or gateway. For this project I have chosen to use gateway because it have many benefits.

Gateway Benefits[5]

1. Zero technology investment

   No hardware and software purchase. Get all the new technology upgrades like GPRS without the need for costly technology upgrades.

2. Plug and play

   Sign up, plug in, test and start sending / receiving SMS immediately. Time to market is critical. Get connected in 24 hours.

3. Reliable and scalable infrastructure

   This integrated service is designed to manage high volumes, maximize uptime with a robust architecture and technology.

4. Unified mobile data service

Manage backend infrastructure hosted at our data center to provide reliable and secure connections to mobile operators to offer a one stop, unified mobile data service.

4.2 Product

4.2.1 Web application

For this web based application I am using Macromedia Dreamweaver and asp to develop it. And then I save it in asp file. This web based application are used by the admin clerk and also the UTP students. Students can check their registration status, view list course offered in this website.

My web based application is online. It is very simple and easy to use. I try to make it user friendly. This asp application will have about eight pages, which are index page, main page, course confirmation page, course offered page, user manual page, administrator page, feedback page and contact page.

Index page

This is the first page for my web based. It shows the pictures of KLCC and the tittle of the project. User can click on enter button to go to the main page. I make the enter button and the title have animation. So that the web base is look more interactive. The address of this page is http://utp.teksi.net

Main page

After hit the enter button in the index page. It will go to this page. In main page, there are a voting and also visitor counter. Visitor counter is used to count how many times the page is viewed by the user. It will increase whenever the user go to the main page, and also refresh the page.

Voting is to allow the user to vote which system they prefer to register courses whether manually, online or by SMS. User can view the result by clicking the 'view result' icon at the bottom of the question. All pages for this application has the voting questions.

In this main page also it will display the information about the courses registration, add/drop courses and also the important date for registration. Besides that it will show the information about the SMS registration.

Course confirmation page

User (student) can view their registration courses in this page. They can search their registration courses by insert their matric number or nric. It will display their name, nric, matric number, year, programme, course code, credit hour, status and description. Actually, the student got their registration status immediately on their mobile phone after they register thru SMS. But in this page, the student can know the reason if the courses they had registered are rejected.

Course offered page

This page display all the course offered for that semester for every programme. Such as courses for information technology, information system, chemical engineering, mechanical engineering, civil engineering, electrical engineering and general studies from year one until year five.

User manual page

This page display user manual for SMS registration. It shows the step how to register courses by using SMS. It also gives the instruction what data need to send to register courses.

Administrator page

This page can access by the administrator only. I have created one username and password only that only can be used by the administrator. This page allow the admin to view all the database for the system such as, database for feedback, visitor counter details, voter details, student details, student result background, student pre-requisite and SMS course registration details.

For feedback details database, the admin can know the user IP address, the time they send the feedback and also the data they submit. For visitor counter details database, the admin can know user IP address and time the user go to the website. Voter details database consists of voting choices, vote date and also IP address

For student details the admin can view all the information for each students in UTP. In student result background database, it saved the courses that the students have already taken. Table student pre-requisite shows all the subject for each programme and also the subject prerequisite. SMS registration details, the admin can know the matric number, nric, semester, subject code, result, reason, mobile number, date sms and credit hour.

Feedback page

This page allows the user to give comment and feedback regarding the system. Users need to insert all the field.

Contact Us page

In this page, it will display the contact number and address of the webmaster.
In this page there also a voting for registration systems the user are prefer whether manual, online or SMS. User can view the voting result by clicking 'view result' at the bottom of the questions.

4.2.2 Interface on mobile phone(appendices).

Firstly they need to send SMS that contain these details:

MY<space>**UTP**<space>**MATRIC_NO**<space>**NRIC**<space>**SESSION**<space>**COURSE CODE.** For example (MY UTP 1699 820625015506 2/2 STB2123,STB3013,STB3043,SHB3043,SHB2013,SNB3013) They need to send these details to 39777. After that they got response that shows their registration status, whether accepted or rejected. (Appendices)

4.2.3 Database

For the database I'm using Microsoft Access to store and retrieve data. I have created six tables to store and retrieve information. The tables are visitor and counter details, voter details, student details, student result background, subject prerequisite and SMS course registration details.

4.3 Problem and challenge

There are some problems and challenge that I have encountered during completed this project. Some of them are cannot connect the web application with the database, cannot link the page, and some coding did not working properly.

Besides that I also had problem that my script in the coding section did not working properly, such as I had a popup in a user manual page, but the popup did not appear whenever the user view that page. Actually there is some error in the coding section, so I need to identify the error and make a correction. Sometime the input data also did not stored in the database, it is because of the error in the coding section.

My web application need to be upload into the web hosting, I need to find free web hosting to upload my web applications so that the user's SMS can be displayed in the web application. At first it is difficult for me to find free web hosting that can

access Microsoft access, finally I have found a webhosting that can connect with the database, but I need to subscribe it first.

4.4 System limitation

There are some limitations in this system. For this system, the users need to register at least 4 courses and not more than 7 courses. And if they register 3 courses or 8 courses, there will be an error. Meaning that, if the user have already register 5 courses and the user wanted to add one more course, he/she need to register again all 5 courses plus one new courses. He/she needs to submit again the new registration. The new registration will overwrite the old registration.

