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VOICE MESSENGER – VOIP TALK

MUHAMMAD NAJMUDDIN BIN TAHA @ ISMAIL

This report is submitted in partial fulfillment of the requirements for the
Bachelor of Information and Communication Technology (Computer Networks)

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA**

2004

ADMISSION

I admitted that this project title name of

VOICE MESSENGER – VOIP TALK

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ABSTRACT

The main goal this project to design for fulfill a condition set to qualify a Bachelor of Information Technology and Communication. The system is known as Voice Messenger. This system will bring data in voice and text via IP. Each student must complete PSM 1 before continuing with PSM 2. Students must give out the purpose project in this report as set the idea how to develop the real project in PSM 2. In PSM 2, students will develop a real project such as that imagine in PSM 1. PSM 2 is a project that challenge which it will determine whether a successful project and usage testing will be done to define it is fulfill users requirement. Usage this application not means the current technology not expedient more in organization, it just such as a alternative in communication.

ABSTRAK

Matlamat utama projek ini direkabentuk adalah untuk memenuhi syarat kelayakkan untuk memperolehi Ijazah Sarjana Muda Teknologi Maklumat dan Komunikasi. Sistem yang digunakan ini dikenali sebagai Voice Messenger. Sistem ini akan membawa data dalam bentuk teks dan suara melalui IP. Setiap pelajar mesti menamatkan PSM1 sebelum meneruskannya dengan PSM 2. setiap pelajar haruslah memberi cadangan projek yang hendak di dalam laporan ini bagaimana untuk membangunkan projek yang sebenar di dalam PSM 2. Di dalam PSM 2, pelajar akan membangunkan projek yang sebenar seperti yang di gambarkan di dalam PSM1. PSM 2 ialah projek yang mencabar yag mana ia akan menentukan kejayaan projek dan pengujian akan dilakukan untuk memastikan ia memenuhi kehendak pengguna. Penggunaan aplikasi ini tidak bermakna teknologi semasa tidak berguna lagi dalam organisasi, ia cuma sebagai alternatif untuk berkomunikasi

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LIST OF ACRONYMS

ACRONYMS	DESCRIPTIONS
LAN	Local Area Network
VOIP	Voice Over Internet Protocol
IP	Internet Protocol
TCP	Transmission Control Protocol
POS	Packet Over Sonet
RTP	Real Time Transport Protocol
PSTN	Public Switches Telephone Network
PC	Personal Computer
PCN	Personal Communication Network
NIC	Network Interface Card
QoS	Quality of Service
SIP	Session Initiation Protocol
SDLC	Software Development Life Cycle
UML	Unified Modeling Language
P2P	Peer to Peer

LIST OF APPENDIX

Appendix A	Gant Chart
Appendix B	User Manual
Appendix C	Source Code

CHAPTER I

INTRODUCTION

1.1 PROJECT INTRODUCTION

The project that wants to be developed is Voice Messenger application on LAN that called VOIP Talk, which used by users who want to make it as alternative to communicate. Basically, a VOIP Talk possess functions that enable users communicate peer to peer on LAN, it may be have additional with function like instant message and chatting room for users in LAN. This application will be developed for usage on LAN only and it running without a server. A good application will make easier to users for using it and this will become the application more effective.

With Voice Messenger on the LAN, conversations are converted to stream of IP packets and sent over an Ethernet network. This network is usually restricted to a building or campus. As VOIP technology matures, new conversion methods may emerge. Regardless of the method that is used to convert VOIP traffic for LANs, VOIP traffic will always traverse the LAN as stream of IP packets. Below is shown the example of VOIP on LAN diagram.

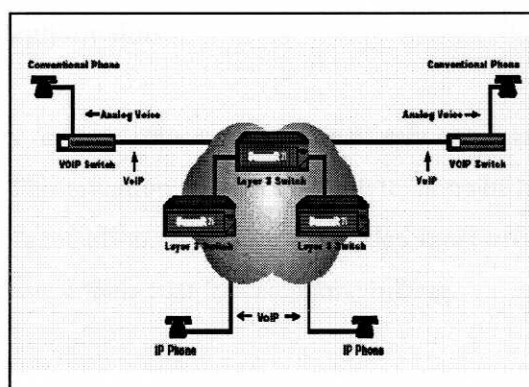


Figure 1.1: VOIP on the LAN

The advantages of using VOIP technology are simple: its use can result in huge savings on the amount of physical and resources required to communicate by voice over long distances. It does so by working around circuit switching architecture, one of the fundamental drawbacks of traditional telephone networks. From the architecture aspect, the VOIP architecture design focuses on designing a best-practice converged network architecture that lowers operational costs and increases operational efficiencies, while enhancing the capabilities to utilize emerging applications. Other benefits include:

- Reduced implementation costs
- Reduced risk of performance problems
- Increased awareness of the best business model for VOIP architecture design
- Increased reliability and scalability to support new business applications and services
- Enhanced value in telecom and network services departments

1.2 PROBLEM STATEMENTS

Purpose problem statements are to determine type of problem and solution for every problem. Goals and purpose of project has been depends from their problem solution. This is list of problem statement of communicate on LAN environment.

i. Telephone line.

Today in organization environment user can communicate by telephone line. This situation are involved a telephone billing and increase cost for one organization. Perhaps they needed more efficient technology that can reduce their cost for telephone billing.

ii. **Sending and receiving data via email.**

The communication using email is not practical in LAN environment. Voice Messenger can send direct. But the Voice Messenger has been developing to solve that problem.

