

AN INTEGRATED VISION-BASED ARCHITECTURE FOR HOME SECURITY SYSTEM

ABSTRACT :

Automated security systems are a useful addition to today's home where safety is an important issue. Vision-based security systems have the advantage of being easy to set up, inexpensive and non-obtrusive. This paper proposes an integrated dual-level vision-based home security system, which consists of two subsystems – a object recognition module and a motion detection module. The primary object recognition module functions as a user authentication device. On an event of a failure in the primary system, the secondary motion detection module acts as a reliable backup to detect human-related motions within certain locations inside the home. Novel algorithms have been proposed for both subsystems.

INTRODUCTION:

In today's age of digital technology and intelligent systems, home automation has become one of the fastest developing application-based technologies in the world. The idea of comfortable living in home has since changed for the past decade as digital, vision and wireless technologies are integrated into it. Intelligent homes, in simple terms, can be described as homes that are fully automated in terms of carrying out a predetermined task, providing feedback to the users, and responding accordingly to situations. In other words, it simply allows many aspects of the home system such as temperature and lighting control, network and communications, entertainment system, emergency response and security monitoring systems to be automated and controlled, both near or at a distance.

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Automated security systems play an important role of providing an extra layer of security through user authentication to prevent break-ins at entry points and also to track illegal intrusions or unsolicited activities within the vicinity of the home (indoors and outdoors). There has been much research done in the design of various types of automated security systems.

Vision-based security systems have many advantages to consumer applications. Firstly, and most importantly, visionbased security systems are unobtrusive and user-friendly. User authentication and intruder tracking can both be performed from a distance without any human intervention.

This is an important advantage as opposed to sensor-based systems that rely on contact or movement sensors or contact-based systems such as fingerprint and palmprint scan or keypad activation that require substantial amount of contact with an input device. Secondly, setup is easy and inexpensive as they only require simple low-cost vision devices of reasonable resolutions such as consumer cameras, web cameras and embedded cameras in mobile devices, computers or servers, and other peripheral devices. done in the design of various types of automated security