Desktop Monitoring using Spydroid

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Abstract— **This paper presents a technique to provide security to desktop through android mobile phone. If any unauthorized user is trying to access the computer the videos of the whole activity will be provided to the authorized user. For this an android application will be installed on the user's mobile phone. So as to make owner know that these videos are available, a message will be sent to his/her cell phone and then the owner will start the android application and view these videos and also generate a shutdown command that would trigger the computer to shutdown automatically**

***Index Terms*— Android, Video Streaming, Client/Server.**

I. INTRODUCTION

In today's era when everything is highly secured, it is the requirement that we should also secure laptops and desktop. Desktop is the entry point to the information resources. If the security of the desktop is not too good, potential intruders can easily by-pass the first obstacle. It is necessary to ensure that desktop has the right configuration that allow authorized user's entry, deny unauthorized user's entry and detect and block any attempt to by-pass its security parameters. Live video streaming is used by the media industry to telecast live shows on television or computer or on mobile phones. Live video streaming can be used for security purposes, where it helps in informing the authorized user about illegal penetration or violation of the security of the desktop through a message alert and also provides live videos of the penetration activity on his android mobile phone. Most of the times it happens that even if we have a well-organized and efficient security system illegal access attempts to violate security. The user must be able to know about the intrusion that is taking place, so a simple android application can be used. Using a web cam live videos are transfer to the intended mobile phone regarding the intrusion such that the user gets to know about the unauthorized access.

The paper presents idea about building live video streaming that can be merge with the security system to provide better security than before. If an unauthorized person tries to access data from computer then at the start the user will face a prank message and after getting caught the information will be provided to authorize user. The webcam of the computer will start recording the face of this unauthorized user. Along with this the video will also be taken showing what the user is doing on the computer.

These two videos will then be sent to the authorized user of the computer and the user will be able to see these videos on his android cell phones. For this an android application will also be made available to ensure that these videos are available to the authorize user of computer. So as to make owner know that these videos are available, a message will be sent to his/her cell phone and then the owner will start the android application and view these videos.

As soon as the alert text is sent onto the user's cellphone, the user will be allowed to view videos as a stream and also generate a shutdown command that would trigger the computer to shutdown automatically.

Video Streaming

The basic idea behind video streaming is to split the video into parts, transmit these videos into succession, and enable the receiver to decode and playback these video as these parts are received, without having to wait for the entire video to be delivered.

Video streaming consists of following steps:

1. partition the compressed video into packets.
2. Start delivery of these packets
3. Begin decoding and playback at the receiver while the video is still being delivered.

Basic Problems in Video Streaming

Video streaming over the Internet is difficult because the Internet only offers best effort service. That is, it provides no guarantees on bandwidth, delay jitter, or loss rate. Therefore, the important goal of video streaming is to design a system to consistently deliver high-quality video over the Internet when dealing with unknown and dynamic:

- Bandwidth
- Delay jitter
- Loss rate

The bandwidth available between two points in the internet is generally unknown and time-varying. If the transmission from sender is faster than the available bandwidth then congestion occurs, packets are lost, and the video quality drops seriously. If the sender transmits slower than the available bandwidth then the receiver produces sub-optimal video quality. The aim to overcome the bandwidth problem is to calculate the available bandwidth and then match the transmitted video bit rate to the available bandwidth.

The variation in end-to-end delay is referred to as the delay jitter. Delay jitter is a problem because the receiver must receive/decode/display frames at a constant rate, and any late frames resulting from the delay jitter can produce problems in the reconstructed video, e.g. jerks in the video [6]. This problem is typically addressed by including a play out buffer at the receive [7].

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The third fundamental problem is losses. Depending upon the particular network under consideration, different types of losses can occur. Wireless channels are typically afflicted by bit errors or burst errors. Losses can have a very critical effect on the reconstructed video quality. Video streaming system is designed with error control to overcome the effect of losses.

II. Related Work

Dr. Khanna[1] has proposed the technique which shows how the PC can be controlled from remote place with smartphone device with the help of Internet. It means the monitor of PC will be seen in mobile. It turns the phone into a wireless keyboard and mouse with touchpad, using your own wireless network. This application can be performed on android based mobile. It requires server application for the computer.

Chaitali Navasare, Deepa Nagdev,Jai Shree [2] proposed an application named PocketDroid, using which allows user to connect to any computer having Server Application running on it. It is an Android based Mobile Application for controlling a Target PC. User can have full access of the Target PC, provided its IP address is known. PocketDroid consists of Client and Server application.

Prof. A Kadam,R. Karpe, A. Hegde, A. Kinge, R. Mohite [3] proposed the application where the user just needs to register all the computers which he need to keep under vigilance. When some of the applications which are kept in the black list are opened then the computers will send a notification to the android user and the user can thus terminate this restricted application. This application contributes for IT Administrators to remotely control any computer present in the network, allowing them to remotely troubleshoot and solve problem easily and faster. It can help the educational institutions to monitor the labs, to restrict the use of forbidden sites or applications. The application also helps one to monitor his own PC when he/she is away from the work station.

