

# A Survey Paper on Motion Object Detection System

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**Abstract:** The security is most vital aspects for everyone. In security, there are some issues arising due to increase in criminal acts. There are so many systems which help everyone to be safe. The goal of this paper is to prevent social problems like woman and child-related sexual offenses or common place criminal acts. The next step in the path would be to come up with a better explanation to solve this problem definitely the following conversed techniques are very good. A combined approach using few of them can be a better solution.

**Keywords:** Motion detection, video frames, background difference, real time application.

## I. INTRODUCTION

Now-a-days security is most important issue arising due to increase in criminal acts such as child-related sexual offenses or ordinary criminal acts, to protect citizens in places, and places that require high security like bank lockers, museum and other care facilities[7]. Motion detection is an important processing factor for many video applications such as video surveillance, military reconnaissance, mobile robot navigation, collision avoidance, video compression, path planning, among others.

Video surveillance is an important application that helps in monitoring different areas which require high security, thus video surveillance is a very important concept which plays a vital role in safety and security[2]. Video surveillance system is used in detecting, analyzing and tracking any unusual activity also it is used for public safety and another highly security needed areas. Thus, Smart CCTV technology, using a various attached sensors, judges the situation and notifies the administrator directly or immediately responds. Additionally, it takes a simple picture of an image; this basic future of CCTV has been studied extensively. The most important techniques of this smart CCTV related research are to track and analyze objects within the image. Thus, object-tracking technology, which typically targets human subjects, has been being typically studied. The technology which can judge the current situation in real-time by analyzing the Behavioral patterns of the objects and its association with the surrounding environment has also been studied actively.

There are several methods used to detect objects in real-time video. These include: Frame Difference Method (FDM) that finds moving objects by using the difference between the images of the current frame and previous frame within the successive frames [4]. Background Subtraction Method (BSM) that finds mobile objects using the difference between the initial background image, when

any objects are not tracked and the frame image when objects are affecting. Block Matching Method(BMM) that finds a moving object by tracking the current frame from the previous frame in the unit of the block under the condition in which all the pixels within the block have the same motion vector[4]. With regards to this topic there are several methods such as "Mean-square method".

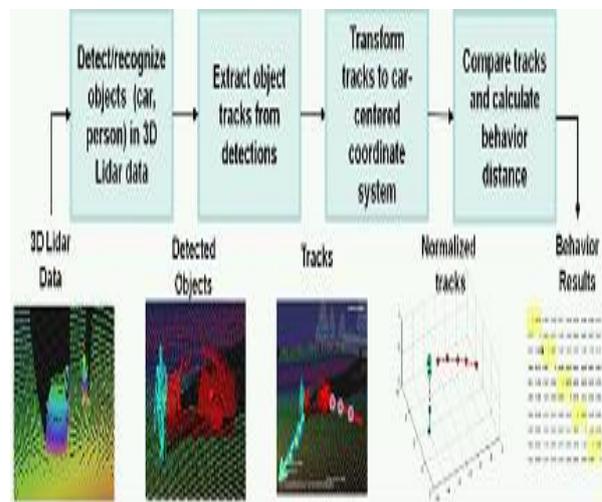


Fig. Based diagram of motion object detection

## II. LITERATUR SURVEY

Few recently techniques which are given as follows:

### 1. Motion Object and Regional Detection Method using Block-Based Background Difference Video Frame.[4]

In this paper moving object is detected which showed high performance and the accuracy of detecting the moving object. In this paper the evaluation of quantitatively detectable moving object region by quickly creating a background image. The proposed method could be used for cases that any background images does not exist or



hard to be generated. This system is good for observation of many places at the same time with only a single CCTV system since it is especially robust to abrupt scene changes. It is time and power consuming due to most power consumption it runs only one part of system.

## 2. Collaborative Accupancy Reasoning in Visual Sensor Network For Scalable Smart Video Surveillance. [7]

In this paper they studied a general video surveillance system, video stream are sent to a control centre and operators monitor the video. It is impossible for human to monitoring every moment, hence smart surveillance system is required for completing scalable smart video surveillance of inference framework in visual network is necessary.

Accupancy reasoning is an essential process for video surveillance and can be achieve with multitier base approach. This multitier approaches analyses single camera. Analysis is performed via distributed and collaborative processing.

