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On A Single Display Multi-View Video Over Internet Protocol (SDMV-VOIP) Streamer

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Abstract

The tremendous loss of lives and properties that may be attributed to insurgencies in recent times worldwide has become source of worry to all and sundry. The situation is so alarming that relevant authorities are searching for the urgent means of checkmating it without delays. This paper unraveled the Gaius in single display multi-view video over internet protocol (SDMV-VOIP) based security system. It incorporate remote streaming, viewing and storage of live video feeds and remote motion control of cameras; all monitored with the use of a Personal Digital Assistant (PDA) and or Personal Computers (PC). The presentation in this paper is software-based and the software application was developed using Java Script, Cascading Style Sheet (CSS), Hypertext Markup Language (HTML) and Hypertext Preprocessor (PHP) programming language to enable the proper monitoring and control of the entire system in which video feeds from the cameras are streamed for view and storage on PC.
Keywords: SDMV-VOIP, IP Camera, CCTV, PDA and PC Interfacing.

INTRODUCTION

The internet is doubtless, one of the greatest success example ever observed in the information technology world. Its evolution can be explained in two complementary views. On the one hand, advances in communication and information technology have allowed rapid increase in transmission capacity in both wired/wireless domains. On the other hands, users are becoming more exigent and asking to transmit larger amounts of data of multiple natures. In this paper, transmission of single display multi-view video over internet protocol (SDMV-VOIP) networks is particularly challenging. SDMV-VOIP is a technology that allows multiple streaming of videos to be carried over internet-connections or other networks using internet protocol (IP). This technology is often refers to e-surveillance, web-attraction and remote monitoring. For example, in banking institution, the related problem has been inability to display at least maximum of 15 cameras in a single display. With this paper, maximum of 100 cameras can be display in a single display multi-view video over internet protocol. Yet any view can be emphasized for monitoring. Thus, there is room for more camera input (minimum of30 cameras) and upgradeable depending on the systems infrastructures.

LITERATURE REVIEW

Single display multi-view video over internet protocol (SDMV-VOIP) affects just about all security related industries, government agency and non-governmental agency worldwide. Recently, single display multi-view video over internet protocol is rapidly growing and becoming a mainstream security services, not only because of the lower cost compared with traditional Close Circuit Television (CCTV), but also it convergence technologies of video and voice communication, Heldas, Mike (2013).

It is truly interesting to see one thing lead to another as far as technology is concerned and to see how different technologies play on one another. Automated Transfer Machine (ATM) was the best way to send video and audio for some times, but things changed and an internet protocol came in and took its place, Caitlina Fuller (2007).

According to Kamenetskaya (2003), video communication has revolutionized the way people stay in touch with one another, discuss business, learn and teach. Application of video communication over IP includes Internet Telephony, Video Conferencing, Collaborative Computing and Distance Learning. Many enterprises are in the process of setting-up or have already set-up single display security equipment to conserve human-services. Enterprises are especially attracted to video over internet protocol applications because these provide free unlimited video streaming capacity at a secure platform as most enterprises already have.

In addition to the usefulness of these applications in homes and offices, as the use of handhelds and the accessibility in which has become available to a wider audience, the range of voice over internet protocol (VOIP) and video voice over internet protocol (VVOIP) applications get even further extended to mobile systems. In research institutions and businesses, many public areas, such as Newberry Street in Boston introduces the idea of having a free anytime audio and video security with anyone in the stipulated areas.

METHODOLOGY

This paper is aimed at designing a **_novel_** single display multi-view video over internet protocol (SDMV-VOIP) application that can permit multiple video IP's security. For a quick look at history of different technologies will shows that in virtually every field, previous technologies will eventually be replaced by newer, and more

advanced options. Generally, same procedures applicable in the video transmission world, as improvements in digital technologies are leading to digital video transmission on the threshold of analog transmission.

