SURVEILLANCE SYSTEM VIA INTERNET

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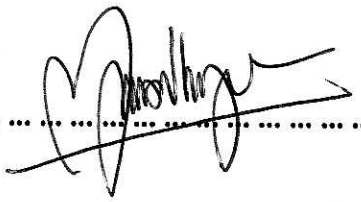
Signature : 

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Dedicated for my beloved father and mother...

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ABSTRACT

The technology of surveillance systems have been developed and utilized in most security systems. A conventional surveillance system uses a direct connection from the camera to the media output. However, this system is only accessible within its limited compound and may not be accessed anywhere further off its area. Without proper access to the surveillance system, the user is not in control of the area and may not be able to fully optimize the usage of the surveillance system. In this project, the internet is used as the remote connection to the camera. This method uses internet web browsers as interface for users to use the system where users can access and view the camera from the website. The system is separated into two parts, the client side and the server side. The server side holds most of the hardware appliances and a few programming. Most of the essential components of the system are factory-manufactured devices that were installed directly to the system. The client side is more software oriented where most of the parts involves programming. The main component of the client side is the web interface which requires web programming. Web programming languages such as HTML, PHP and JavaScript is used for the web interface.

ABSTRAK

Teknologi untuk sistem pengawasan telah banyak digunakan dalam sistem keselamat pada masakini. Bagi sesebuah sistem pengawasan yang biasa, ia menggunakan sambungan secara terus dari kamera kepada hasil keluarannya. Walaubagaimanapun, sistem ini cuma dapat digunakan dalam kawasan pengawasan yang terhad dimana ia tidak dapat di luar dari kawasan liputannya. Dengan ketiadaan sambungan kepada sistem pengawasan tersebut, pengguna tidak lagi dalam kawalan kepada sistem dan juga kawasan yang diawasi. Keadaan ini menyebabkan pengguna tidak dapat menggunakan kelebihan sistem tersebut sepenuhnya. Dalam projek ini, internet telah digunakan sebagai sebuah sambungan jarak jauk kepada kamera tersebut. Sistem ini menggunakan pelayar web internet sebagai sebuah antaramuka kepada pengguna dengan sistem. Dengan itu, pengguna akan dapat menggunakan kamera tersebut melalui laman web. Sistem ini terbahagi kepada dua bahagian, iaitu komputer pelayan dan pengguna. Bahagian komputer pelayan kebanyakannya mengandungi komponen perkakasan yang digunakan dan sebahagiannya aturcara perisian. Perkakasan yang digunakan adalah kebanyakannya merupakan produk yang dihasilkan dari kilang yang dapat digunakan terus oleh sistem. Bahagian pengguna pula adalah lebih menuju kepada konfigurasi dan penghasilan sesebuah perisian. Kebanyakan komponen yang digunakan pada bahagian pengguna dihasilkan menggunakan aturcara web seperti HTML, PHP dan JavaScript.

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LIST OF ABBREVIATIONS

CCTV	Closed Circuit Television
IP	Internet Protocol
FTP	File Transfer Protocol
DNS	Dynamic Name Server
HTTP	Hypertext Transfer Protocol
PHP	Personal Home Page to Hypertext Preprocessor.
DVR	Digital Video Recorder
kbps	Kilobytes Per Second
CS3	Creative Suite 3
WAN	Wide Area Network
IIS	Internet Information Services
ASP	Active Server Pages
URL	Uniform Resource Locater
DHCP	Dynamic Host Configuration Protocol
WWW	World Wide Web
HTML	Hypertext Markup Language

CHAPTER I

INTRODUCTION

1.1 OVERVIEW

Security is one of the important elements in our daily lives. It provides the confidence for us to be in control of ourselves and to our belongings. The technology of a CCTV Surveillance System has been around for quite some. Installing a CCTV at one's premises ensures them to be in control with the on-goings in an area. However, there are limitations to the viewing capability where it can only be accessed only within its closed compound. This project is about developing a Surveillance system which uses the web browser technology to monitor the CCTV system remotely through the internet.

CCTV Surveillance is the technology by which a house, office, or room are installed with a camera and can be monitored from an observation area without having to be exactly at the designated place in order to know who or what is on the place. The data of the CCTV camera is transferred through a wired connection to the receiver. The output is displayed through a software which converts the optical data of the CCTV to the display screen.

1.2. PROJECT OBJECTIVE

The objectives for this project is determined in a few points, the main objective is to create a surveillance system that benefits the wide-ranged connectivity of the internet. Secondly is to design a system with easy accessibility by integrating the CCTV surveillance capabilities with Internet browsers (Internet Explorer, Mozilla). Finally is to establish a CCTV Surveillance System Via Internet with the least possible cost by implementing the system to regular personal computers.

1.3. PROBLEM STATEMENT

One of the main concerns of this project is to solve problems with CCTV monitoring accessibility. The objective is to create a CCTV system that could be accessed from a remote location. A regular CCTV system can only be viewed from a local site and is not accessible from a different location. Usually the problem occurs whenever the user is out of the camera's compound but they still need to monitor the area. Figure 2.1 shows about the connection problem. The problem could be solved by creating a surveillance system via internet. The intention of this project is to create a CCTV system that could be accessed remotely using a broadband internet connection. Most of the systems available in the market today are very expensive. Therefore, this project intends to implement a much cheaper system using the same concept.

