

## BORANG PENGESAHAN STATUS TESIS

JUDUL: VIDEO CONFERENCE SYSTEM FOR CLASSROOM TEACHING

SESI PENGAJIAN: 3 - 2007/2008

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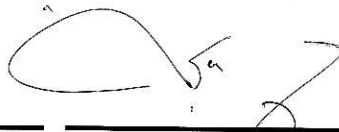
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# VIDEO CONFERENCE SYSTEM FOR CLASSROOM TEACHING

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This report is submitted in partial fulfillment of the requirements for the  
Bachelor of Computer Science (Network Computer)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
2008

## DECLARATION

I hereby declare that this project report entitle  
**VIDEO CONFERENCE FOR CLASSROOM TEACHING**

Is written by me and is my own effort and that no part has been plagiarized without citations.

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## DEDICATION

To my beloved parents, En Salim Bin Abd. Rahman and Pn. Hatiah Binti Awang,  
my whole family, my supportive supervisors, Pn. Khadijah Binti Wan Mohd.  
Ghazali and all my understandable friends. Thank you for the support and guidance  
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## ABSTRACT

The project that had been developed is allowing the lecturer and the student to communicate through the system for education environment. This project will be known as Video Conference System for Classroom Teaching. There are three major module included in the Video Conference System which is the Video and Audio Configuration Module, Whiteboard Sharing Module and File Transfer Module. This report contains the introduction, methodology, analysis, design, implementation, testing and project conclusion. Video Conference System which allow two or more locations to interact via two-way video and audio transmissions simultaneously. It has also been called visual collaboration and is a type of groupware. Video conferencing technology provides a video link between two or more people, which allows them to see and hear each other at the same time. It works like two-way TV. It digitally reproduces your image using IP (Internet Protocols) technology, a standard set of rules to enable data transfer, and Local Area Network (LAN) connection. The project methodology used in this project is Software Development Life Cycle (SDLC) Methodology. Video Conference System is developed using Java as the programming language and the MySQL as the database. To develop the real system, designs were made to covers the system architecture, user interfaces and database design. This system is hoped that the teaching and learning process will going smoothly and give many benefits to the users themselves.

## ABSTRAK

Projek yang telah dibangunkan adalah bertujuan supaya pensyarah dan pelajar dapat berkomunikasi melalui system dalam suasana pengajaran dan pembelajaran. Projek ini dikenali dengan nama 'Video Conference System for Classroom Teaching'. Terdapat tiga modul utama dalam 'Video Conference System' iaitu 'Video dan Audio Configuration' Modul, 'Whiteboard Sharing' Modul dan 'File Transfer' Modul. Laporan ini mengandungi pengenalan, kaedah, analisis, reka, pelaksanaan, menguji dan kesimpulan. 'Video Conference System' membolehkan dua atau lebih lokasi untuk berinteraksi melalui video dan suara dua hala penyiaran serentak. Ia juga dipanggil kerjasama visual dan adalah sejenis 'groupware'. Teknologi persidangan video menyediakan satu hubungan video antara dua atau lebih ramai orang, dimana mereka boleh melihat dan mendengar satu sama lain pada masa yang sama. Teknologi ini berfungsi seperti TV dua hala. Teknologi ini juga menyalin imej secara digital dengan menggunakan IP (Internet Protocol) teknologi, satu set teknik yang baik bagi membolehkan pemindahan data, dan Rangkaian Komputer Setempat (LAN), iaitu satu teknologi rangkaian. 'Video Conference System' dibangunkan dengan menggunakan bahasa aturcara Java dan MySQL sebagai pengkalan data. Sistem ini diharapkan akan dapat membantu proses pengajaran dan pembelajaran berjalan dengan lancar serta memberi banyak faedah kepada pengguna.

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## CHAPTER I

### INTRODUCTION

#### 1.1 Project Background

A video conference is a live connection between people in separate locations for the purpose of communication, usually involving audio and often text as well as video. At its simplest, video conferencing provides transmission of static images and text between two locations. At its most sophisticated, it provides transmission of full-motion video images and high-quality audio between multiple locations. The Video Conference System for Classroom Teaching is a network-based project that mainly provides video conferencing for classroom teaching environment.

Currently, the teachings were held traditionally in classroom at Universiti Teknikal Malaysia Melaka (UTeM). The problem will come out when the students miss some classes just because they have to travel here and there. Moreover, even the some of the lecturers also have to move from one place to another place just because they have only one class in one day. Besides that, there are three campuses which are Industry Campus (Ayer Keroh), Main Campus (Durian Tunggal) and City Campus (Hang Tuah). So if they want to attend a class, there will be some problems such as they have to travel from one place to another place that cause of wasting time and money.

By using this video conference system, the students or lecturers just have to go one place and yet the learning and teaching process still can operate smoothly. There will be no reason for the students to miss classes anymore. In addition, the lecturers and students do not have to waste their time and money to travel from one place to another place. The system will be as the medium to connect between the lecturer and the students.