CHAPTER 5
CONCLUSION AND RECOMMENDATION

CHAPTER 5
CONCLUSION

SMS messaging has for a long time been used by millions of people throughout the world to exchange information quickly and cheap. The Short Message Service provides a powerful way to build new channels of communication. With the proliferation of cell phones, more and more users have a personal device and are interested in using it to receive time-sensitive information, which adds value to their lives. Here I would like to conclude that the short messaging system is very important now. There are lots of benefits by using this new technology. Nowadays many industries use this new technology.

In University Technology Petronas itself, it can give the student many benefits. The students not need to worry about their registration course status. And then they also can register anywhere as long as they have a mobile phone.

RECOMMENDATION

There are some recommendations that need to make in order to enhance the system.

1. Add and drop courses.

   From the time being, the user only can register at least 4 courses and not more than 7 courses. If the student wanted to add 1 or 2 courses, they need to submit and register again all courses that they have already register plus the new courses that they wanted to register. So here, I would recommend to have a function that the user can add 1 or 2 course if they already registered. And also can drop the course that they had registered.

2. View list course offered thru SMS.

   For this moment, the student only can view list course offered on the website or get the registration guideline at the old academic. The student cannot view it by using the short messaging system. So I would recommend having a function in this system to allow the student view registered course thru SMS.

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APPENDICES

APPENDICES

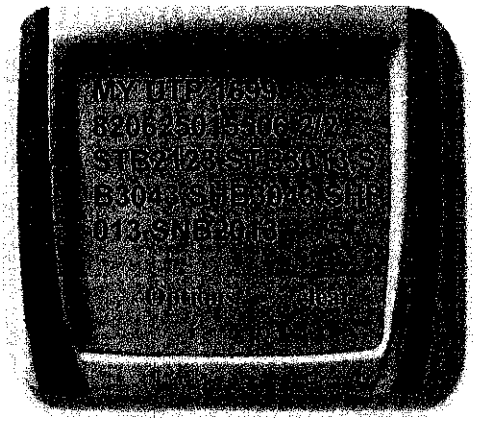
SMS Registration Course

Step 1: Select "Write Messages"

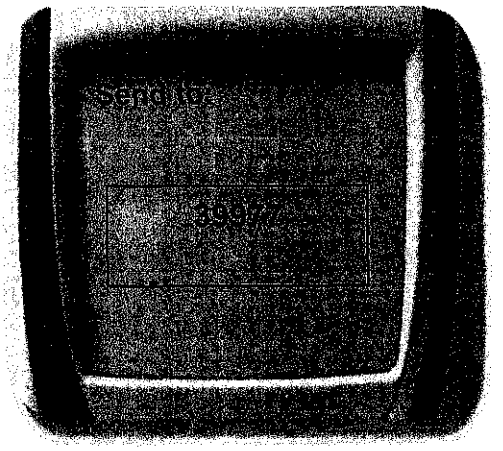
Step 2: Enter

MY<space>UTP<space>MATRIC_NO<space>NRIC<space>SESSION<space>
COURSE CODE

e.g. MY UTP 1699 820625015506 2/2
STB2123,STB3013,STB3043,SHB3043,SHB2013,SNB2013



Step 3: "Send" the message to the following number

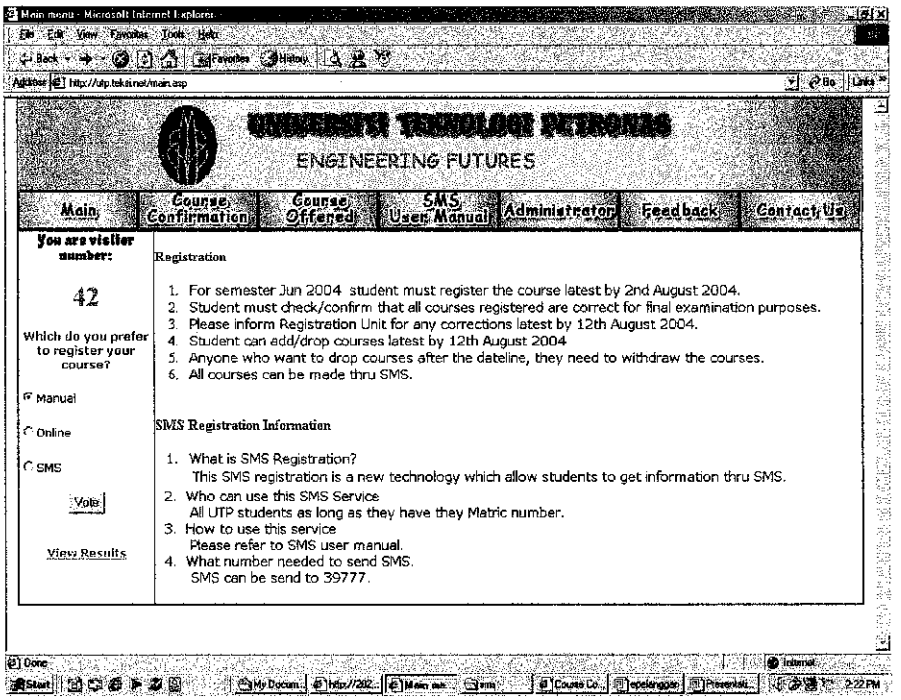


Step 4: You will receive a reply message that contains your registration status.