Back then in 2009, full-powered television stations in the United States of America (USA) were required by government authority to shut-down analog and switch to digital transmission. As the trend to digital takes place, it was then understood how digital video is transmitted, U.S.A Federal Communications Commission (2009)

Accordingly, the entire system is software-based design. This entails it major parts: (i) PC-based control of camera movements and (ii) typical video feeds from IP camera. However, two sections achieved accordingly using; (i) PC interfacing by means of sequential communication and (ii) Digital streaming of video feeds through wired/wireless internet protocol network. Base on Rouse, Margaret (2011), this process of interfacing is said to be an art of connecting PC's and peripherals together so as to communicate with one another without barriers. IP cameras devices with computers were combining into one unit. Sequence of operation on how the security camera is being implementing and controls by the application is as follows:

Figure 1: Login

This interface is the system by which users interact with a machine. The user interface includes hardware (physical) and software (logical) components. User interfaces exist for various systems, and provide a means of the following:

- Input, allowing the users to manipulate a system
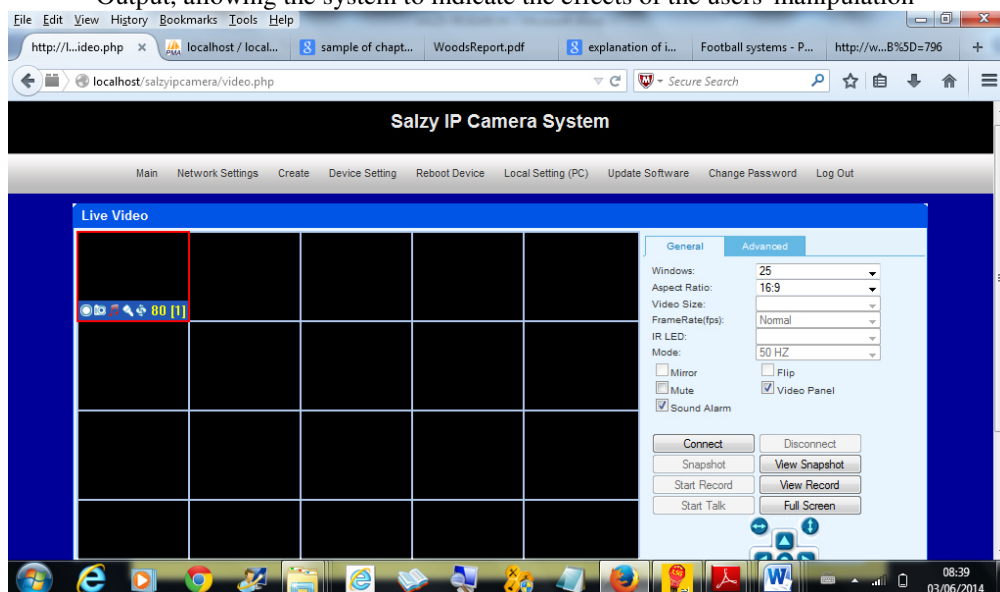- Output, allowing the system to indicate the effects of the users' manipulation