Anjumara Inamdar, Heena Aggarwal, Sayali Kadam, Mayuri Kadhane [4] proposed method to access the remote desktop through android mobile phone. Using networking user can access the desktop and manipulate the desktop, capture the screen, zooming and panning, transfer the files through any part of world due to network connection irrespective of various platforms like windows, linux, and mac. For this purpose the COMPDROID is developed which will be installed on user's Android mobile phone and servlets will be invoked on server side i.e. remote desktop.

Archana Jadhav,Vipul Oswal,Sagar Madane,Harshal Zope,Vishal Hatmode [5] presented the Virtual Network Computing based architecture to access the desktops of remote computer systems with the use of a android based cellular phone. Using this architecture user will be able to access and manipulate the desktops of remote computers through a VNC viewer that will be provided on the user's cell phone. The Conditions to be followed are that a VNC server must be installed on the person's computer which will be monitored and it must be connected to a Wi-Fi network. The user can access and manipulate the desktop within the Wi-Fi range irrespective of various platforms like windows, mac or linux. The image of the desktop is compressed before it is transmitted to the cellular phone.

III. Proposed Work

The basic aim is to provide glitch free streaming of the desktop surveillance video. Using live video streaming the security can be provided to the system. An android application spydroid is also developed for the android mobile to control the desktop from android mobile. As compared to the computers, mobile phones have a very small and restricted memory and therefore it would not allow storing huge videos, thereby making the buffer memory of both the mobile and any database for computer very healthy back ends for our software.But still in order to be safe the TCP/IP protocol stack will be implemented, the videos that are being sent from the computer are safely stored on a Third-Party server. This is nothing but the FTP (File transfer protocol) host. There are several websites that allow FTP hosting these days, and there are several software's available in the market that make your hosting task a lot easier. The android application using either 3G or GPRS technology connects to the FTP host as a client, and the videos are buffered as a stream of images onto the cell.

Fig 1 shows the basic architecture of proposed system. The webcam is used to capture the video of the unauthorized user as and when he falls for the trap. Thereby, allowing the authorize user to know the identity of the unauthorized user whereas in the background the software would record internally each and every move. Thus the user would know what folders and files were modified and to what extent.

The buffer would be periodically flushed in order to avoid overlapping or loss of data. These videos would then be transferred on to the mobile server which would eventually trigger an alert on the client mobile. The client would receive a normal SMS from the server.

This SMS would inform the client Mobile about the unauthorized access and would require the user to start android application on his cell to receive the videos.

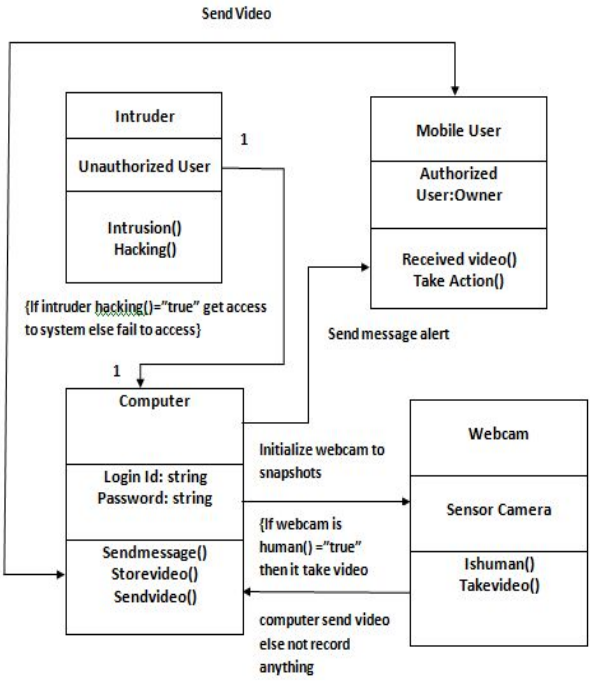

Fig 1: Basic Architecture of Proposed System

The proposed system involves communication between computer and android phone. Data can be transferred using ports i.e. socket of android phone and socket of computer.

The designing is divided into following steps

Hardware Detection: It includes Hardware detection and interface between the system and webcam. It includes initialization of Hardware, establishing communication between them.

Hardware Access: It includes accessing hardware to retrieve data and viewing image captured by the web cam.

Motion Detection: It includes motion detection by the sensor camera that sense human movements and starts the video recording.

Storing Video: It includes storing of videos captured by the webcam onto the computer for sending to the Intended recipient.

Alerts through SMS: It includes sending message alerts on the intended mobile phone about the intrusion as soon as human movements are there in front of the camera.

Streaming on Mobile Phone: This module involves streaming videos from the server machine to the intended mobile phone and make live videos available to the owner of the system.

CONCLUSION

This paper proposes an architecture which will be able to monitor the computer using android mobile phone. Live video streaming can enable a person to keep watch on the security system even if he is in remote location and also can take the snapshots of the videos and can also save images on his mobile phone. Mobile phones capacity to store videos is quite less, not much video can be stored.

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