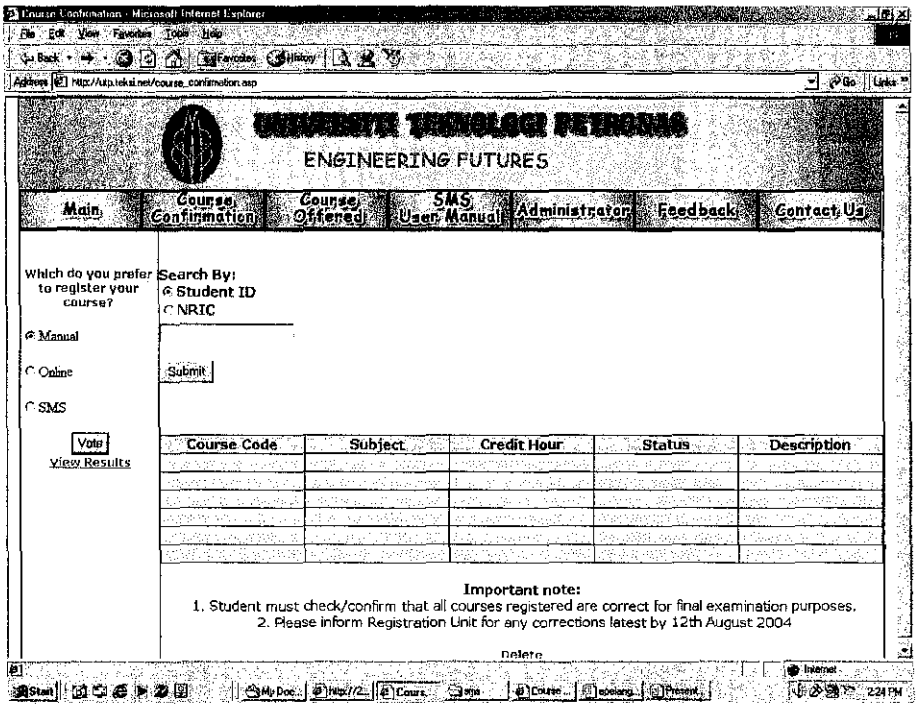
Web application

Index page

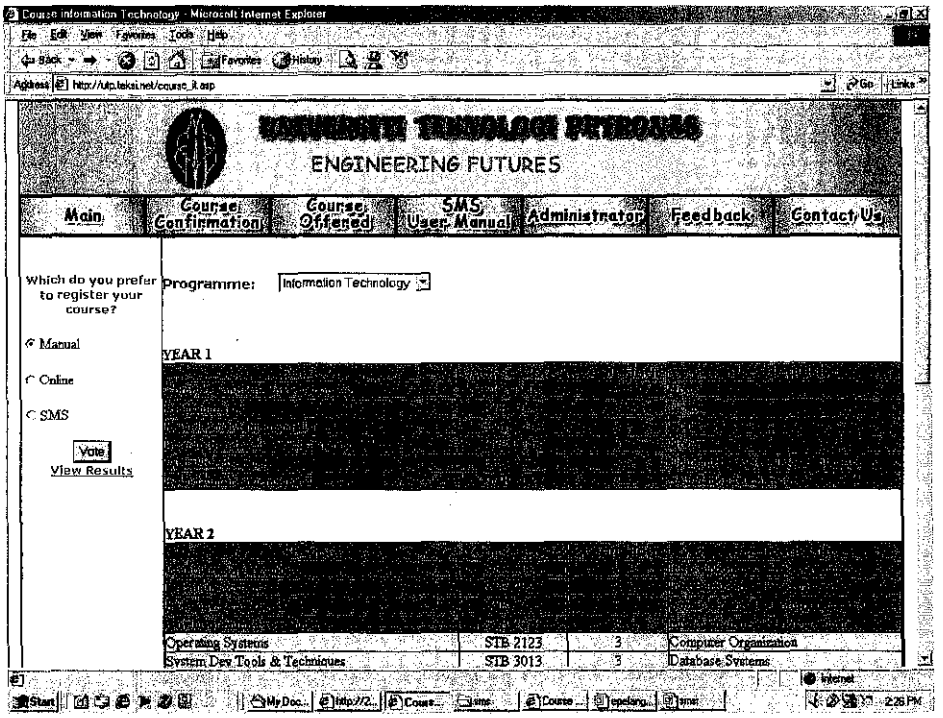
Main page



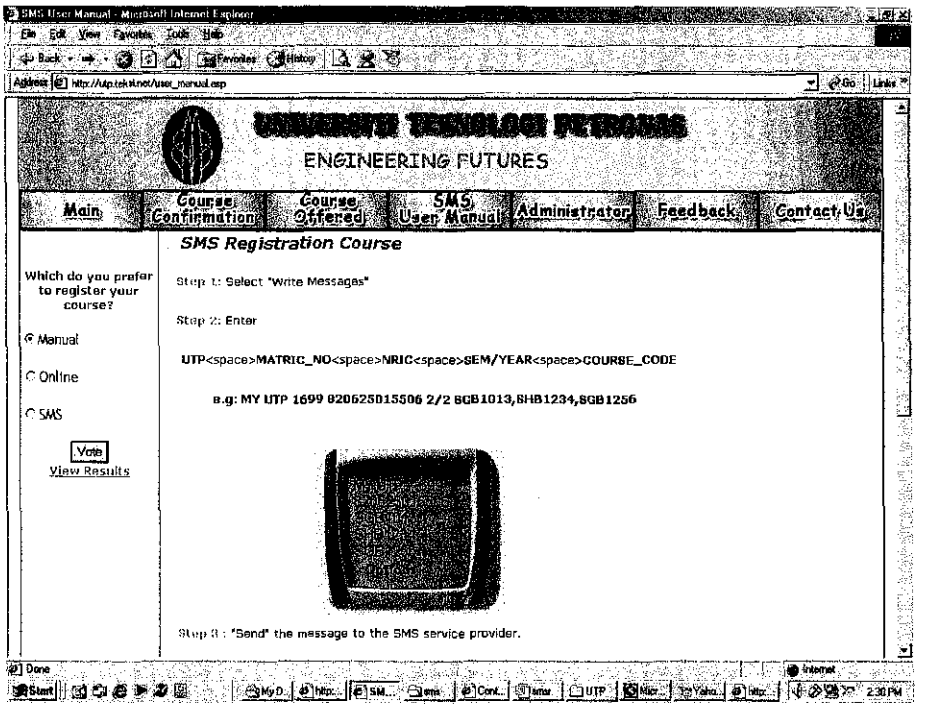
Course confirmation pages



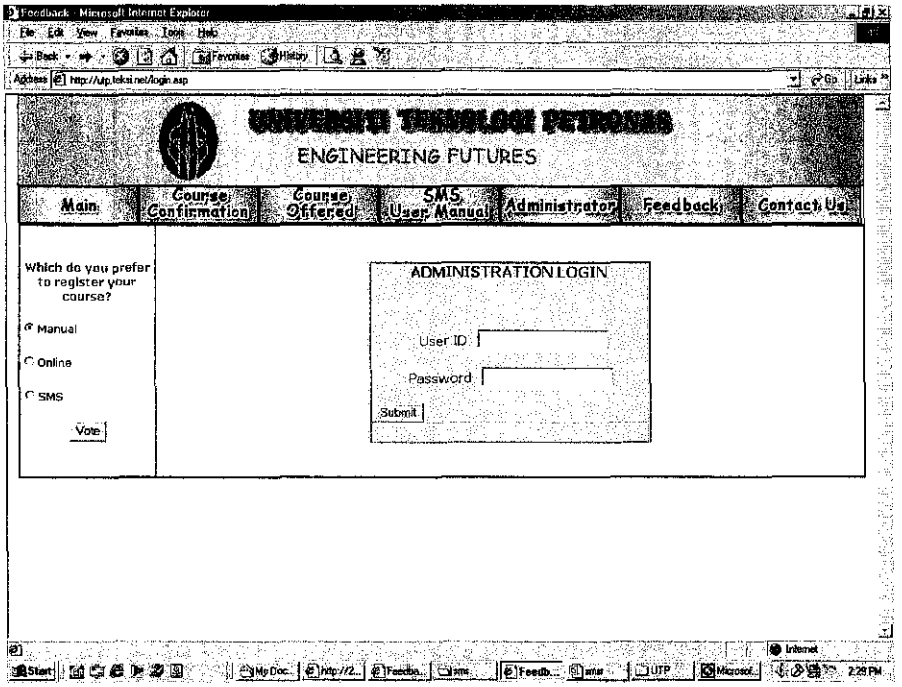
Course Offered page



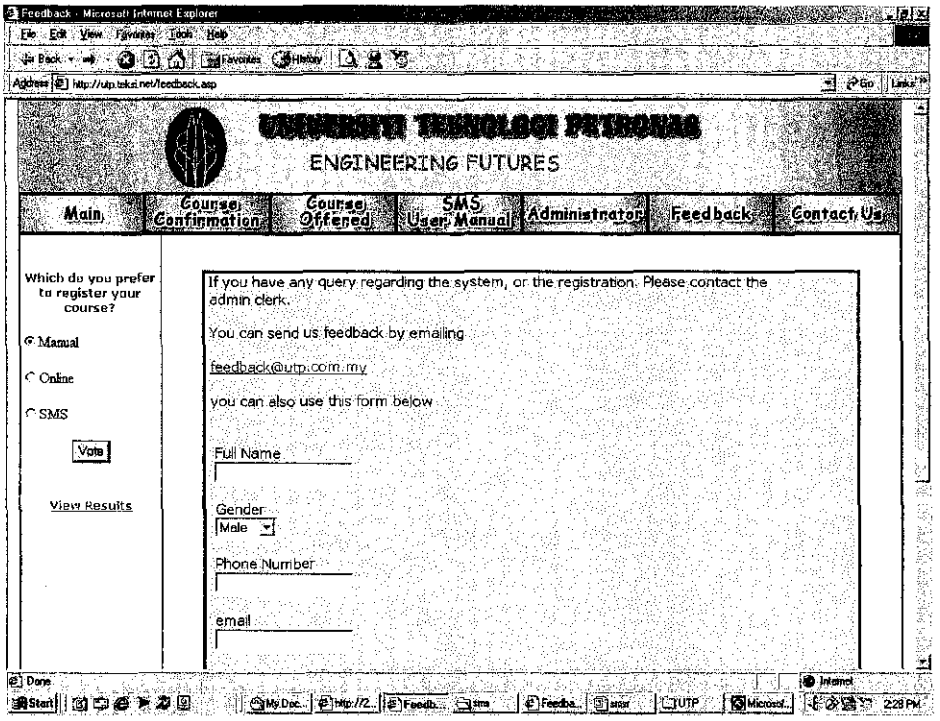
SMS user manual page



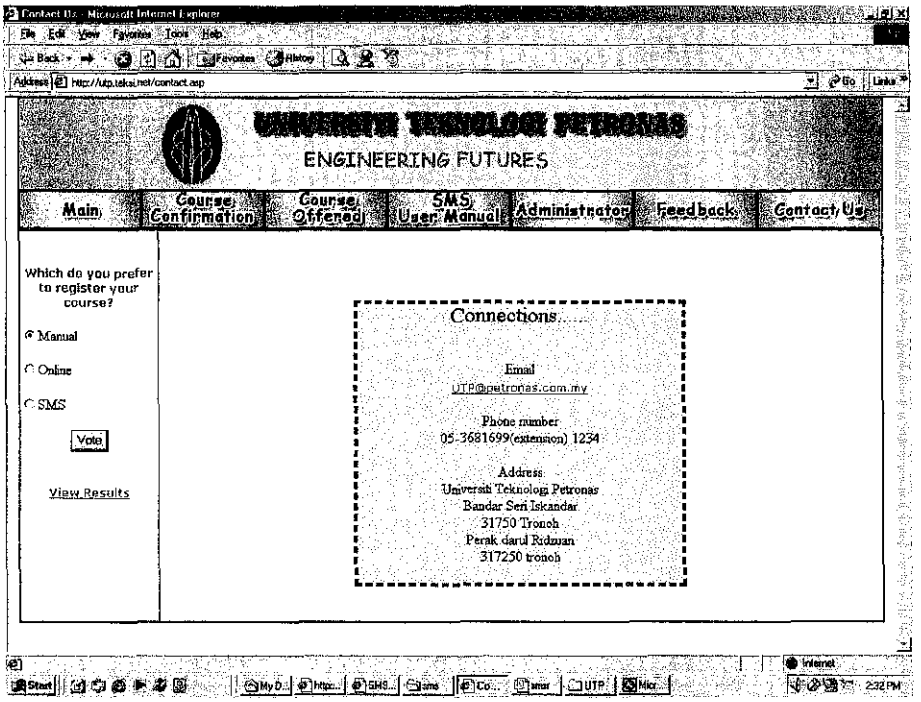
Administrator login page



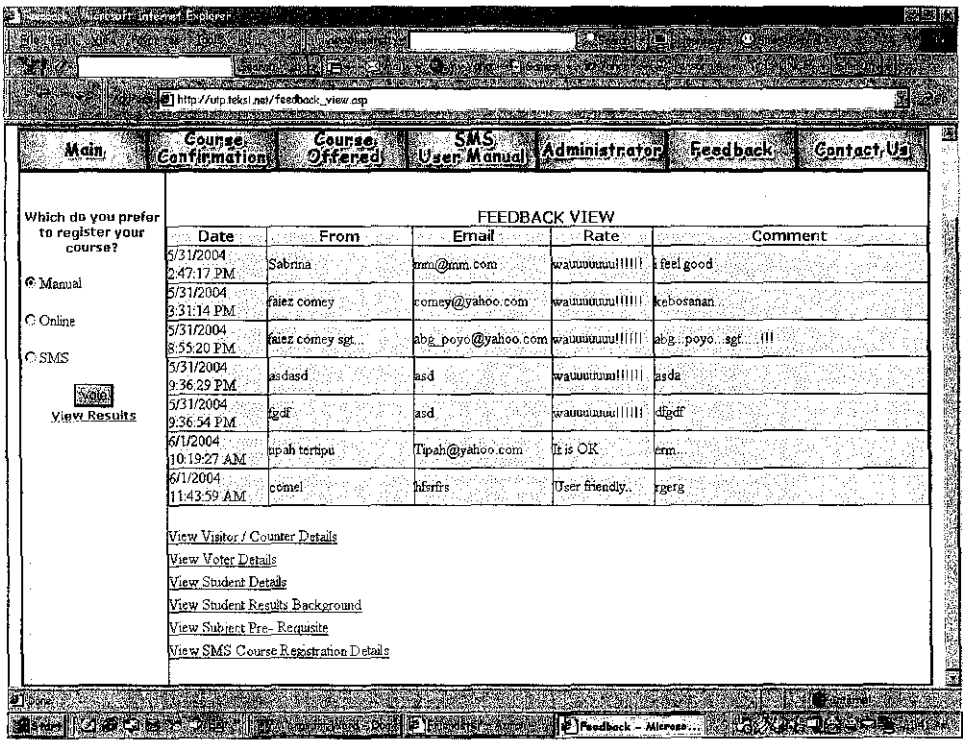