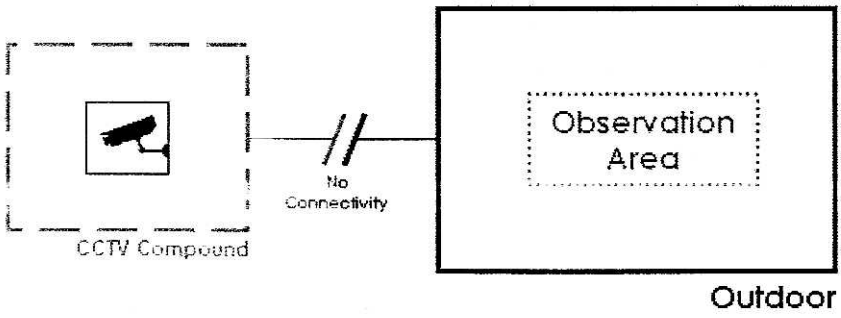

Figure 1.1 No Connectivity problems with conventional surveillance systems

1.4. SCOPE OF WORK

This project is started by information gathering about all the requirements needed to accomplish these matters. Basically, the searching begins by exploring information via internet, related books, journals and thesis. Resource from the library and supervisor's guidance will be used as and some essential information will use in this project. After all the information gathered, the project methodology will be sketch. The project development will be proceeding based on the methodology. Overall, this project is divided into three parts which is consists of Hardware Assembly, Web Application and also in creating a suitable webpage that will be used as the web interface. It is also needed to identify the appropriate scripting language to be used for the web development. It also involves about the software-hardware integration

1.5. PROJECT METHODOLOGY

The initial step in developing this project would be the literature review which is to identify the components used in this project. The second part is to do a few researches regarding the technical information that can be used in choosing the available methods that can be used to establish a connection between the server and client. The third part would be the client / server assembly where the image capture device (CCTV camera) is configured to the server and connected to the internet. The client uses the internet connection to obtain the output result.

The most important part is the programming part, in this part is need to spend a lot of time to create programming source code using C# and develop a program to perform the algorithm for the server to transmit the data to the internet. The client would also uses a server-side scripting to obtain the data from the server.

The final process is to testing the application that have been developed where it is tested by getting the output of the camera image through the web browser by using the internet connection.

1.6. THESIS OUTLINE

This thesis represent by five chapters. The following is the outline for this project in order to understand the whole report.

The first chapters of the thesis will explain briefly about the project background, objective of the project which needs to be achieved, problem statement of the project, scope of works regarding the project and methodology of the project.

Chapter 2 describes about literature review involved gather information of the project in order to complete the whole project. This study is focused especially on software Visual Studio 2005, Dreamweaver CS3 and also the client/server architecture.

Chapter 3 explains about the project methodology where how the project is implemented. The approach for meeting the goals and objectives and project life cycle phase is described in this chapter, along with the tasks needed to complete it.

Chapter 4 describes the project finding which includes the developed programs and GUI. This chapter also discusses and analyze about the project and algorithm of the data transmit process and also programming code. Furthermore, the output from web browsers which indicates the remote viewing is also included.

Chapter 5 will be the conclusion and suggestion to the project in future undertakings.

CHAPTER II

LITERATURE REVIEW

2.1 INTRODUCTION

In order to develop this project, some reviews and researches are made form articles, journals, reference books and also forums. All sources are used to compare and to familiarize with various ways to develop the project.

According to the research performed, all the related information considered as important are included in this report. Information regarding present surveillance technologies, CCTV cameras, software development and also online implementation are combined and used as reference for this project.

2.2. SURVEILLANCE

Surveillance is the monitoring of behavior. Systems surveillance is the process of monitoring the behavior of people, objects or processes within systems for conformity to expected or desired norms in trusted systems for security or social control. Surveillance in many modern cities and buildings often uses closed-circuit television cameras. Although surveillance can be a useful tool for law enforcement and security companies, many people have concerns about the lost of privacy. The word surveillance is commonly used to describe observation from a distance by means of electronic equipment or other technological means. [1]

2.3. CLOSED-CIRCUIT TELEVISION

Closed-circuit television (CCTV) is the use of video cameras to transmit a signal to a specific place, limited set of monitors. It differs from broadcast television in that the signal is not openly transmitted, though it may employ point to point wireless links. CCTV is often used for surveillance in areas that may need monitoring such as banks, casinos, airports, military installations and convenience stores. The increasing use of CCTV in public places has caused a debate over public surveillance versus privacy. People can also buy consumer CCTV Systems for personal, private or commercial use. A more advanced form of CCTV, utilizing Digital Video Recorders (DVRs), provides recording for possibly many years, with a variety of quality and performance options and extra features (such as motion-detection and email alerts). In industrial plants, CCTV equipment may be used to observe parts of a process from a central control room; when, for example, the environment is not comfortable for humans. CCTV systems may operate continuously or only as required to monitor a particular event. [10]

2.4. SERVER & CLIENT

The client-server software architecture model distinguishes client systems from server systems, which communicate over a computer network. A client-server application is a distributed system comprising both client and server software. A client software process may initiate a communication session, while the server waits for requests from any client.

The most basic type of client-server architecture employs only two types of hosts: clients and servers. This type of architecture is sometimes referred to as two-tier. It allows devices to share files and resources. The two tier architecture means that the client acts as one tier and application in combination with server acts as another tier. These days, clients are most often web browsers, although that has not always been the case. Servers typically include web servers, database servers and mail servers. Specific types of clients include web browsers, email clients, and online chat clients. Specific types of servers include web servers, ftp servers, application servers, database servers, mail servers, file servers, print servers, and terminal servers. [11]

2.5. WIDE AREA NETWORK (WAN)

Wide Area Network (WAN) is a computer network that covers a broad area. The largest and most well-known example of a WAN is the Internet. WAN is used to connect LANs and other types of networks together, so that users and computers in one location can communicate with users and computers in other locations. WAN is used to establish a connection between the client and server through web servers and client programs.