A Survey on Video Surveillance Using Hadoop

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***Abstract*-Object detection and tracking are two fundamental tasks in multicamera surveillance. The most important technique of this multicamera related technique is to track and analyze objects within the images. The core technology of multicamera analysis is used in detecting, analyzing, and tracking the object's motion. In addition, when the light's color or direction changes, it is difficult to trace the object. Firstly use the block based algorithm for detecting the change scene in video if the scene is change is detected then video is stored on the server for further analysis. Once the video was stored on the server. Stored videos are dived in to chunks and send to different nodes for analysis using map reduce technology of Hadoop. for detecting object we apply the object tracking algorithm using a novel Bayesian Kalman filter with simplified Gaussian mixture (BKF-SGM).Using Hadoop we minimize the analysis time Finally draw the graphs in which show the no of objects to be detected and time to be required for analysis and stored analysis result into database for security purpose.**

Keywords: Video analytics, detection, tracking, recognition, Bayesian Kalman Filter

I. INTRODUCTION

Object detection and tracking are two fundamental tasks in multicamera surveillance. The most important technique of this multicamera related technique is to track and analyze objects within the images.The core technology of multicamera analysis is used in detecting, analyzing, and tracking the object's motion. In addition, when the light's color or direction changes, it is difficult to trace the object. Firstly use the block based algorithm for detecting the change scene in video if the scene is change is detected then video is stored on the server for further analysis.Once the video was stored on the server. Stored videos are dived in to chunks and send to different nodes for analysis using map reduce technology of Hadoop. for detecting object we apply the object tracking algorithm using a novel Bayesian Kalman filter with simplified Gaussian mixture (BKF-SGM).Using Hadoop we minimize the analysis time.Finally draw the graphs in which show the no of objects to be detected and time to be required for analysis and stored analysis result into database for security purpose.

II. LITERATURE SURVEY

CCTV ordinance and its installation are increasingly being used in public facilities and organizations, as part of an effort to prevent child-related sexual offenses or commonplace criminal acts. The environments monitoring has been expanded to protect residents in places, such as elementary schools and other care facilities, and city parks. The installation of the CCTV helps prevent crime and may aid in the solution of cases. Its role is also increasing in various forms. The domestic CCTV camera market in 2008 is increased by 1 trillion Korean won, according to the '2010 Report on Mining and Manufacturing' issued by the Korea National Statistical Office. In addition, CCTV has been used for purposes, such as crime prevention and the detection, influenced by the need for increased security. The British Market Research Firm IMS's '2009 Worldwide CCTV and Video Surveillance Equipment Market Report' expected that we would have approximately 10% annual growth from $8.266 billion in 2009 to $14.472 billion in 2014.

CCTVs have been installed in places, such as public places, where people often come and go, and government buildings, where security is required, as well as private residential areas Thus,

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Smart CCTV technology, using 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 feature of CCTV has been studied extensively. The most important technique of this smart CCTV related research is to track and analyze objects within the images [6]. Thus, object-tracking technology, which typically targets human subjects, has been 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. The core technology of smart CCTV analysis lies in detecting, analyzing, and tracking the object's motion. However, the object, which is the target to be traced, can vary, depending on the situation, such as image size, orientation, and location, within consecutive frames. In addition, when the light's color or direction changes, it is difficult to trace the object, as it is perceived as another object, even though it is the same object as in the previous frames [6].

There are several methods used to detect objects in real-time video. These include: Frame Difference Method (FDM) that find's moving objects by using the difference between the images of the current frame and previous frame within the successive frames[2]; 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 moving[3]; 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 ; Novel tracking framework (TLD) that explicitly decomposes the long-term tracking task into tracking, learning and detection. The tracker follows the object from frame to frame. The detector localizes all appearances that have been observed so far and corrects the tracker if necessary [1] ; Also Novel online MIL algorithm for object tracking that achieves superior results with real-time performance [5].Different from background subtraction, it estimates a background model directly from the testing sequence. Generally, it tries to seek temporal intervals inside which the pixel intensity is unchanged and uses image data from such intervals for background estimation. However, this approach also relies on the assumption of static background. Hence, it is difficult to handle the scenarios with complex background or moving cameras [1].

III. FILTERING POLICY

Object detection and tracking are important features of video analytics in multi-camera surveillance. [6]In this paper framework for achieving these tasks in a multi-camera network. The framework configuration is different from existing multi-camera surveillance systems in [3], [4], and [2] which uses common image information extracted from similar field of views (FOVs) to improve the object detection and tracking performance. As we seen in real time scenario, it is difficult to achieve camera setup because they are not economically efficient, topology limitation, etc. and our main aim is to develop efficient and robust object detection and tracking algorithms for such environment. Also we have discussed about Frame Difference Method (FDM) that find's moving objects by using the difference between the images of the current frame and previous frame within the successive frames [2]; In [5] we seen that using Multiple Instance Learning (MIL), instead of traditional supervised learning, but slight inaccuracies in the tracker can lead will cause inaccurate labelled training examples, which degrade the performance of classifier and can cause drift. To avoid these problems can therefore lead to a more robust tracker with fewer parameter tweak [5]. also sometimes, when the light's color or direction changes, it is difficult to trace the object with FDM [2] and Novel tracking framework (TLD) so we need more improved algorithm like Bayesian Kalman filter with simplified Gaussian mixture (BKF-SGM) applied in [5]. Also these algorithm needs some framework to minimize the analysis time which we will cover by using new technology like hadoop. For detecting object we can apply the object tracking algorithm using a novel Bayesian Kalman filter with simplified Gaussian mixture (BKF-SGM) which is efficient for tracking the objects in color change scenes used in[6].

IV. CONCLUSION

Our proposed system provide smart way for detecting, tracking and analysis of human or object interaction within surveillance area of multi camera network by using fast and efficient technologies. we apply the object tracking algorithm using a novel Bayesian Kalman filter with simplified Gaussian mixture (BKF-SGM).Using Hadoop we minimize the analysis time Finally draw the graphs in which show the no of objects to be detected and time to be required for analysis and stored analysis result into database for security purpose.

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