Feedback page



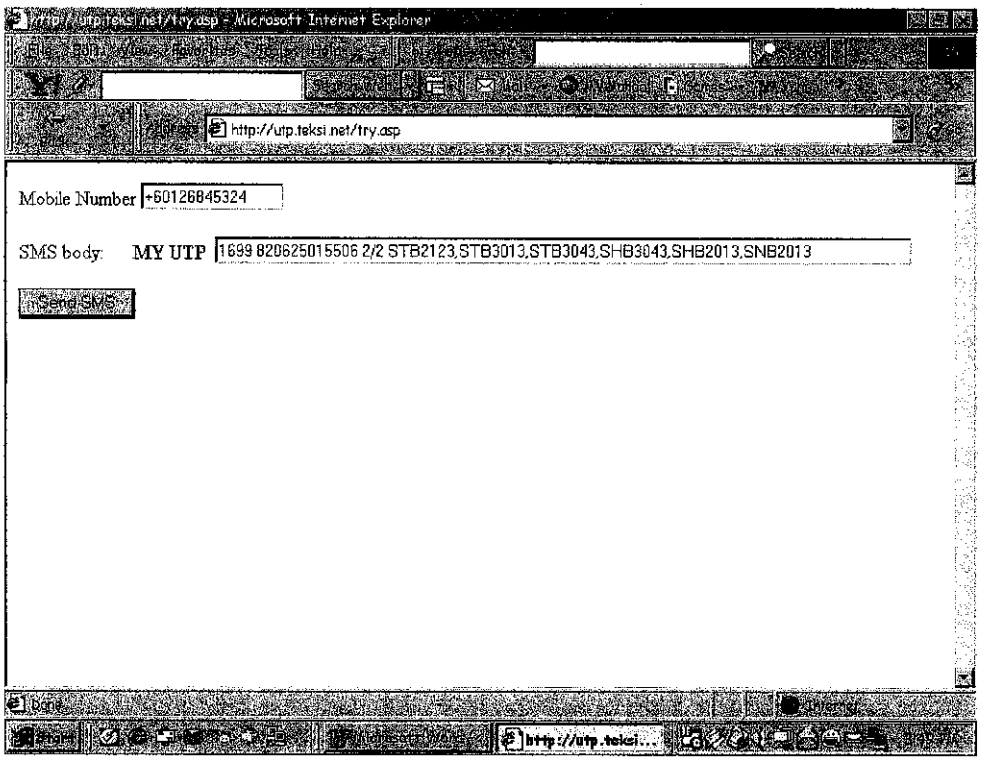
Contact us page



Administrator page



Web page for SMS testing



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2	Define project title	2 days	Mon 1/19/04	Tue 1/20/04
3	Initiate proposal	4 days	Tue 1/20/04	Fri 1/23/04
4	Obtain supervisor's approval and advisory	1 day	Mon 1/26/04	Mon 1/26/04
5	Gather information	3 days	Mon 1/26/04	Wed 1/28/04
