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Interfacing Surveillance Camera with mobile

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Abstract : *Video surveillance means to use cameras and other surveillance equipments to monitor properties and assets from a different location. In this paper ,I will be implementing video surveillance using wireless networks. The main objective is to create an application for interfacing surveillance camera with mobile device so that the manager/user of the company can have an eye on the staff. 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. Staff monitoring is the main result of this project which will help the manager/user to get a view of the happenings inside the company.*

Keywords - *Mobile Device, Staff Monitoring ,Surveillance Camera , Video Streaming,*

1. INTRODUCTION

Security is the degree of protection against danger, damage, loss or any criminal activity. Security is defined as a condition so that one can develop and progress freely. For security reasons, nowadays many organizations are setting up surveillance cameras. Video has been an important media for communications and entertainment for many decades. This paper mainly deals with staff monitoring. The surveillance camera captures the images and store them in DVR. DVR is Digital Video Recorder. All the captured images and recorded videos are stored. Then, these images as well as videos are sent to the server. These images and videos received from the DVR are stored in the server's database according to date and time. Now, using the video streaming concept and video compression, the server sends these images and videos in the form of packets through wireless connection using UDP. These images and videos are received by the authorized mobile device and then these videos are de-compressed to achieve proper picture quality. 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.

1.1 Problem Statement

The problem statement is "An application to interface surveillance camera with mobile device so that the manager can keep an eye on the staff".

The four modules that are to be implemented are:

1) Website: Using this module I will be uploading the videos captured in the company on a web page.
2) Database: In this module I will be storing the uploaded videos.
3) JSON: Using this module transferring the videos from server to mobile is done.
4) Video view: The uploaded videos are viewed on to the mobile device.

Detailed problem statement:

As the paper explains about the interfacing of the surveillance camera and the mobile several modules as discussed above would be used . Initially I will be generating a website on which the videos captured by the surveillance camera will be uploaded. The video will be uploaded manually. The videos that are being uploaded are already recorded by the surveillance which is stored in the DVD. The videos are stored in the database. The database consists of the user name and the password used for the login in the "View_ video". Using this user

name and password the user of the app can be identified whether the user is the real one or the fake one. The videos can be used to match with the standard images which will be stored in the database. By matching with the standard images one can detect if there is any theft occurring which will help to provide security.

The videos that are stored in the database are viewed on the mobile using an app. This app is called the "View_video". The video is viewed on the mobile without any kind of buffering in it. The videos are undergone with the streaming process first so that the videos will be streamed to transmit the data packets from the server side to the end user. The streamed videos are also compressed to increase clarity of the videos.For the communication between the server and the mobile we are making use of the Json technique. Json helps to interact with the servers database where videos are stored with the mobile device where videos are to be played. Json technique helps in transmission of video from the server to the mobile.

2. OBJECTIVE

The main objective of this paper is to view the images and videos which are captured by the surveillance camera on the mobile device. Streaming of these images and videos is done from the system so as to display them on the device. In case of any intrusion, we can send notifications or SMS alerts on the authorized devices. 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

3. SCOPE OF THE STUDY

The scope of this system is to provide an easy interface between surveillance camera and mobile device in an easy & efficient way. In this paper, the manager of the firm can easily access the happenings of his firm from an area that is far away from the vicinity. Thus, even though he is far away from the firm, he can have a view of the shop floor, staff & store . Moreover, for security purpose, this project can be helpful.

3.1 METHODOLOGY

1) Required Interface :Camera
   This is required to capture the images. The images or videos captured by the camera are recorded with the help of DVR. The input to this will be the image and video to be captured and output will be in the form of captured video and images. Initially, it is checked whether the surveillance system is initialized or not.Then check whether camera is connected or not. If the camera is not connected to the system, then display error else system will continuously start to capture images.
2) Required Interface :DVR
   The main work of the DVR is to store video s and images that were earlier captured by the surveillance camera. The input for the DVR will be signal from camera. All the images or videos that are captured by the camera will be continuously recorded into the DVR. The output that will be given by the DVR will be in the form of audio and video signals that are given to receiver(monitor).
3) Required Interface :System/ Server
   Procedure: To store the recorded video, according to date and time. In this, whatever images and videos we are getting from the DVR or the images and videos captured by the surveillance camera is stored into the server.
   The storage is made in such a way that the videos as well as images are stored according to date and time. Thus, due to this way of storage, we can know which are the videos recorded at what date and time. Thus, if the manager wants to have a look at the recorded images or videos, then he can directly view the images or videos which he want by seeing the date and time factor.

Input: The signal received from DVR is the input for the server or system. All the received videos and images will be stored in the server. The size of database will be dependent on the number of videos and images and also their size.
Output: The output of the server will be to display the recorded video as well as images.

Method: The recorded videos will be uploaded over the web browser. This uploaded video will thus be downloaded and then viewed on the mobile through the app.

4) Required Interface : Mobile device
Procedure: display the recorded video.
Input: compressed video received from web server.
Output: displaying the video as per requirement.

Method :

1. provide login for authentication.
2. check validity.
3. if valid then view the video.
   else
   go to step 1.

4. CONCLUSION

As discussed in this paper interfacing surveillance camera with mobile device is to be done so that the manager/user of the company can have an eye on the staff by using various modules.

As a future direction, work has started on implementing this system in Advent Engineers, A-12 MIDC, Malegaon, Sinnar, Nashik. The App called View_video using which the user can login before and then view the videos of the surveillance camera. On this app the videos are played After developing this application, a person can monitor the area anywhere at any time as and when he wishes to. nd also security can be achieved. One cannot see the live videos due to high band- width. For this VSAT(Very Small Aperture Terminal)which costs nearly about 20-25 lakhs for installation will be required. Since the emulator for every mobile is different, so it would not be possible to run the application on other mobile devices other than android. It is difficult to view the images of surveillance camera if there is no internet connection.

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