1.3 PROJECT OBJECTIVE

The VOIP should be use by users either in small or big company or organization. The VOIP has features that help to smooth the communication flow of network environment. The telephones usages that often may be cause the billing costs are become very high and this will waste the financial flow in organization. Only with using the VOIP, company can reduce the billing costs. The objective of developing this application is as stated as below:

- Communication costs saving.
- Faster sanding the instant massage and high performance with chatting room and VOIP also can decrease the noisy and conversations in network environments.
- Speed up the sending important data in voice and clear and guarantee the personal secret to person on LAN.
- Useful to network administrator. It help network administrator send the instant massages to users in the network environment using the function that has been installed in the application.

1.4 PROJECT SCOPE

The application is design to help those who work with or using the network environment. Users on LAN are the main targets to use this application. It can help communication flow of the network easily. The project is developed for users that need to communicate with often in network environment. It is also important to the network administrator to sending the instant messages on networks.

A company or organization that have a fully network also is suggest to use this application because it can help reducing the costs in the company. The company that did not have any network administrator is also suggested to use this application because the application is running without server and have basic feature in handling to communicate in the network. The application is also user-friendly. All end user can use this application without any professional guidance. The manual can help them understand what the features of the application are.

As a network administrator, this application can provide a best solution in communicate managing on network flow. With using this application it can help the communication problem in organization and many problem like instant messages can be solve easily. This tool is a network application tool and it just can use in the network environment only. It's so simple because it no need server to running.

1.5 PROJECT PRIORITY

The priority in developing this application is because it can be used to communicate on network environment. A VOIP Talk is important to show the integrity of the network that has been setup, it solve to communication problem in organization. It usage will be reducing the costs that become the problem in organization. This application provides the service of communication, instant messages and chatting room on LAN. VOIP Talk using IP addresses for

communicate with other computer in LAN. It will detect IP address the computer to communicate.

To using this application, users must enter the IP address computer that want to communicate, than just click the button on frame and talking. For instant messages or chatting room, they must choose the menu that show and do it. With using this application all information that sent would be guarantee and it send be faster. This application can be use by small organization because development cost to build it is low and it able to used.

1.6 EXPECTED OUTPUT

Each application that developed indeed expected will be to yield a good output to fulfill what the users needs. Testing phase is a last stage in this project development. In this phase developer expect a good output that can to produce without affect the overall of functions. Developer also to expect the output that produced will be fulfills the features as voice messenger application. In this application have are five function that can help the users in communicate. The functions as;

a. Voice Chatting

Voice Chatting is easy way to communicate in voice with other user that using this application. User just need enter the IP Address and click button online and make call to communicate.

b. Text Chatting

Text Chatting also the way to communicate but it in text and it can use in the same time with voice chat. User just need type what they want after click the buttons like above.

c. LAN Messages

Net Send is function that will be display the hosts that online, it can help user to send the messages to other host that switch on in LAN. User can chose one or all hosts to send the messages.

d. Net Send

LAN Messages is same function like Net Send to send the messages.

e. Transfer Files

This function can help user to send the files to other user in LAN. The files that can deliver cannot biggest the size. This function using the server and client concept to delivered the files.

1.7 CONCLUSION

This application will help to overcome the communication problem in organization. It is solve to reducing the billing costs in organization on network environment. It brings more benefit to users cause they can talk on peer to peer, they also can send the instant massages or files to members on LAN and they can chat in the chatting room. This is solution that find for overcome the financial waste in

organization. Directly, it helps the user to know the new technology in communication beside the current technology in delivery of voice.

CHAPTER II

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter will discuss on the method that used to gathering information and signification of future review. The main focus is on the literature review, Internet research and case study about the VOIP (Voice over Internet Protocol), which will be discussed detailed in this chapter. This chapter will also look on architecture system requirement for the new system and how to implement it.

2.1.1 Introduction of Voice Messenger (on LAN environment)

Voice Messenger concept same like a Voice over IP (VOIP) technology is about transmitting a voice signal across an IP network (the Internet for example). The context of this voice signal determines constraints for this transmission. The example, if this voice signal is a part of a conversation between two people, care must be taken to preserve its real-time characteristics. The delay between one person talking and the other person hearing what was said should be as low as possible to avoid irritable gaps in the communication. Other applications of Voice Messenger like an on-line lecture and can sending or receive some document.

This section is about the way this software is organized. It also contains about the layered design model, which is a good example of this structured design and about the TCP/IP reference model, in which as the name suggests IP plays a very important role.

2.2 CASE STUDY

2.2.1 Introduction of VOIP

Internet Voice, also known as Voice over Internet Protocol (VOIP), is a technology that allows you to make telephone calls using a broadband Internet connection instead of a regular (or analog) phone line. Some services using VOIP may only allow you to call other people using the same service, but others may allow you to call anyone who has a telephone number - including local, long distance, mobile, and international numbers. Also, while some services only work over your computer or a special VOIP phone, other services allow you to use a traditional phone through an adaptor.

VOIP allows you to make telephone calls using a computer network, over a data network like the Internet. VOIP converts the voice signal from your telephone into a digital signal that travels over the Internet then converts it back at the other end so you can speak to anyone with a regular phone number. When placing a VOIP call using a phone with an adapter, you'll hear a dial tone and dial just as you always have. VOIP may also allow you to make a call directly from a computer using a conventional telephone or a microphone.

Voice over IP (VOIP) is not a new network, but a new application on IP networks. Traditionally, the voice is transported on a network that uses circuit-switching technology, where data networks are built packet-switched technology. There are various reasons this transition is taking place, many of which have to do with economies of scale. Traditionally a Telephony network has been architect around circuit switch technology, requiring specific equipment and management techniques. *Networks have emerged from being a difficult to implement, side thought for many companies to a critical part of their business strategy and an integral part of their economic growth. [1]