6	Preliminary report submission	1 day	Wed 1/28/04	Wed 1/28/04
7				
8	Analysis Phase	16 days	Wed 1/28/04	Wed 2/18/04
9	Identify User Requirements	6 days	Wed 1/28/04	Fri 2/6/04
10	Research on Application input requirement	6 days	Fri 2/6/04	Fri 2/13/04
11	Create process model	4 days	Fri 2/13/04	Wed 2/18/04
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13	Project Design	30 days	Wed 2/18/04	Tue 3/30/04
14	Design database	15 days	Wed 2/18/04	Tue 3/9/04
15	Design user interface	16 days	Tue 3/9/04	Tue 3/30/04
16				
17	Project Implementation	13 days	Tue 3/30/04	Thu 4/15/04
18	Plan project test	4 days	Tue 3/30/04	Fri 4/2/04
19	Conduct project test	9 days	Mon 4/5/04	Thu 4/15/04
20				
21	Submission of Dissertation Final Draft	1 day	Thu 4/15/04	Thu 4/15/04
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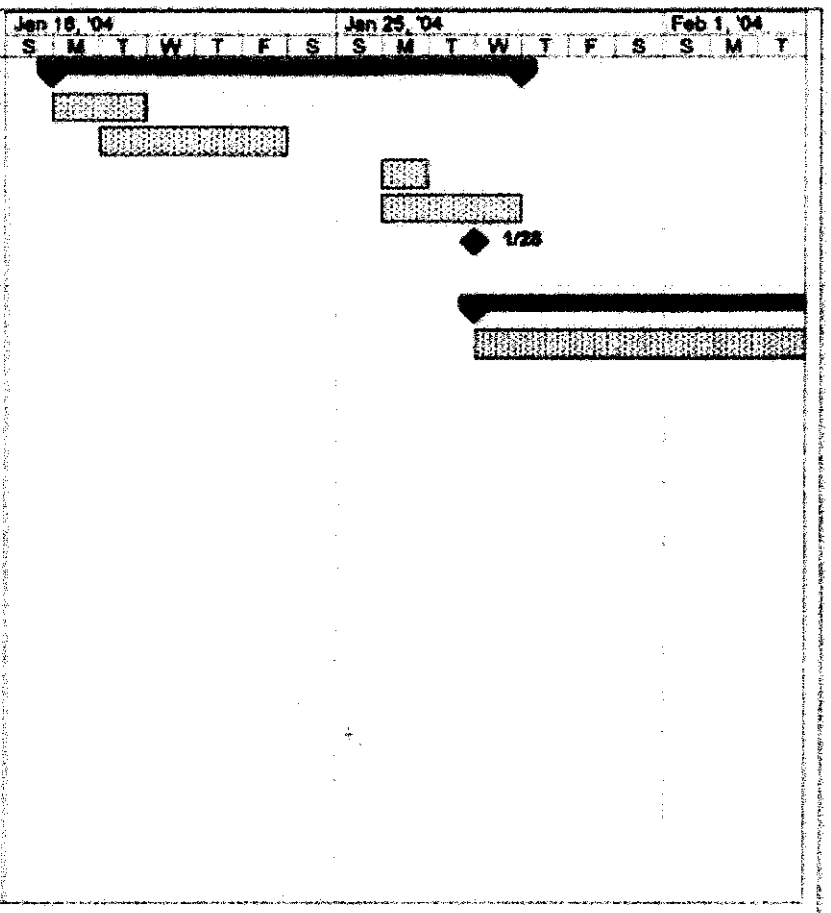