Figure 2: Live Video Streaming

This refers to content delivered live over the Internet, requires a camera for the media, an encoder to digitize the content, a media publisher, and a content delivery network to distribute and deliver the content. Live video is a multimedia that is constantly received by and presented to an end-user while being delivered by a provider. Its verb form, "to stream", refers to the process of delivering media in this manner; the term refers to the delivery method of the medium rather than the medium itself.
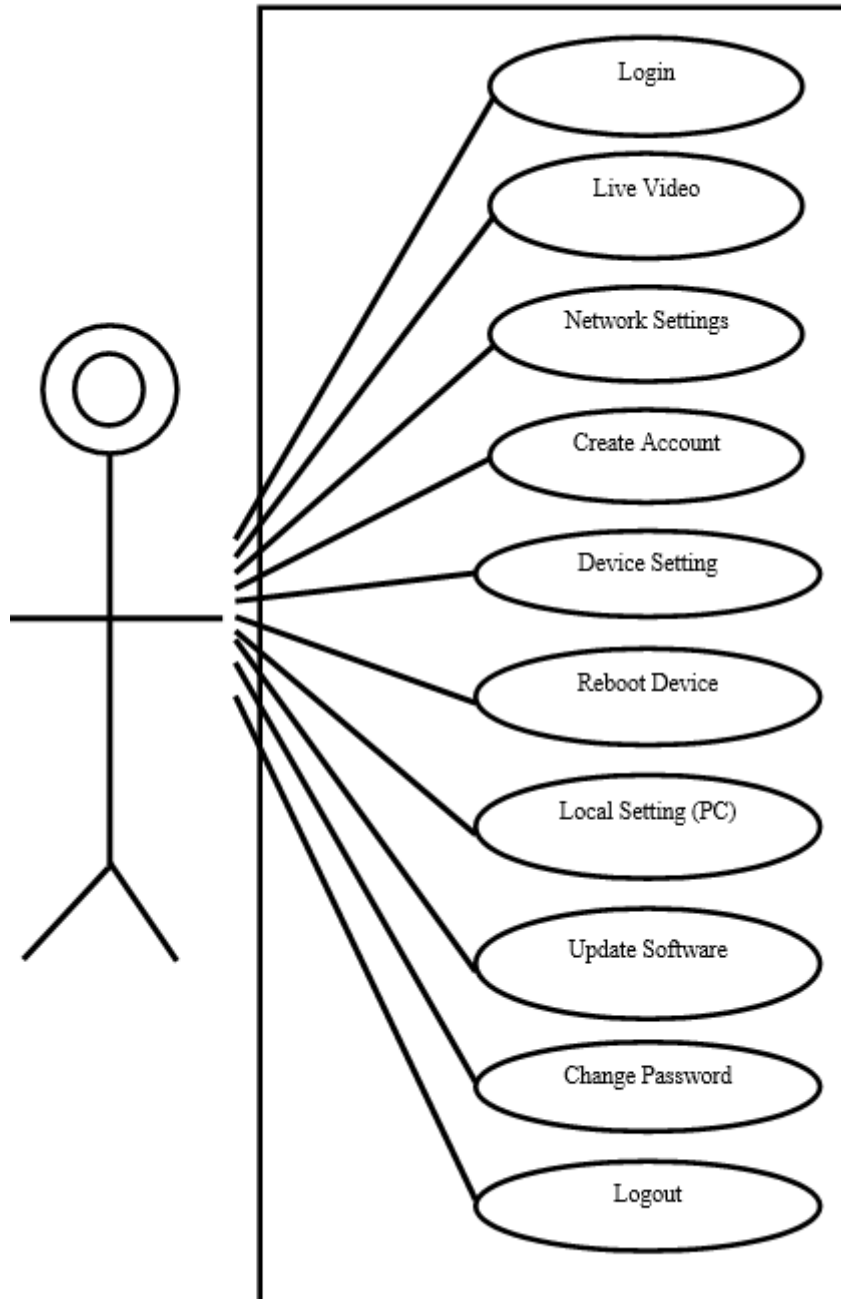

