ABSTRACT

Monitoring system using *CCTV* is important technology to support security and monitoring system of a particular place from a distance. *CCTV* camera is mostly used in the retail industry (mini markets, malls , department stores,etc.), apartments or offices.

CCTV camera plays a very important role as a proof of a crime .However, the use of *CCTV* camera is sometimes ineffective and inefficient if placed in an empty room without any activities and any movements at all. This may cause inefficiency in the memory of the CTV camera.

Motion detection is applied and developed in the technology of *CCTV* camera to improve recording effectiveness and efficiency in the *CCTV* camera. *CCTV* camera with motion detection is able to detect any movements which are catched by the camera. The movements are then used as a reference to start and end the recording process. If the *CCTV* camera is unable to detect movements then the camera remains streaming without recording.

This thesis tries to develop an simulation or a software of which function is similar to the *CCTV* camera. The *CCTV* camera simulation with motion detection gets inputs in a form of video . If in the video there are movements exceeding the threshold value, the video is going to be recorded. This simulation is influenced by the size of objects doing movements, the intensity of light in a room being monitored and object changes in the monitored room.

There are three main processes in this system , i.e. movement detection process, process of light intensity changes detection in a room and the process of object changes detection in the background. This movement detection system is well proved with the accuracy rate from the average trials about 96.9 % with a maximum observation of a 4-meter distance from the camera. This condition is achieved when threshold = 1500 in binary image domain.

Key words : monitoring system, *CCTV*, motion detection, background subtraction.