REMOTE SURVEILLANCE SYSTEM FOR MOBILE APPLICATION

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——————————— ABSTRACT ———————————

This paper presents a final year project on the design and development of a remote monitoring system for mobile applications. Services of this system are useable for clients with not only PC's but also mobile devices which has GPRS. It is often used as a force multiplier or asset protection device for areas where it is not possible, practical, or affordable to install a cable network. It provides security for remote location where it is difficult to monitor the area.

Keywords: Surveillance, camera, mobile, image compression.

1. INTRODUCTION

The surveillance means "to monitor". Security in residential complexes is restricted to limited geographical locations. Reason for this is the traditional devices and process used for securing any apartment or complexes. The on demand video surveillance and video capturing are accessed in a limited location from a central setup for surveillance. Suppose owner place a camera in one particular room which is to be monitor for security purpose, if owner wants to go to remote location and still he wants to monitor that same room for security, and then he can make use of remote surveillance system by use of mobile through internet facility. This is a new project and thus is not an extension of any existing project. However, this can be used or can prove useful to a project targeting security setup which are limited to specific location and are hardware based system.

Remote video surveillance is the use of cameras and other surveillance equipment to monitor properties and assets from a separate location. It is often used as a force multiplier or asset protection device for areas where it is not possible, practical, or affordable to install a cable network. It is commonly deployed in city and campus applications, or any place where it is difficult to monitor the surroundings using common means. Remote surveillance is a great opportunity to use wireless technologies for connectivity due to the flexibility they provide.

Today software is the most expensive element of virtually all computer-based systems. Software project estimates can be transformed from a black art of a series of systematic steps that provide estimate with acceptable risk. Lines of code and function point data are used in two ways doing software project estimation.

(1) As an estimation variable to size each element of the software and,

(2) As base line matrices collected from past projects and used in conjunction with estimation variable to develop cost and effort estimation.

The project is motivated by a need of developing, a very simplistic yet powerful and most importantly, cost-free implementation of Security Surveillance System. Learning and understanding all the under-lying concepts thereby, also forms a subset of the motivation.

Anyone finding the need to keep a watch on security through remote location is a potential customer of the product. This is a new project and thus is not an extension of any existing project. However, this can be used or can prove useful to a project targeting security setup which are limited to specific location and are hardware based system.

2. EASE OF USE

2.1. Client/Server Architecture

Users can issue a variety of remote demands, permitting more than one client to view and control cameras simultaneously and more than one process to access data for more than one purpose, such as automatic remote archiving, searching and/or exporting data.
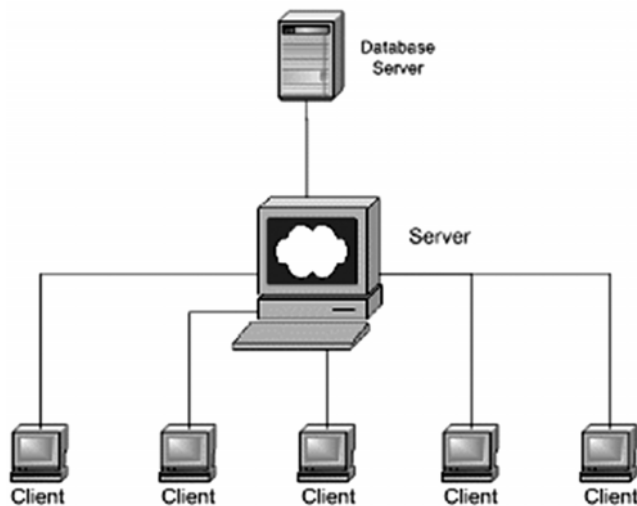
Figure 1: Client/Server Architecture.

2.2. Data Storage

As today's security issues grow more complex, surveillance concerns often extend beyond closed doors and well into public spaces. To combat such evolving threats, outdoor and mobile surveillance has become a key element of comprehensive security solutions. While mobile surveillance is rapidly gaining prominence as an effective surveillance tool among specialist industries, such as law enforcement and the military, outdoor surveillance has become increasingly important in safeguarding public and organizational interests. These diverse video surveillance environments highlight the growing importance of HDDs, which enable vast quantities of critical video data to be stored efficiently, reliably and securely.

2.3. Data Archiving

Data storage can be automated and distributed, enabling both public and private enterprises to utilize centralized data elements for security, control and convenience.

2.4. Easy Integration

Quality digital video images streamed from high-definition cameras are easy to integrate with post-processing applications, such as facial recognition and object tracking.

