Movement Detection Using Web Camera

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***Abstract*: A theft system control is one of the device that detects the object moving, particularly people. The motion detector is a component of a system that automatically performs a task of motion in an area. Movement Detector includes a vital component of security, automated lighting control, home control, energy efficiency, and other useful systems. An electronic movement detector contains a motion sensor that converts the movement detection into an electric signals. A movement detector can be connected to alarm that is useful to alert the admin or security service after it helps in detecting the motion.**

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

1. Introduction

One of the most important problems all over the world is security. This project basically concerns on the use of automatic motion detection application using webcams for security purpose. Today in our society security is one of the major issues and having A 24 into 7 human eye is just impossible to maintain. Our project Motion Detection Application which uses the device called Web Camera is just a one of the applications which help us to achieve this goal. In terms of safety measures, it is useful to realize and manage smart surveillance system combined with image processing techniques. These functions are necessary for autonomic monitoring, which is provided by our camera system. This paper presents related recent works and problems of our previous surveillance system. The main objective of the proposed approach is to getting in help of reducing the storage size by storing only the useful frame having motion instead of the sequence of whole video.

2. Problem Statement

In today's world there is significant amount of research in suspicious activity. Security is needed in environment such as banks, jewelers etc. CCTV plays a major role in post event investigation. In traditional security system a daily check should be conducted to ensure that recording equipment is switched on and recording is carried out whenever required. No notification will be sent to the admin reporting about the robbery. In order to detect the suspicious activity entire recorded video has to be viewed.

3. System Configuration

System configuration is the way of describing the architecture, interfaces, and others for a system to fulfill the particular need.

System configuration concentrates on determining which module is needed for the system, the specifications of the given modules that are in the system. System design is also called top-level design where we consider system as a group of component with specifically defined behaviour that communicates with each.

It is one basic approach where issues are solved based on a selection.

Following points are needed while designing the system:
- Rectify data to be extracted.
- List out the user requirements.
- Identity every data for input and output.
- System specification.
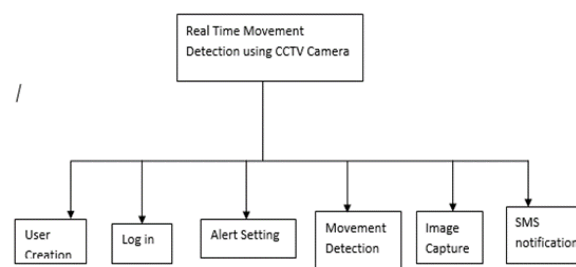- Future benefits of the project in long term.

Fig. 1. Design of movement detection

We have six modules in our project they are user creation, login, alert setting, movement detection, image capture, SMS notification. All are equally important for the real time movement detection using CCTV camera.

4. Proposed System

The theft control system is mainly focused on monitoring unseen behavior of the person. A movement detector is a device that detects moving objects, particularly people. A movement detector is often integrated as a component of a system that automatically performs a task or alerts a user of motion in an area. Movement detectors play a most important role in security, home control, automated lighting control energy efficiency, and other useful systems.

In Theft control system unlike the usual CCTV cameras, the continuous monitoring is not required, Instead the image of the

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moving object at a particular instance is been captured. In this system a timer can be set, for instance 10 PM to 10 AM. Once the timer is set any movement that occurs between 10 am to 10 pm will be captured.

Small movements such as movement of curtains or fan are avoided using sliding the track of sensitive bar. Once the image is captured it is sent to the admin's Email ID along with an SMS alert. The reduction of the continuous monitoring leads in saving more time. It is possible to notify about the crime that is been committed.

5. Movement Detection Algorithm

Input: The Frame f captured at time t and frame f captured at time t+1, Th as Threshold

Output: it sends a message in the form of sms, alert, email
Process:

1. first it converts the frames into grayscale.
2. then finds the differences of frames.
3. Th for decision to set foreground and background pixel.
4. Get fixed image.
5. Get moving objects or image.
6. If moving object is motion greater than threshold2 then send Alert as SMS, Email, Alarm.

6. Future Scope

1. The motion detection system can be applied for many(multiple) cameras or one(single) camera also.
2. A signal like alert is transmitted to police and manager.
3. Only the authenticated person can stop alert for some time to enter into room by remote login.

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7. Conclusion

The video is the media treated in such systems. The main steps in video surveillance systems the motion detection. This step includes the detection of moving objects in sequences of frames in sense video captured by the camera. The motion detection stage is among the huge and trending studied problems in the field of analysis where many research works focus on this problem.

References

[1] P. Rajkumar, "Motion Detection Based Interactive Surveillance Systems for Mobile Clients."
[2] Li Fang and Zhang Meng "Smart Home Detection Surveillance System," ICETC, IEEE-2009.
[3] Michael R. Blaha and James R Rumbaugh, "Object-Oriented Modeling and Design with UML," 2nd edition.
[4] B. Gelbord and G. Roelofsen, "New surveillance techniques raise privacy concerns," Com. ACM, vol. 45, no. 11, pp. 23-24, Nov. 2002.
[5] T. Kanade, R. Collins, and A. Lipton, "Advances in cooperative multi-sensor video surveillance," in DARPA Image Understanding Workshop, pp. 3–24, Nov. 1998.
[6] D. Taubman. High performance scalable image compression with EBCOT. IEEE Transactions on Image Processing, 9(7):1158– 1170, July 2000.
[7] R. Collins, A. Lipton, H. Fujiyoshi, and T. Kanade, "Algorithms for cooperative multisensor surveillance," in the IEEE Conf., vol. 89, pp. 1456-1477, Oct. 2001.
[8] P. Rajkumar, "Motion Detection Based Interactive Surveillance Systems for Mobile, Clients."
[9] S. S. Kulkarni, and A. D. Harale. "Application of raspberry pi based embedded system for real time protection against road accidents due to driver's drowsiness and/or drunk and drive cases". International Journal of Engineering Sciences & Research Technology, 5(9): September 2016.
[10] Anjali, K. U., et al. "Real-time nonintrusive monitoring and detection of eye blinking in view of accident prevention due to drowsiness". Circuit, Power and Computing Technologies (ICCPCT), 2016 International Conference on. IEEE, 2016.