# REMOTE SURVEILLANCE SYSTEM VIA INTERNET WITH VOICE INTERACTION CAPABILITY

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*For my beloved mum and dad and my supervisor*

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## ABSTRACT

This project's purpose is to build remote surveillance systems that use a web camera with voice interaction capability via the internet in a local area network and also in outside network. The client could do monitoring at the place he want to for example the director of company can monitor his employee at office and other location through the Internet from anywhere he want. The main objective of this project is to develop one system that user friendly which is easy to use by using the Microsoft Visual Basic.

# ABSTRAK

Projek ini bertujuan membina sebuah sistem pemantauan keselamatan yang mempunyai kebolehan interaksi bersuara menggunakan kamera litar tertutup yang boleh dikawal melalui rangkaian Internet di dalam sistem rangkaian tempatan dan juga di luar rangkaian. Pelanggan dapat membuat pemantauan di tempat yang dikehendaki contohnya pengarah syarikat ingin memantau pekerjanya di pejabat dan sebagainya terus melalui Internet walau dimanapun beliau berada. Objektif utama projek ini adalah untuk membina satu sistem yang mesra pengguna dimana mudah diaplikasikan dengan menggunakan *Microsoft Visual Basic*.

# CONTENTS

**II LITERATURE REVIEW**



**III METHODOLOGY**

# LIST OF FIGURE

# LIST OF APPENDIX'S

# CHAPTER I

# INTRODUCTION

## 1.1 Overview

In the course of their evolution, western societies have developed and employed a diverse array of technologies to facilitate and co-ordinate activities, to produce and distribute goods, and to organize and administer their affairs. Modern societies have consequently come to be characterized by considerable technological complexity. Automated surveillance systems and remote monitoring devices now constitute an integral part of the prevailing technological infrastructure, enabling modes of transportation, education, government and commerce that would otherwise be unthinkable. CCTV systems, in particular, have increasingly become part of these larger infrastructures and are now ubiquitous in many urban centers. Until the mid-eighties, the deployment of CCTV systems had largely been limited to private spaces (Hempel 2001). The appearance of these systems in settings typically considered 'public' is a more recent phenomenon and, it is one which occurred with considerable alacrity in many countries. Diverse arrays of aims and objectives have motivated the introduction of CCTV into public spaces including public safety, deterrence, enhanced detection and increased response times. In the contemporary context, the predominant uses of CCTV in public spaces are in the management of risks, traffic jams, fire, accidents and crime prevention (Hempel 2001). Some have welcomed the appearance of CCTV in the public

sphere. Indeed, enthusiasts of such systems cite a wide variety of direct and spin-off benefits including a safer environment, reduced fear, raised property values, lower insurance premiums, enhanced visitor experience, true community partnerships, and a common community purpose. Others, however, are far less sanguine. Privacy advocates worry that the proliferation of such systems in public space will lead to the disappearance of privacy. Libertarians, on both the Left and Right, have seen such systems as another step toward an Orwellian system of centralized state social control. Human rights advocates contend that such systems may intensify an already problematic proclivity toward racial and ethical profiling in law enforcement and argue that they are an affront to privacy.

## 1.2 Objectives

- To develop the surveillance remote system (CCTV) Via Internet with voice interaction capability.
- To generate the software instructions as a graphic user interface to sign up, log in and monitoring the web camera.
- To apply the knowledge in hardware and software development to build the project.

## 1.3 Problem Statement

Network cameras have been around for years, but because of high-speed broadband, camera surveillance services are now affordable. Using network cameras, facilities can be monitored remotely via the Internet. The cameras transmit video images over Ethernet cables the same transmission medium used in information technology (IT) networking. Because most facilities already have this network infrastructure, network cameras can simply tie into it. If not, installing the infrastructure is relatively inexpensive. Plus, once in place, the

infrastructure can be used for other networking applications. The surveillance system via internet can make a life easy to monitor ours office, house and other place that CCTV located. With the voice interaction CCTV, the manager of the company not only can monitor but also can make a sound to accost their staff in real-time. The remote streaming and video broadcast capability can accomplished many scenarios.

## 1.4 Scope of Work

Scope of this project is to develop remote surveillance system with the capability of voice interaction. This system can help user to monitor the target place through the internet. This project involved software development which is to develop the software by using Microsoft Visual Basic to design the user interface for log in form, view image and so on. Then the Internet connection is configure to make the system can be remote from anywhere in the local area network and outside the network through the internet. To view the image captured by internet, the web page is create by using the Microsoft Publisher which is the application to design and distribute effective publications for web and others.

## 1.5 Thesis Structure

This thesis is having five chapters. Chapter I is about the project overview the introduction of project, objective, problem statement, scope of work, and project methodology.

Chapter II is embracing the literature review of the project which includes the concept, theory, perspective and the method of the project that is used in order to solve the problem occurs and any hypothesis that related with the research of methodology.

Chapter III is about the research methodology of the project. This chapter will discuss the method or approach that used in project development including in hardware and software aspect.

Chapter IV is about result and discussion in the project. It also discusses briefly on the observation, results and the analysis of the project that gain during the development of project. This chapter also consists of the recorded data analysis and the result of the project.

Chapter V is about the conclusion and suggestion after finished the project. The suggestion is for improvement process in the future research and the conclusion is an overall of the project.

# CHAPTER II

# LITERATURE REVIEW

## 2.0 Literature Review

To develop this project, several review and research are made from article, journals, reference book, internet and forums. This resource is to compare with present system and to develop the project. These important resources would be to learn of monitoring systems and surveillance is and way-it functions. Apart from that study also made to know method of use the Microsoft Visual Basic.