3. SYSTEM ARCHITECTURE

The architecture being used for this software is the Two Tier Architecture. In Two Tier Architecture, the client machine acts as a front end communicates with an application server. The application server in turn manipulates data with help of admin to access data. Two tier applications are appropriate for large as well as small application, and for application that run on the World Wide Web. The two clients in the architecture are mobile and web portal.
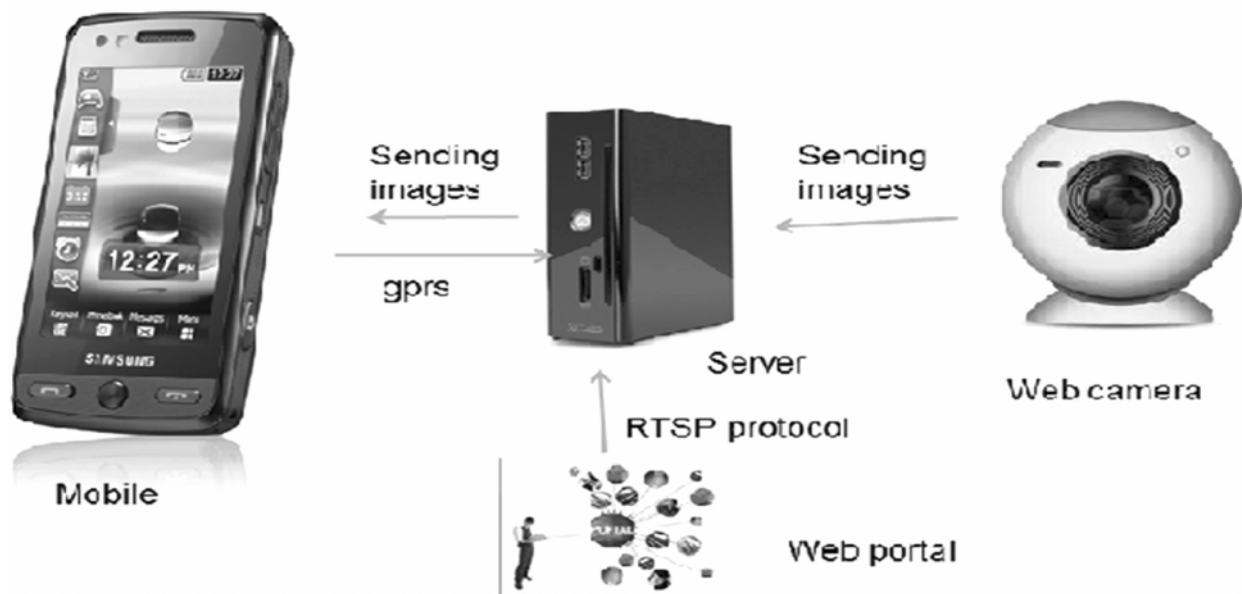

Figure 2: System Architecture

First the surveillance device i.e. camera will capture the images and send it to server, server will compress those images and store it in database. when mobile will send request to server through GPRS the server will send those compress images to mobile through internet. A web portal or links page is a web site that functions as a point of access to information in the WWW. A portal presents information from diverse sources in a unified way. Apart from the standard search engine feature, web portals offer other services such as e-mail, news, stock prices, information, databases and entertainment.

4. MAJOR OBJECTIVES

4.1. Operating System Support

As we have chosen the java language for implementing this project, java is a platform independent language. So this project can be implemented in various operating systems.

4.2. Sensors

A sensor (also called detector) is a device that measures a physical quantity and converts it into a signal which can be read by an observer or by an instrument. A sensor is a device which receives and responds to a signal. A sensor's sensitivity indicates how much the sensor's output changes when the measured quantity changes.

4.3. Multitasking

It means at a time performing more than one task simultaneously. In this project monitoring, recording, playback, and remote monitoring are done simultaneously.

4.4. Video Streaming with High Bandwidth

Bandwidth is a key performance measure of remote communication. It defines how many bits can be transmitted every second, who means the more bandwidth available, the more data can be sent in a given period of time. Remote surveillance via mobile uses IP networks that have the flexibility to allocate bandwidth as needed and reserve the unallocated bandwidth for other data using RTS protocol.

4.5. Compression of Image

Image compression is to reduce irrelevance and redundancy of the image data in order to be able to store or transmit data in an efficient form. To achieve high communication speed and delay of frames in mobile devices, the image capture by the surveillance device is compressed to reduce the size of the image then it is send to mobile device via internet. This prevents of frame lagging and delay in communication.

5. EXISTING SYSTEMS

5.1. Wilife Digital Video Surveillance Systems

Wilife is a common software, using this software & our Wilife online account we can monitor live video from our cameras from anywhere in the world, at no additional cost using windows media enable internet browser or cell phones. It is a wireless security system in a security location. The main advantage of wireless system is the hardware for connection is absent. The feeds from the security devices or cameras are capture at the central location. The surveillance devices are wireless and make use of radio transmitter. Radio transmitters are limited in scope and they cannot be extending to wider locations.

5.2. 2M CCTV Video Surveillance System

CCTV surveillance systems are designed to be trailered to our need from a small home to a large co-operation. This is a traditional surveillance system where CC-TV is connected with the central monitoring device through cables. The captured imaged is examined by the central monitoring device.

5.3. Extreme Surveillance System

This system uses smart chip based surveillance devices which are capable of interfacing directly with the computer through RS-232 cable. These systems have software GUI which controls the surveillance device.

6. CONCLUSION

The project is motivated by a need of developing; a very simplistic yet powerful and most importantly, cost-free implementation of security surveillance system. Learning and understanding all the underlying concepts thereby, also forms a subset of the motivation. Anyone finding the need to keep a watch on security through remote location is a potential customer of the product.

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