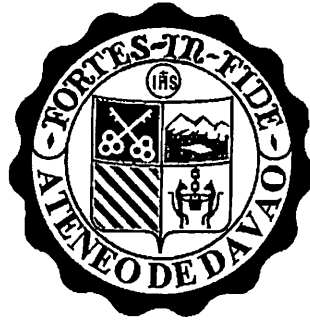


**DEVELOPING A MULTI-PLATFORM STUDENT INQUIRY SERVER**



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## **ABSTRACT**

Academic inquiry has always been a concern in Ateneo de Davao University during enrollment. Due to manual checking, inquiry turns out to be time - consuming. The study aims to create a connection between mobile and a server via SMS or using the internet. It presents the different methodologies of creating such connections. Also, it discusses several ways on how mobile inquiry will improve the university's academic system.

***Keywords:***

Mobile and wireless communications, SMS, Web server

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Background of the Study**

The traditional way in processing academic-related inquiries has always been time-consuming and sometimes, it becomes stressful like in a situation of checking subject availability and upon knowing that the course is no longer available when you have already waited for hours. Enrollees have to go to school and wait in line to be able to know whether a subject is still available or not, it also has the same issue with the inquiry of student's account balance and grades. And because of this, it is deemed necessary to bring academic-related inquiry to a device which is commonly used by students of Ateneo de Davao University, a mobile phone.

Mobile devices are undeniably the most commonly used wireless device today not only in school but everywhere. They are being used by almost everyone to get connected to other people. To date, more and more improved mobile devices are being introduced in the market due to uninterrupted search for a better and more competitive technology. Most of these devices can already access the internet by surfing, researching and chatting. At the same time, it is a lot faster and easier to use nowadays.

Granting the fact that mobile phones are the most convenient and the most available device today, this study proposed a mobile inquiry of student's academic needs in Ateneo de Davao University through a mobile phone that communicates to a web server via SMS or internet connections.

What is a web server? A web server is computers program that delivers content, such as web pages, using the Hypertext Transfer Protocol commonly known as HTTP. The primary function of a web server is to deliver web pages coming from the server's data to the client. This means the delivery of HTML documents and any additional content that may be included by a document. A web host service is a type of internet hosting service that allows individuals and organizations to make their own website accessible via the World Wide Web. It provides space on a server they own or lease for use by their clients as well as providing internet connectivity, typically in a data center. We needed a web hosting server in order to handle our web site and use to communicate in a Telecommunication's gateway. This facility provides an interface which enables you to acquire a subscriber's SMS request and deliver back your reply promptly via our own database application.

To define what the word SMS means, SMS stands for "Short Message Service". It is a technology that enables the sending and receiving of messages between mobile phones and originally developed by ETSI (European Telecommunications Standard Institute). As we can define in its name SMS (Short Message Service), the data that can be held in an SMS message are very limited. According to the research it can only

contain 140 bytes (1120 bits) data, 160 characters if 7-bit character encoding is used (7-bit character encoding is suitable for English alphabets). One major advantage of SMS is that it is supported by 100% GSM mobile phones. Almost all subscription plans provided by wireless carriers include inexpensive SMS messaging service.

## **1.2 Technology Application Context**

Specifically, it sought to answer questions about the significance of the proposal. It showed how to create a website that is compatible to mobiles and how this web site can be user-friendly to the mobile users. Gave what technologies we are able to use (how this proposal was accessible inside the university?), and it showed how to connect the site to the SMS center and World Wide Web. This showed how we are going to communicate with the telecommunications.

## **1.3 Objectives of the Study**

The main objective of this project to design and develop a mobile inquiry server to be used by students to inquire grades, subject availability and account balances.

In particular, we will design and develop the following:

- A WAP server that can be used by mobile phones for inquiries.
- A student inquiry website that is compatible to iPhone/iTouch devices, some mobile phones and PC.
- An SMS based student interface.

## **1.4 Significance of the Study**

Basically, the study develop a connection between mobile phones and a web server that pave way for an improved system in Ateneo de Davao University making subject availability inquiry easier, faster and accurate in accessing student's grades and their accounts. Enrollees will no longer go to school and wait in line to check the availability of subject in different courses. Without any waiting line, a student can save time and effort. Mobile phones are very handy indeed and this was a major advantage for the project because as long as the user has a mobile phone, he or she can access the server via SMS and can connect through Wi-Fi connections.

For the academe, the study can be used as reference for further studies by future Ateneo students most especially those who will be doing researches that are related to mobile to server connection and the like.