Some knowledge is gain in developing this video conference system such as video and audio streaming protocol, file transfer protocol and whiteboard sharing protocol.

## 1.2 Problem Statements

- **More places to go**

The lecturers or students have to travel from one place to another place which increases the pressure, stress and fatigue from travel.

- **Time and money waste**

The lecturers and students somehow waste their time and money when they have to go from one place to another place to attend some classes.

- **Missing classes**

The students might miss some class just because they have to go from one place to another place which might be pretty far and take some times to reach there.

- **Time to provide class is limited**

The time for the lecturer to teach the class will be limited when the students come late to the class.

### 1.3 Objectives

- Make some research about the video conference for getting the idea and source for developing the Video Conference System.
- Analyzing the problems of the current situation and identify the requirements such as data, functional, non-functional, software, hardware and network requirements.
- Designing the system using the Java language as the source code and Netbeans IDE as the tool kit for developing the system.
- Developing the video conference system so that it can be implementing in Local Area Network (LAN).

### 1.4 Scope

This Video Conference System project will be implemented in Universiti Teknikal Malaysia Melaka (UTeM). The project will be more focus on Faculty of Information and Communication Technology (FTMK), Bachelor of Computer Network (BITC) students who always use CCNP lab. There are 16 personal computers provided in the lab. Each personal computer will be installed with the web camera and the Video Conference itself.

More further, this project will be developed using Netbeans IDE open source software as the platform for development, Java as the source code language, Java Media Framework (JMF) as the multimedia development toolkit and MySQL as the database server. Besides that, this Video Conference System will be applying in Local Area Network (LAN) connection.

## **1.5 Project Significance**

This video conference system gives many benefits and can be used by Universiti Teknikal Malaysia Melaka (UTeM) to make the learning environment more attractive and exciting. Further more, this system will mark UTeM as a hub of new technology in world-class learning system so that it can be practiced anywhere in the future.

Besides that, this system also will help to connect both the lecturer and students face-to-face virtually for learning and teaching without they have to move from one place to another place. Moreover, the system helps to reduce the time and cost for the lecturers and students to go to more places.

By using this system, specialized courses that UTeM could not offer because of cost or limited student interest can be shared by several institutes or colleges to provide cost efficiency. Flexibility in scheduling the classes to meet either an individual student's or a group of students' need is another major advantage.

## **1.6 Expected Output**

The expected output from this project is Video Conference system. The user can use the video conference for the education activities in the classroom. Besides that, the user also can employ other applications such as whiteboard sharing, private chat and file transfer function. Moreover, this system allow the students to join the class that been created by the lecturer through the video conference.

## 1.7 Conclusion

As the conclusion, this Video Conference System for Classroom Teaching will help the lecturers and students to communicate live face-to-face with each other for a learning process. Furthermore, video conferencing is a cost-effective way for educational institutions to deliver successful educational experiences to an expanded student population.

The problem statements, objectives, scope and project significance output had been identified from this chapter in order to develop a good system which will be used by the target users.

## **CHAPTER II**

### **LITERATURE REVIEW AND PROJECT METHODOLOGY**

#### **2.1 Introduction**

A literature review is a summary and explanation of key studies relevant to a proposed project. The literature review is one of the slightest understood parts of a research project. Besides a part of significant report in a research project, literature review also can be a bibliography essay that is published separately in a scholarly journal. The purpose is still the same which is to evaluate the scholarly literature relevant to the topic studied for both ways. This review will help to design the methodology and help others to understand the research.

In this chapter, the literature review is focus on the research of the current system and the new system. The purpose of a literature review is to explain how the question to be examined suitable into the larger picture and why this approached the topic. This section of a scholarly report allows the reader to be brought up the date concerning the state of research in the field and familiarizes to any contrast perspectives and viewpoints on the topic.

## **2.2 Facts and Findings**

This section will be discussing about the domain of this project, the existing system and finally the other techniques that applicable used in to develop this project.

### **2.2.1 Domain**

The domain of this system is Video Conference. A videoconference is a live connection between people in separate locations for the purpose of communication, usually involving audio and often text as well as video. At its simplest, videoconferencing provides transmission of static images and text between two locations. At its most sophisticated, it provides transmission of full-motion video images and high-quality audio between multiple locations.

Videoconferencing software is quickly becoming standard computer equipment. For example, Microsoft's NetMeeting is included in Windows 2000 and is also available for free download from the NetMeeting homepage. For personal use, free or inexpensive videoconference software and a digital camera afford the user easy - and cheap - live connections to distant friends and family. Although the audio and video quality of such a minimal setup is not high, the combined benefits of a video link and long-distance savings may be quite persuasive. (Whatis.com, 2007a)

#### **2.2.1.1 Development Tools**

##### **Integrated Development Environment (IDE)**

In computing, an integrated development environment (IDE) is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of a source code editor, a compiler and/or interpreter, build automation tools, and (usually) a debugger. Sometimes a version