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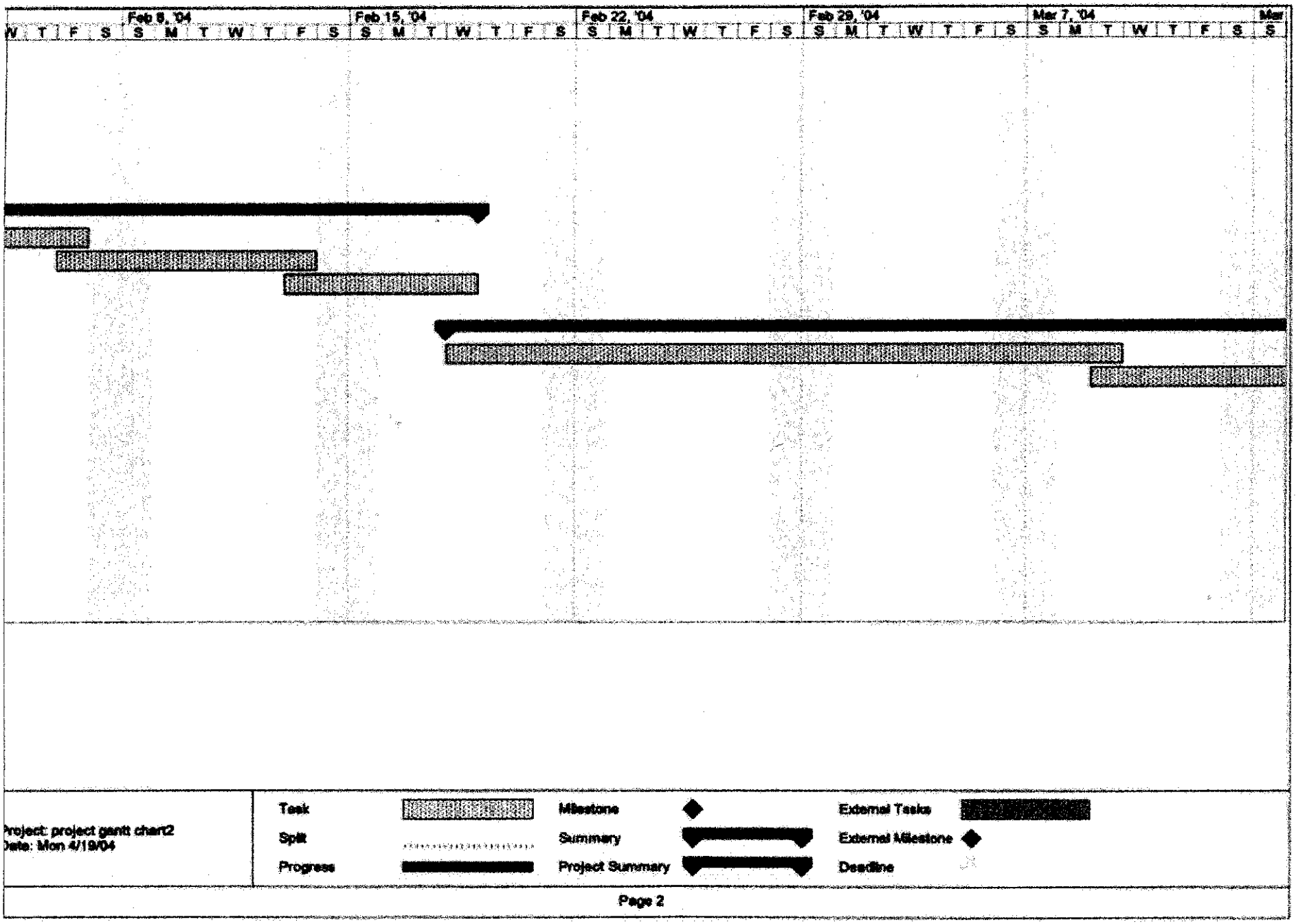
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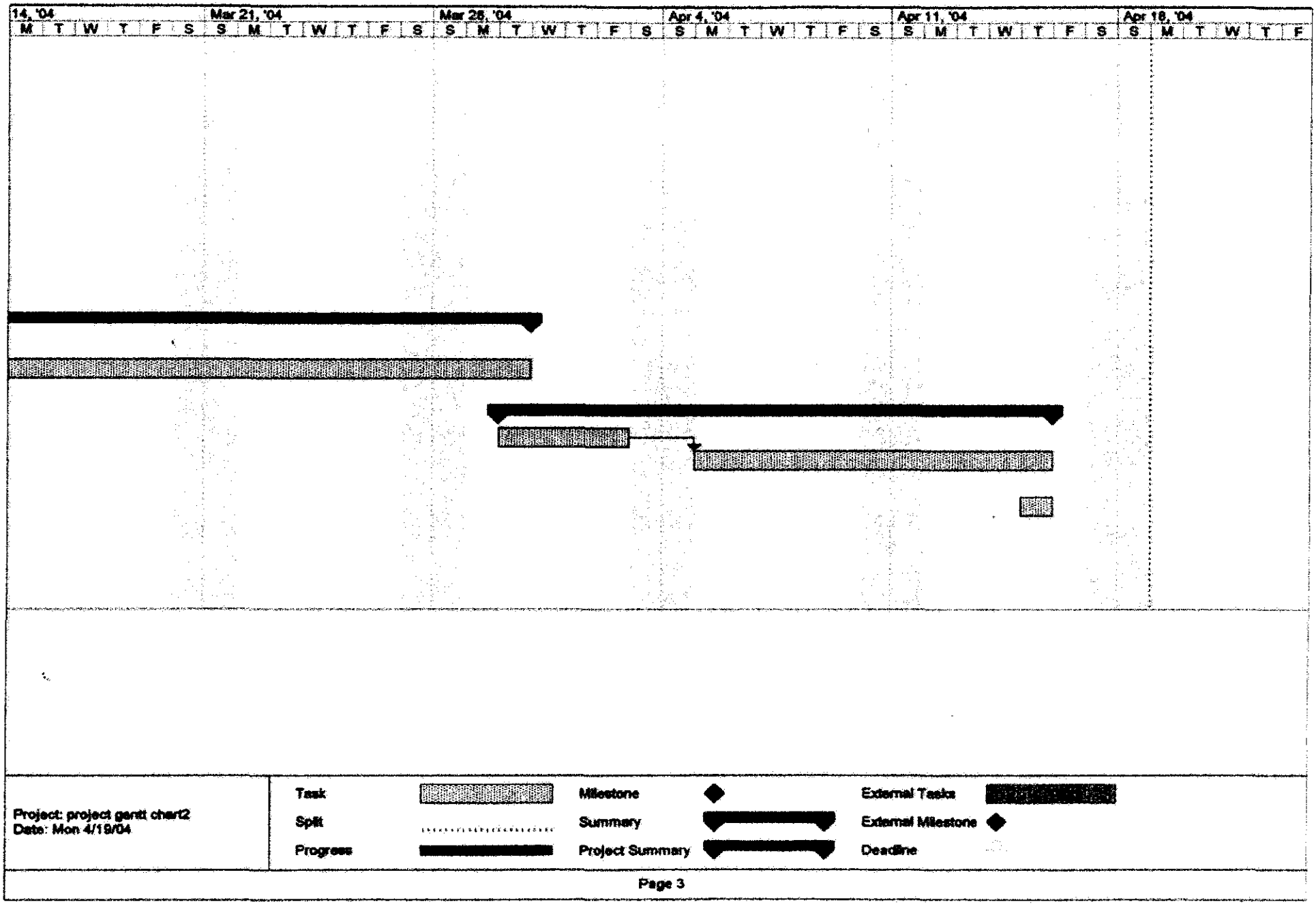