## **1.5 Scope and Limitations of the Study**

The study generally focused on handling a communication between the SMS Center and the server. Since we supported by SMART Telecommunication's <http://www.theinfoboard-smart.net/>, therefore, our SMS proposal are only limited to all SMART/Talk N Text users only. As an alternative, we have created a website that is supported by the HTTP and WAP protocols that can is more compatible with Desktop Computers, WAP-enabled phones and iPhone/iTouch devices only. Based on the WAP

architecture, our web site is running PHP scripts. So those WAP-enabled phones that can read PHP scripts are surely can access to our web server's database. The reason for this is some of these phones cannot read PHP files and rendered to have an "Unknown File Format" and will be unavailable to the user.

Another limitation is the user's mobile phone can only send and read data from the server's database to maintain administrator's security. Any mobile phone will work as long as they have a sufficient credit to send inquiry and a SMART user. We no longer used a direct connection between the PC server and mobile as a GSM modem because there is a big drawback of sending messages through a mobile phone or GSM modem. It can only send 6-10 messages per minute when using this kind of method and will have a low SMS sending rate. The performance of sending a SMS message is not affected by the connection between the computer and the mobile phone or GSM modem. Instead, we created a web server that would connect to the SMS center because it can handle a large volume of sent messages. We will now have to connect to the SMART Telecommunication's gateway which is <http://www.theinfoboard-smart.net/> and will be used in sending and dispatching messages from the clients.

Web hosting is not our problem anymore. It is because we are only having a mapped connection from the TSO's <http://chakkra.addu.edu.ph:8080/>. Due security is a massive factor when we are running our own hardware and web hosting. If we are currently mapped from this server for internet use, then the connection is also important. We rely only in the capability of this server, so meaning if CHAKKRA server is down, all our services will also become unavailable too.

The reason why we used CHAKKRA Server is because we are ensuring that the connection is not only good for upload and download speed, but also a fixed IP address. It is possible to host a dynamic address although static addresses are always consistent and a better option. Another reason is the compatibility of our database since we are currently using Microsoft SQL and CHAKKRA Server also handling Microsoft SQL Server 2008 with its static IP address (210.14.5.222) unlike Titania Server who supports MySQL databases only.

Static IP address is an address that does not change over time unless changed manually. It is used when you need the IP address or network location to remain the same consistently. A good example of this is [www.google.com](http://www.google.com) (66.102.7.99). If this would take a dynamic address, we wouldn't be able to access Google now unless we have the new address. While Dynamic IP address is an address that keeps on changing. An example of this type of IP address is your ISP (internet service provider) assigns you when you log on to the internet. We must have an IP address to surf the web but once we are disconnected, we will lose that address. Since this project is for school purposes, we are using <http://chakkra.addu.edu.ph:8080/~mobileinquiry/> (\210.14.5.222\).

For the CHAKKRA server, they are currently using Windows NT having Apache 2.2 server installed. It is because what we are pushing towards the proposal's requirement and that is to have a maximum to unlimited connections from the users to the server. Since IIS5 for Windows XP Professional is designed for users developing a web service for home or for office use. It can service only 10 simultaneous client connections. If we

are running any servers like Windows 2000, 2003, NT, the web services are built in and can be installed from the media disk. These IIS servers can support unlimited connections, domain names and IP's.

What is Windows NT? It is now called Windows 2000 and an operating system for server developed by Microsoft. The interface of the software is similar to that of Windows 95/98. It's gaining market share due to the ease of use. One of the good news about this is the Microsoft company still provides supports and updates to this operating system. Users can develop web site using familiar interface of Microsoft tools such as Microsoft FrontPage, Visual Interdev and Microsoft Access. With the developers can develop a database-driven web site using Microsoft Access and Microsoft SQL as the database.

This study will be implemented in Ateneo de Davao University and it is an implementation that will save effort and time between students and personnel in the different divisions.

## 1.6 Definition of Terms

**Testing** -Carry out testing on actual devices as well as emulators.

**Web Server** – is a computer program that delivers (serves) content, such as Web pages, using the Hypertext Transfer Protocol (HTTP), over the World Wide Web.

**Static IP address** - is an address that does not change over time unless changed manually.

**Dynamic IP address** - is an address that keeps on changing

**SMS (short message service)** - it is a technology that enables the sending and receiving of messages between mobile phones and originally developed by ETSI (European Telecommunications Standard Institute).

**GSM (global system for mobile)** - is the most popular standard for mobile telephone systems in the world.

**SMSC (SMS center)** - is responsible for handling the SMS operations of a wireless network.

**SMS Gateway** - acts as a relay between the two SMSCs.

**<http://www.theinfoboard-smart.net/>** - a web-based solution that offers various SMS facilities with different functions and capabilities catering to the needs of your community/client.

**Gateway** – This facility provides an interface which enables you to acquire a subscriber's SMS request and deliver back your reply promptly via your own database application.

**Windows NT** - now called Windows 2000 and an operating system for server developed by Microsoft. The interface of the software is similar to that of Windows 95/98.