62

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Advanced digital video surveillance for safeguard and physical protection

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ABSTRACT

Video surveillance is a very crucial component in safeguard and physical protection. Digital technology has revolutionized the surveillance scenario and brought in various new capabilities like better image quality, faster search & retrieval of video images, less storage space for recording, efficient transmission and storage of video, better protection of recorded video images, and easy remote accesses to live and recorded video etc. The basic safeguard requirement for verifiably uninterrupted surveillance has remained largely unchanged since its inception. [1] However, changes to the inspection paradigm to admit automated review and remote monitoring have dramatically increased the demands on safeguard surveillance system. [2] Today's safeguard systems can incorporate intelligent motion detection with very low rate of false alarm and less archiving volume, embedded image processing capability for object behavior and event based indexing [3], object recognition, efficient querying and report generation etc. It also demands cryptographically authenticating, encrypted, and highly compressed video data for efficient, secure, tamper indicating and transmission.

In physical protection, intelligent an robust video motion detection, real time moving object detection and tracking from stationary and moving camera platform, multi-camera cooperative tracking [4], activity detection and recognition, human motion analysis etc. is going to play a key role in perimeter security. Incorporation of front and video imagery exploitation tools like automatic number plate recognition, vehicle identification and classification, vehicle undercarriage inspection, face recognition, iris recognition and other biometric tools, gesture recognition etc. makes personnel and vehicle access control robust and foolproof. Innovative digital image enhancement techniques coupled with novel sensor design makes low cost, omni-directional vision [5] capable, all weather, day night surveillance a reality. These advanced surveillance systems aided with highly optimised video compression technologies over wireless and other communicating network media to provide security personnel real time, relevant only, timely information is going to be a great boon for physical security applications. This paper discusses some recent advances in digital video surveillance and its application in safeguard and physical protection.

References:

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