Figure 3: Use Case Diagram

A use case diagram highlights the functions that are available to a user of a system.
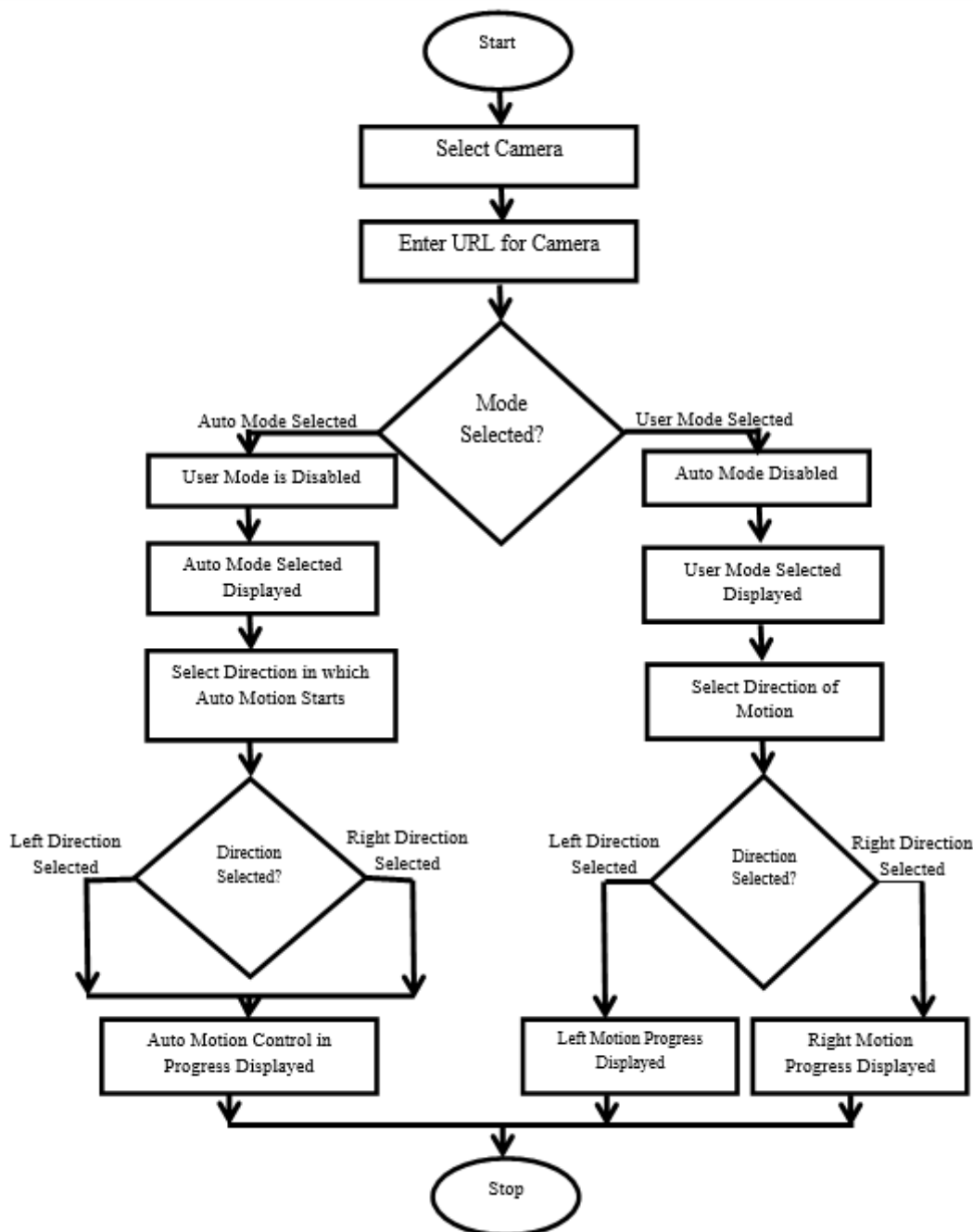
Figure 4: Program Flowchart

Program flowchart highlights the pictorial representation of a program sequence.

FINDINGS AND DISCUSSION

This paper is entirely firmware-based which gives the interrelationship between the IP cameras and the personal computers that may be attached to the network system. It therefore involves proper interfacing of the IP camera in motion and the PC for proper monitoring and documentation so that the security situation can be monitored effectively and efficiently. This interfacing is inclusive the angle at which the camera is to be move for security monitoring

The course of accessing a system or its constituent with the determination to find out whether it pleases the definite requirements or not. This action results in tangible and expectation difference between their outcomes. Moreso, faults or mislead requirements in opposing to the genuine aspiration or necessities.

CONCLUSION

As a result of the many benefits of single display multi-view video over internet protocol security, ease of

deployment, remote access, more and more businesses are adopting single display multi-view video over internet protocol. Academics and corporate organizations that were uses analog based close circuit television (CCTV) systems in the past are now migrating to complete network-based digital systems. Finally, every users of this kind wants his/her properties to be secured, while public and private organizations spend so heavily for security purposes. This paper has firmly presented the idea of single display multi-view video over internet protocol with great details on flexibility, remote access and remote control, and this model is appropriate for securing homes, industries and offices.

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