INTERNATIONAL JOURNAL OF PURE AND APPLIED RESEARCH IN ENGINEERING AND TECHNOLOGY

A PATH FOR HORIZING YOUR INNOVATIVE WORK

REMOTE SURVEILLANCE SYSTEM VIA MOBILE

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Abstract

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. A video surveillance system is only as reliable as the network it is connected to, so careful planning of the network technologies and equipment choices are crucial. 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.

INTRODUCTION

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.

Users cannot afford to buy expensive surveillance devices for their personal use as they are expensive and need high setup and connections. It is difficult to keep a watch on security from different remote locations. As it need standard platform to access surveillance devices and secure connection protocol. This prevents the user for keeping a watch on security location from any remote place via a standard platform of accessing remote surveillance device.

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.

IMPORTANCE

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. It is also used to reduce the hardware dependency for the security purposes. As it is totally software based system, it is user friendly.

Problem Definition:

- The mechanism for accessing surveillance devices should be capable of accessing devices from any remote location. This would allow user to keep a watch on security location from any remote location.

- The communication and the platform needed to access surveillance devices should be standard channel and device.

- The communicating and accessing device should be fully based on software. This will make easy for user to control and access surveillance devices.

- Accounts for all users should be maintained. This will make proper utilization of communication bandwidth using standard software based platform. This allows user to access surveillance devices from a standard user friendly platform like web portal or mobile devices.

Solution:

- Providing surveillance of security from remote location.

- The software based platform use to access surveillance devices will help user with more user-friendly interaction with the system.

This will reduce the device cost and scope of operating of the system will be wider in location.

Following fig. shows the overview of the remote surveillance system which is the problem solution.

Fig.: System Overview

SYSTEM BEHAVIOUR

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friendly platform like web portal or mobile devices.

Providing surveillance of security from remote location:

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SYSTEM ARCHITECHTURE:

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. The business logic of the application, which says what actions to carry out under what condition, is embedded in the application server, instead of being distributed across multiple clients. Two tier applications are appropriate for large as well as small application, and for application that run on the World Wide Web.
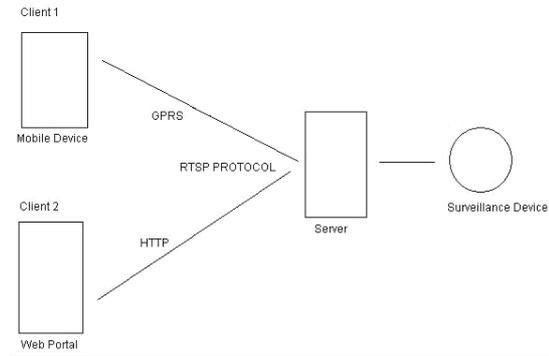

Fig.: System Architecture

OBJECTIVES

Video Streaming with High Bandwidth

Bandwidth is a key performance measure of remote communication. It defines how many bits can be transmitted every second, which 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.

Accessing Surveillance Device functions from remote location

Many of the function related to surveillance device like changing position of security camera's etc can be performed via remote procedure calls using data streaming

between client and the server. It helps executing different functions of surveillance devices from remote location.

Compression of Capture Image

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.

Advanced Features

Through Remote surveillance we intend to spread security watch setups in a wider location. This will also make use of software based watch instead of using hardware. This will make user more comfortable to interact with the system.

CONSTRAINTS AND LIMITATIONS

Hardware Limitations:

For efficient use of the product broadband internet connection is recommended with a possibly minimum of 128kbps speed.

For mobile phones, GPRS is required.

Underlying operating system should be

Windows with Run Time Java Environment running on it.

Parallel Operations:

The product would be able to support parallel operation in terms of connecting with multiple users.

Higher-order language requirements:

Currently, the system will only be available only in English language.

VALIDATION CRITERIA

Bandwidth is a key performance measure of remote communication. It defines how many bits can be transmitted every second, which 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.

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IMPLEMENTATION DETAILS

JAVA

Java is yet another Object Oriented Programming Language just like C++. Java Beans exciting technology that is at the forefront of Java programming. Beans are important, because they allow you to build complex systems from software components. These components may be provided by you or supplied by one or more different vendors. Java Beans defines an architecture that specifies how these building blocks can operate together.

A JAVA BEAN is a software component that has been designed to be reusable in a variety of different environments. There is no restriction on the capability of a Bean. It may perform a simple function, such as checking the spelling of a document, or a complex function, such as forecasting the performance of a stock portfolio. A Bean may be visible to an end user. One example of this is a button on a graphical user interface.

SERVLETS:

Servlets are small programs that execute on the server side of a Web connection. Just as applets dynamically extend the functionality of a Web browser, servlets dynamically extend the functionality of a Web server.

MODULAR DETAILS

There were two main modules of the project.

1. Storing the images captured by the surveillance devices like cameras into the database at the sever site.

Transmitting the data (i.e. stored images) from the server to the mobile devices handled by the clients or users.

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INTERFACE DETAILS

Java is connected to the ACCESS database through the *jdbc* connectivity. Also the client application is connected to the database on the server through WAP and WML (Wireless Markup Language).

The client or the user interacts with the system through the WinWap simulator.

APPLICATIONS

Remote Surveillance is mainly used for security purpose. It provides the security which is mainly based on the software. It gives the security on large scale application with great ease. It also provides security to small scale application like home security.

FUTURE ENHANCEMENTS

There is no end to human creativity. Thus there is no end to improvement to an existing system. Any existing product can be improved and changed considering the users and market scenario. We can future enhance our project so that it can run any operating environment.

CONCLUSION

The undertaken project has been completed to pure satisfaction of internal project guide. Throughout the development of the project we learned abundance of new skills (like Java technology) ranging from vital experience in working as team like delegating and compromising the skills to learn new and technologies. We did learn in a sense the hard way that scheduling really is a fundamental part of software development. The images are successfully captured and displayed on the mobile. Simple and ease GUI will allow a user friendly environment to work on our software.

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