## 2.1. Surveillance

In this study surveillance is broadly defined as 'the observation of persons, vehicles, or activity taking place at some given location for the purposes of obtaining information regarding the activities and identities of the persons (Lyon 1997; Taylor 1999). Direct surveillance is taken to involves the physical presence and senses of a human surveillant, whereas electronic surveillance (of which CCTV is only one type) involves mediation and, typically (though not necessarily) distance from the object or context observed. Further distinctions can be drawn between different types of

surveillance: visual, auditory and olfactory. Faced with the demand that they develop more efficacious security measures and find more cost-effective crime prevention strategies, law enforcement agencies around the globe are, now more than ever, turning toward technological systems to enhance operational capacities, extend their reach and reduce costs [2].

Surveillance system 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. Clinical surveillance refers to the monitoring of diseases or public health–related indicators (for example symptoms indicating an act of bioterrorism) by epidemiologists and public health professionals. The word is pronounced [5].

Although the word surveillance in French literally means "watching over" [4] the term is often used for all forms of observation or monitoring, not just visual observation. Nevertheless, the all-seeing "eye in the sky" is still a general icon of surveillance. 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 loss of privacy.

### 2.1.1 Surveillance techniques

Packet sniffing is the monitoring of data traffic into and out of a computer or network. In some networks, data transmissions are sent only to the machine they are intended for, while in others, transmissions are available to all connected nodes (e.g., other computers), but are supposed to be processed only by the target computer. In the latter cases, it is possible to packet-sniff a computer by simply using another computer on the same network, without needing to place any software or equipment on the surveilled machine.

A surveillance program installed on a computer can search the contents of the hard drive for suspicious data, can monitor computer use, collect passwords, and even report back to its operator through the Internet connection. The most common are likely commercial spyware designed to collect marketing data. But, such programs are not limited merely to data collection; they can also use more malicious tactics, such as removing or modifying the data. These last are often called viruses, logic bombs, and, generally, malware.

Physical (hardware) surveillance devices ("bugs") are also possible. A relatively simple bug is a keystroke logger implanted in circuitry inside a standard keyboard, perhaps broadcasting key stroke sequences for pickup elsewhere. More sophisticated (and more easily detected) devices with access to more information can also, in theory, be inserted into, or onto, the computer itself. The disadvantage of hardware devices is that placement and retrieval requires physical entry into the place where the computer is stored, and thus almost entirely restricted (legally) to law enforcement agencies equipped with search warrants, except in situations in which such warrants are not required or may be kept secret as, for instance, some official break-ins under the US Patriot Act (sometimes termed sneak and peek), or in the case of electronic communications, warrantless surveillance by such organizations as the NSA (as has been authorized continuously against US citizens by President Bush since 9/11). In the US, statute and precedent have also given employers very wide latitude to gather data about employee use of employer's computers [1].

It has been shown that it is possible to surveil computers from a distance, with only commercially available equipment, by detecting the radiation emitted by the CRT monitor. And it has also been shown, by Adi Shamir, the high frequency noise emitted by a CPU includes information about the instructions being executed. More directly, IBM researchers have also found that, for most computer keyboards, each key emits a slightly different noise when pressed. The differences are individually identifiable under some conditions, and so it's possible to log key strokes without actually requiring logging software to run on the associated computer. Another method of surveilling

computer use (key strokes, display images, etc) is video cameras, which are becoming small enough to be easily hidden from casual inspection in which case the surveillance can be surreptitious.

### 2.1.2 Computer Surveillance

Computer surveillance is the act of surveillant people, generally their computer activity, possibly without their knowledge. Computers make excellent surveillance tools because they can be programmed (even surreptitiously) to record data without their owners' knowledge or consent. Most computers have connections to networks, which can be exploited (through security cracking) to gain access to any confidential data that may be stored on the computer. Additionally, if someone is able to install certain types of software on a system, they can turn it into an unsuspected surveillance device [1].

This system is involving the computer as the main operation of connection between hardware and software and remote monitoring behind client and server.

## 2.2 Closed-Circuit Television

CCTV, or Closed Circuit Television, refers to electronic monitoring systems which make use of video cameras, connected by means of a ‘closed’ (or non-broadcast) circuit, to capture, collect, record, and/or relay visual information about the event-status of a given space over time. The broad sweep of this definition is attractive for our purposes in so far as it allows us to bring together for consideration a wide range of studies which have queried the effects of various CCTV systems[5]. However, it needs to be emphasized that the CCTV systems addressed in each of the studies under consideration were, in certain respects, unique. It also needs to be understood that these systems are not static they can be modified and upgrade [2].

There is also some evidence to suggest that the effect of a given system will be influenced by the approach taken to its installation if a high profile, public campaign accompanies installation the effects are often more dramatic. CCTV surveillance systems have been adopted for use in public spaces in many countries. While these systems were originally embraced for their deterrent effect on crime and touted for their salutary effects on public fear, the fact is that no body of scientific evidence actually existed at the time they were adopted that could either support or refute claims to such effects. Today, the situation is different: there is a significant body of research on CCTV, though it must be acknowledged that the literature is still in its nascence and hence, that many questions are left unanswered. Notwithstanding this caveat, it is quite clear that there is a need for an independent assessment of the record of evidence in order to determine what we know about the effects of CCTV. This review is a response to that need and describes what we know about the impact of CCTV on crime and crime prevention; on the criminal justice system more generally; and, on the public's feeling of safety [2].

Closed-circuit television has been in use for security applications for a long time, but technological improvements such as thermal imaging, digital television, and software products have enhanced this capability to new levels of performance. These levels of performance are being capitalized on by security companies to expand their market share (retail stores, businesses, city streets, banks, ATMs, airports, train stations, bus stations) anywhere other than their homes or in remote locations. And this trend can be expected to continue. Application areas where significant growth can be expected include elementary and secondary schools and colleges and universities.