Movement Detection Using Camera

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Abstract: **This paper is about detecting a movement in real life environment. Nowadays CCTV is installed in home and working environment to capture the video of movements. This is web camera based movement detection and this can be mainly used in military applications, criminology, home and many more. If a movement is detected then the camera captures the image, buzzes an alarm and send SMS to the database. The main method used is frame differencing and background subtraction.**

Keywords: **Web camera based surveillance system.**

1. Introduction

Security is one of the major necessities in the real life environment and Surveillance system is installed in every places to detect the misdeeds and to provide security against it. In movement detection it has three levels that is detecting, identifying and tracking. First the movement is detected, then the object is identified and then the object is tracked. Movement detector uses several algorithms and methods such as background subtraction, frame differencing, Gaussian median and many more. The two main algorithms are background subtraction and frame differencing. Background subtraction uses the background image to detect the motion and frame differencing differentiate the detection between two frames. Movement detector detects the motions, alerts an alarm and then sends message.
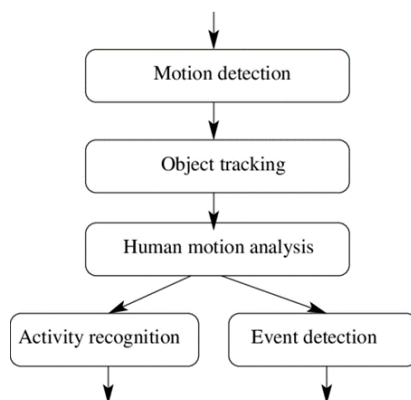
2. Problem Statement

Fig. 1. Existing system

Security is required in needed place such as military premises, banks, social areas etc. So surveillance system is installed in such places that makes easier to detect the motion.

Detection is classified in three categories such as target detection, target identification and target tracking. In the existing system they should monitor the activities because it won't send any message alerting the misdeeds. Here the detector notifies the user when a movement is detected.

3. Basic Methods for Object Detection

1. *Background subtraction algorithm:* In this algorithm the movement is detected from background images. This detects the motion by comparing two background images.
2. *Frame differencing:* In this method two or more frames are differentiated using the pixels from video sequence to detect the motion.
3. *Statistical methods:* This removes problems occurred in the background subtraction images.

4. Proposed System

The Motion detection mentions the capacity of security system for movement detection and captures the images.

Motion detection uses monitoring algorithm for motion detection and capture the images by passing signals to the camera. It also sends an alert message to the admin. The theft control system is mainly focus on monitoring unseen behavior of the person. A movement detector detects the motion and sends an alert message to admin about the motion happened in the focused area.

To setup the movement detection, select a region or area to camera where we require high security like border land. The working is done by comparing the serial images by checking, is there any difference between both the images. If movement happens then it will sends an alert message to admin's Email ID. Small movements such as movement of curtains or fan are avoided using sliding the track of sensitive bar.

In theft control system unlike the CCTV cameras because of the search task in this is hard to over a time period and it's hard to the searchers for attentiveness. In this the continuous monitoring which is not required instead we can set a system timer for a particular instance. This will help to save more time.

5. Future Scope

1. In various aspects, the camera which detects the motion helps for better observations.
2. The alert message will send to admin immediately when

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International Journal of Research in Engineering, Science and Management
Volume-3, Issue-5, May-2020
www.ijresm.com | ISSN (Online): 2581-5792

an image is captured.
3. Helps to get the alert messages in the order according to the detections.
4. The motion detection system can be applied for both single and multiple cameras.
5. If it require, we can modify the code in future for the betterment of the result.

6. Conclusion

The motion detection camera is working fine according to the functionality. In this we require two frames to detect the movement that are, reference frame and input frame. The movement detected by the input frame. To identify whether any motion happens we compare both the frames. While comparing both the frames is there any difference between both the images then movement is happened. Once the object is detected then it immediately captures the image send the alert message to the admin. This method is mainly used in the restricted areas, and this method also helps to save more time compared to CCTV cameras.

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