

Surveillance Systems Going Forward

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Introduction

As we undertake major deployment of video and electronics surveillance systems in India, it is important to note that a major change is taking place in the underlying technology of surveillance systems. The traditional video surveillance system, often referred to as CCTV (Closed Circuit TV), was based on analogue television technology. Newer surveillance systems are digital in nature and use computer technology. Often referred to as IP (Internet Protocol) systems, they naturally form a networked video surveillance system (NVSS).

With advancements in semiconductor technology, it is now possible to analyse video, audio and sensor inputs and increase the effectiveness of surveillance. With deployment of robust wired and wireless network infrastructure, it is possible to access information from remote locations, archive data into the safety of remote data centres, monitor and communicate with surveyed sites from anywhere. With the active use of computers it's now possible to mine data and establish the movement of a person or vehicle before an after a particular event. It's now possible for a system to recognise a person's face, detect unwarranted movement, count the number of people entering a door, raise an alert when a person falls, and much more.



tracks movement of a person could establish the presence of a person with greater accuracy than motion detectors that are based on ultra-sound or observation of change in a video image.

Reduction in cost of ownership:

Surveillance systems need to be designed to minimise the cost of operation and maintenance as these are recurring costs can become quite burdensome. Reducing cost of ownership requires up front attention to selection of equipment, design of the system and the operating procedure.

Dramatic reduction of false alarms:

A high incidence of false alarms could result in genuine alarms being ignored. Often, unchecked false alarms lead to the surveillance system being turned off defeating the purpose for which it was installed in the first place.

Verification of alarms by several types of sensors can lead to dramatic reduction in the incidences of false alarms. Motion can be identified by ultra sound detectors and verified through analysis of the video. Video analytics that

Finer control over access to live and collected data:

To achieve broader coverage at a location, one needs to provide for finer control over access to information. For example, the ability to declare a camera as private would allow a supervisor or a manager to deploy a camera in his own cabin.





proper response is achieved.

Automatic verification of proper functioning of system:

To avoid absolute or partial system breakdown, continuous monitoring is essential. An alert needs to be raised when any part of the system becomes non functional.

is necessary to have simultaneous access at the local level, and access at a central command and control centre.

Prevention of misuse:

Besides implementation of control over access to surveillance data, it is necessary to build automated mechanisms to establish an audit trail, so that one can trace misuse by an offending person. New laws may need to be enacted to help prevent misuse of surveillance data.

Points brought up in this write up are by no means exhaustive. They illustrate issues of the kind that will need to be addressed in the design and use of surveillance systems as they become very capable, intrusive and ubiquitous.

Protection of collected surveillance data:

Storing data away from the cameras at a hidden place in a building and remote archiving of the data outside the building would prevent evidence being stolen along with equipment being robbed.

Integration with other electronic surveillance systems:

Usefulness of a video surveillance system is much enhanced when the system is integrated with other electronic surveillance systems at the location. Such integration would provide for quicker retrieval of data through cross indexing.

Proper system for escalation of incidence and response to alarms:

To be effective the surveillance system must be capable of escalating response to an alarm through chain of actions until

Simultaneous local access and central command and control:

When video surveillance involves multiple buildings or locations, it



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