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Research Article

FOREGROUND OBJECT DETECTION FROM A DYNAMIC SCENE

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ABSTRACT

Object detection is one of the fundamental step for automated video analysis in many vision application. Separation of foreground object from its background is a challenging task. This paper presents a automated video object extraction. The object is detected in live video that is used for the multipurpose purpose. We proposed a hybrid algorithm for the purpose of moving object detection. Camera is fixed at the required place , if any human object is detected, make the system to realize and produces the alerting sound. In live video 18 frame is processed at a unit time and it takes again 18 frames to process output. This method gives out promt results in identifying intruders.

Keywords: Live Video, Hybrid Algorithm, Foreground Object.

INTRODUCTION

The term digital image processing generally refers to processing of a two dimensional picture by a digital computer. In context, it implies digital processing of any two-dimensional data. A digital image is an array of real or complex numbers represented by a finite number of bits. An image given is in the form of a transparency, slide. Photograph or chart is first digitized and stored as a matrix of binary digits in computer memory. For display, the image is stored in a rapid-access buffer memory which refreshes the monitor at 30 frames/s to produce a visibly continuous display.Mini- or microcomputers are used to communicate and control all the digitization, storage, processing, and display operations via a computer network. Program inputs to the computer are made through a terminal and the outputs are available on a terminal television monitor, or a printer/plotter[1-4].

Image acquired by satellites are useful in tracking of earth reasoures, geographical mappings, prediction of agricultural crop, urban growth and weather flood and fire control; and many other environmental applications. Space image applications include recognition and analysis of objects contained in images object obtained from deep space probe missions. Image transmission and storage applications occur in broadcast television .teleconferencing, transmission of facsimile images for office automation, communication over computer networks, closed circuit television based security monitoring systems and In military communications. In medical applications one is concerned with processing of chest X rays, cineangiograms, projection images of trans axial tomography and other in radiology, nuclear magnetic resonance (NMR) and ultrasonic scanning.

Object detection is one of the fundamental step for automated video analysis in many vision applications. Object detection in video is usually performed by background subtraction techniques. In the existing method they proposed object detection by pixel variation of the image from one frame to another and the background subtracted by the training process in the recorded videos[5-7].

In the proposed method the object is detected in the live video that is used for the multipurpose purpose. This method can be applicable in bank, jewellery shops, military etc., in an efficient way. Camera is fixed at the required place and if there is any human object is detected, it is processed and make the system to realize and produces the alerting sound. Advantages over the existing system are cost and power consumption is reduced as it does not require any sensors. Based on the Camera's range the monitoring area may be increased. In live video 18 frame is processed at a unit time and it takes again 18 frames to process output. In existing system they took 5secs to process 1 frame. Proposed method going to achieve 18 frames/sec.

RELEATED WORK

Xinyi Cui, Junzhou Huang, Shaoting Zhang, and Dimitris N. Metaxas describes that foreground object detection has been widely investigated in recent years. Recently work with moving camera has been done before that the camera which is placed permanently is used for foreground object separation ie

is made with stationer cameras.. Recently, moving cameras have additionally been studied since videos from mobile devices which gives out clear vision is considerably[8-10].

Preben Fihl describes that. The human motion contains valuable data in several things and other performance Associate in monitoring unconscious analysis of the motion of the people to grasp their actions, intentions, and state of mind An automatic analysis of human motion will facilitate many applications and thus has received great interest from both industry and research communities.

Nima Seif Naraghi describes that Segmenting out mobile objects in frames of A recorded video sequence is a basic step for several video based applications like investigation of crime. . A more number of applications can be listed as: detection and recognition, indoor/outdoor object classification, traffic flow observance, lane fullness analysis, accident detection etc.,

SYSTEM ANALYSIS

In automated video analysis object is detected by using many techniques such as active contour based , dimensional based etc., In real time security system there are many advanced systems available. Those systems are mostly embedded systems and many hardware specification has to meet the efficient security system. Many surveillance cameras are installed in security sensitive areas such as banks, train stations, highways, and borders. The massive amount of data involved makes it infeasible to guarantee vigilant monitoring by human operators for long periods of time due to monotony and fatigue[11].