## 3. Hierarchical Ensemble of Background Models for PTZ-Based Video Surveillance. [13]

This paper is based on hierarchical background for intelligent video surveillance with PTZ (pan-tilt-zoom) camera. This system is based on the three components: background modelling, frame registration and object tracking. Hierarchical background model separate a continuous focal length of PTZ camera and partition it into fix length. In this way PTZ camera capture images through registration and a new robust feature is present for background modelling of each and every scene. Frame registration is achieved via approximate nearest neighbour search and after that object can be detected by using background subtraction method and in last hierarchical background model is configure into a framework. Objects are tracking by using foreground extraction. The tracking outputs are feedback PTZ controller by adjusting the camera. Properly to maintain the track object.

## 4. Moving Object Detection by Detecting Contiguous Outliers in the Low-Rank Representation. [1]

In this paper, author uses three key steps for automated video analysis. First is object detection, second is object tracking and third is behaviour recognition. Aim of the object detection is to locate and segment interesting objects in a video. Then these objects are tracked from frame to frame and tracked object are analysed object behaviour recognition. Object detection is obtained by background subtraction or object detectors. Object detectors scan the image and each sub image is labelled as object or background. Built the classifier at the start of the video for offline learning on separate datasets or online learning initialized with labelled frame background subtraction method.

Background subtraction method compares images to reach other or with background model. To avoid the training

phases are motion based methods is the another category of object detection methods which are used in motion information to separate object from background. This method s aims are segment the objects based on motion information and it comprises the component of background model. They adopt an alternating algorithm for separating energy minimization over B and S into two steps. B-step is used for convex optimization problem. S-step is used for combinatorial optimization problem.

II) N- experts analyse false alarms. For discrete dynamical system and conditions under learning guarantees improvements are found which is modelled by learning process. Real-time implementation of the TLD framework and the P-N learning which is described by the author. They carry out an extensive quantitative evaluation which is used for showing significant improvement over the state-of -the-art approach. Real-time implementation of the framework has been described in this paper. In this paper authors are used following strategy I) evaluate the detector II) estimates its errors by a pair of experts and III) update the classification.

## 5: Background Subtraction Algorithm for Moving Object Detection Using Denoising Architecture in FPGA. [16]

In this paper a moving object motion detection system based on background subtraction algorithm .This system works on real-time pipelines flow .Additionally the system is capable to detection object by extracting its shape and calculating a gravity centre.

## 6. Multitasking Smart Cameras for Intelligent video Surveillance System. [19]

The author developed a behaviour -based smart cameras nodes of carrying out multiple observation task simultaneously. This control methodology threats passive and active PTZ camera within a unified frameworks which allows one to developed camera networks control strategy without worrying about the actual camera types and their respective serving capabilities. They evaluated proposed video surveillance system by deploying simultaneous cameras in realistic 3D virtual environment.

## 7. Tracking-Learning-Detection.[20]

Long-term tracking of unknown objects in a video stream which is investigates by this author objects are defined by its location and indicate in a single frame. Every frame has task to be determine objects location and indicate that objects are absent. The novel tracking framework (TLD) that decomposes the long-term tracking task into tracking, learning and detection which is proposed by author. The tracker follows this object by frame to frame. For avoiding these errors in the future the learning analyse detectors errors and update it. A novel learning method (P-N learning) that has estimates the error by pair of experts which are developed an author.

I) P-experts analyse missed detections and II) N- experts analyse false alarms. For discrete dynamical system and

conditions under learning guarantees improvements are found which is modelled by learning process. Real-time implementation of the TLD framework and the P-N learning which is described by the author. They carry out an extensive quantitative evaluation which is used for showing significant improvement over the state-of-the-art approach. Real-time implementation of the framework has been described in this paper. In this paper authors are used following strategy I) evaluate the detector II) estimates its errors by a pair of experts and III) update the classification.

### III. CONCLUSION

The above mention techniques have many advantages and it helps to provide a high security over the criminal acts as security is most important feature. There is no doubt that the above techniques are enormously useful. The next step is by collaborating some of this technique will reduce consumption of memory space and cost to make it more efficient and provide better accuracy.

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