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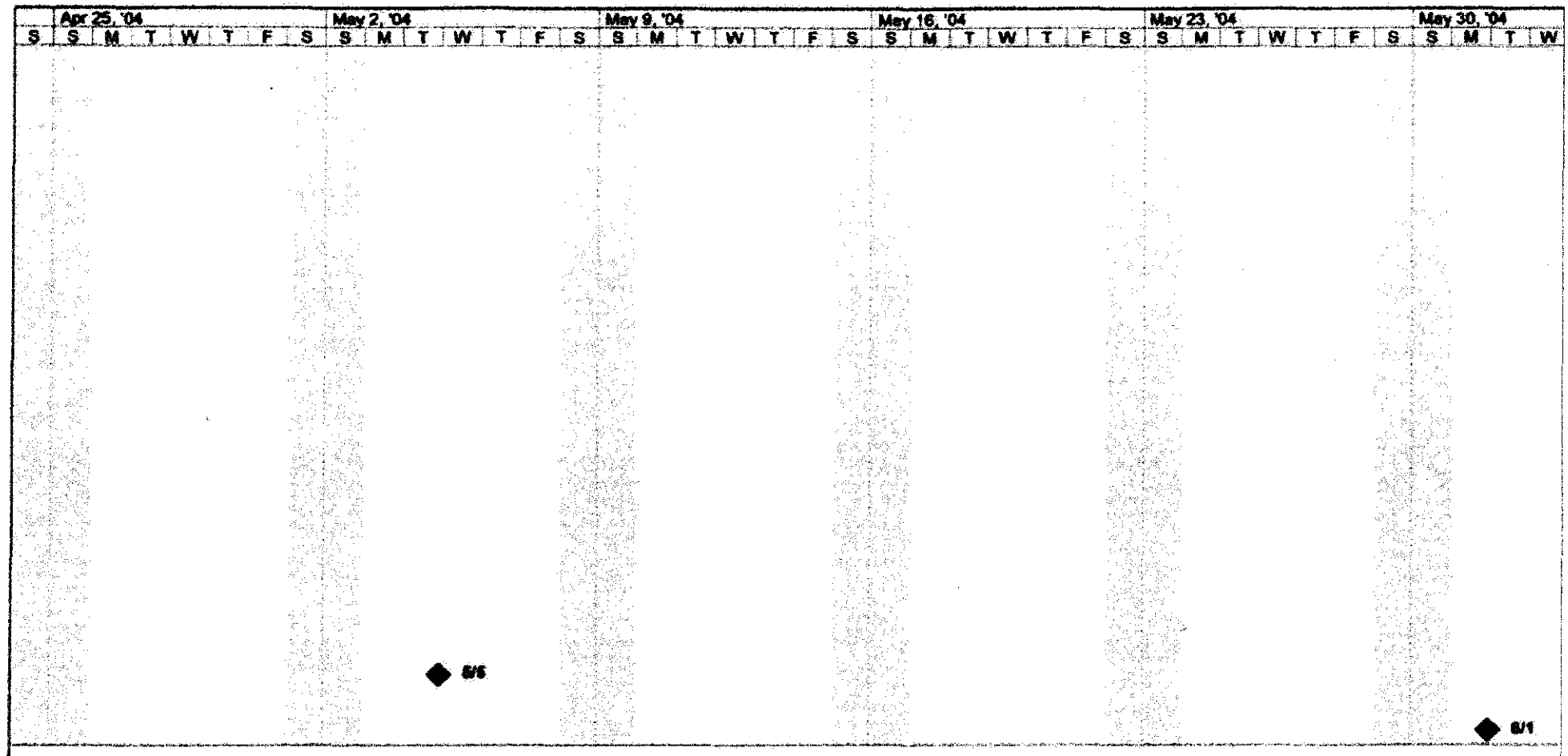

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