The previously described system which has a drawback that it includes a massive amount of data involved makes it infeasible to guarantee vigilant monitoring by human operators for long periods of time due to monotony and fatigue and another insuffiency is it takes 86 sec to process a single frames. The problems with dynamic environmental conditions make moving object detection very challenging. Commonly used techniques for moving object detection are background subtraction, temporal frame differencing , and optical flow.

Another problem identified in video analysis is object tracking. After the completion of the object tracking process the final steps goes the intelligent visual identification i.e tracking. All the methods it includes more hardware requirements and cost wise also high.

In our new method we presented an automated video object extraction. The object is detected in live video that is used for the security purpose. We proposed a hybrid algorithm for the purpose of moving object detection. Camera is fixed at the required place , if any human object is detected, make the system to realize and produces the alerting sound. In live video 18 frame is processed at a unit time and it takes again 18 frames to process[12].

EXPERIMENTAL RESULT

In this section, the results are taken by considering many videos. The input images are taken processed and the desired output is produced.

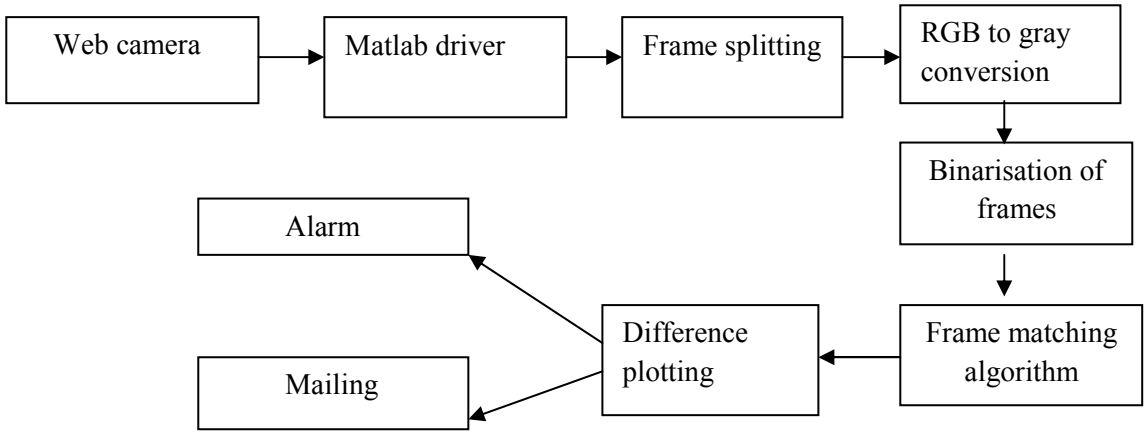
The input images taken it may be of any colour image or gray scale image. Camera is fixed at the desired position. It will be continuously monitoring the areas. Here we proposed a new algorithm named as hybrid algorithm.

This algorithm is determined as follows:

The first frame is taken as to be n'th frame. The second frame taken as to the n-1 th frame. By subtracting these two frames we get the required output. It processes about 18 frames / sec. During night time the images can be processed by using the night vision cameras. Through this camera it overcomes the problem that can't be seen through the naked eyes. The principle used in it is infrared radiation[13-15].

The input video that is taken in form of any images i.e either it may be of color image or it may be of gray scale image. Now a days the images taken is of colour images and from it is converted into gray scale for our convience . to make the process more easier it is again converted to binary format of 0's and 1's.. As described earlier the subtracting the two images we get the required output again it is converted to color image.

Here represents the block diagram.



INPUT IMAGES COLOR IMAGE (LIVE VIDEO)

OUTPUT IMAGES

FOREGROUNG IMAGE

TOTAL PROCESSING

LIVE VIDEO(INPUT IMAGE)

CONVERSION FROM RGB TO GRAY

BINARY DIFFERENCE

FOREGROUND IMAGE

CONCLUSION

From this paper we designed an foreground object extraction from a live video which gives out an effective result in identifying the object. It also reduces the time complexity ie by processing a minimum of 18 frames/ sec. The main advantage in our method we described processing the live video. By merging of more cameras many foreground object can be extracted at a single steps. Unlike most existing algorithms, our method does not require an additional highlight or shadow removal step on the detected foreground mask. This method able to provide high level information.

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