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Surveillance camera can be used to find person or vehicle

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Abstract - *A **tracking system** is used for the observing of persons or objects on the move and supplying a timely ordered sequence of respective location data to a model e.g. Capable to serve for depicting the motion on a display capability. **Surveillance** is the monitoring of the behavior, activities, or other changing information, usually of people for the purpose of influencing, managing, directing, or protecting them. Surveillance and Tracking are used by governments for intelligence gathering, the prevention of crime, the protection of a process, person, group or object, or for the investigation of crime. Our approach is develop a fusion of both tracking and surveillance system. In this system, which can provide both functionality of tracking and surveillance system? The reason behind this project is to detect the thief as well as catch the thief without any transmitters and receivers. This system can track the person and vehicles. Person can be track by its face and vehicle can be track by its number plate.*

***Key Words*: Face Detection, Tracking, Image Matching, Object Detection, Surveillance.**

1. INTRODUCTION

In this approach, we are going to develop a simple tracking system which can perform tracking by surveillance camera. Proposed approach can track person as well as vehicle on land and find location of person or vehicle with the help of a surveillance camera. Object detection and tracking are important in many computer vision applications including activity recognition, automotive safety, and surveillance.

2. Literature Survey

Face detection serves an important role in many computer vision systems. Typically, a face detector identifies faces within a gray scale or color image. Due to the recent increase in consumer depth cameras, obtaining both color and depth images of a scene has never been easier. We propose a technique that utilizes depth information to improve face detection. Standard face detection methods, such as the Viola-Jones object detection framework, detect faces by searching an image at every location and scale. Our method increases the speed and accuracy of the Viola-Jones face detector by utilizing depth data to constrain the detector's search over the image. Leveraging a Kinect camera, we are able to detect faces 3.5x faster, while greatly reducing the amount of false positives.

Image processing on mobile smart phones is a new and exciting field with many challenges due to limited hardware and connectivity problems. Android based mobile phones are now becoming the core of many applications. This paper develops a real time face recognition application model for smart phones. This introduced model uses hybrid skin color-Eigen face detection method and interest point localization for feature matching. The paper is coded in JAVA programming language to fulfill Android smart phones. Results are shown and compared with existing open source techniques for verification. The aim is to maintain real time measures with high recognition rate. Applications range from security to people with disabilities adaptation.

Because of image-databases and ―live‖ video information is growing more and wider spread, their

intelligent or automatic examining is becoming exceptionally important. People, i.e. human faces, are one of most common and very specific objects that we try to trace in images. Face detection is a difficult task in image analysis which has each day more and more applications. We can define the face detection problem as a computer vision task which consists in detecting one or several human faces in an image. It is one of the first and the most important steps of face analysis. In this paper we presented various methods of face detection, which are commonly used. The seminal Viola-Jones face detector is first reviewed. We after that survey a variety of techniques according to how they extract features and what learning algorithms are adopted. These methods are Local Binary Pattern (LBP), Adaboost algorithm, SMQT Features and SNOW Classifier Method and Neural Network-Based Face Detection. It is our hope that by reviewing the numerous existing algorithms, we will see yet better algorithms developed to solve this fundamental computer vision problem. In this survey, we categorize the detection methods on the basis of the object and motion representations used, present thorough descriptions of representative methods in each category, and look at their pros and cons.

3. Methodology

We have proposed new technique for surveillance as well as tracking the object. In this technique, we combine three techniques together and form a hybrid system.

3.1 Face detection: - It is a computer technology being used in a variety of applications that identifies human faces in digital images. Face detection also refers to the psychological process by which humans locate and attend to faces in a visual scene. Face detection can be regarded as a specific case of object-class detection. In object-class detection, the task is to find the locations and sizes of all objects in an image that belong to a given class. Examples include upper torsos, pedestrians, and cars. Face-detection algorithms focus on the detection of frontal human faces. It is analogous to image detection in which the image of a person is matched bit by bit. Image matches with the image stores in database. Any facial feature changes in the database will invalidate the matching process.

3.2 Object detection: - It is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos. Well-researched domains of object detection include face detection and pedestrian detection. Object detection has applications in many areas of computer vision, including image retrieval and video surveillance.

3.3 Image matching: - It is a technique in digital image processing for finding small parts of an image which match a template image. It can be used in manufacturing as a part of quality control, a way to navigate a mobile robot, or as a way to detect edges in images. If the template image has strong features, a feature-based approach may be considered; the approach may prove further useful if the match in the search image might be transformed in some fashion.

4. Flow-chart of the proposed plan

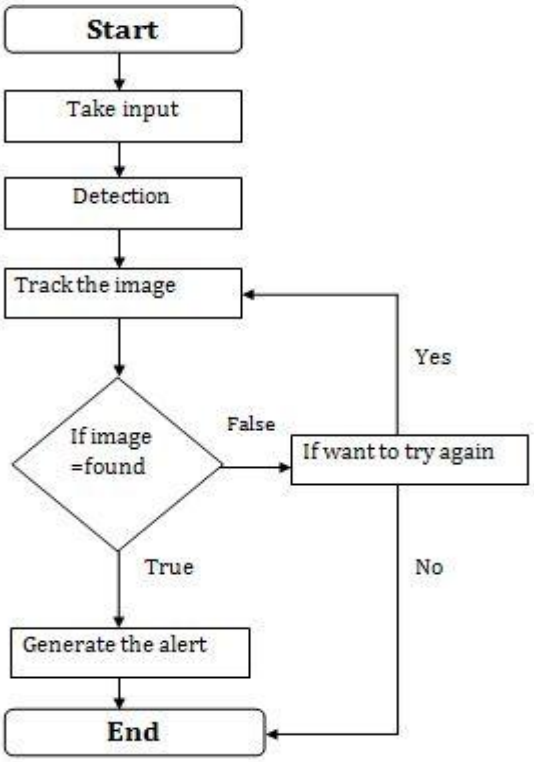

Fig: - Plan of Action

Above figure shows the working of this system. At the initial phase is start and system will start on it process. First it takes input in the form image which will be taken by still image as well as live video stream. After input, it detects the object which will be face or other object but it will detect face and vehicle license plate at this stage. The detected image will pass on and finding the image in surveillance camera network. If target image is not found then it prompt a window for a question "Do you want to try again?" The user has to provide a input in form of yes or no.

If the image has found then it generate a alert and print the location of surveillance camera in which the target image had detected.

So this is a flow of this system.

5. CONCLUSIONS

In this project, we are going develop a new type tracking system which can perform tracking without any transmitter and receiver and find location of the object.

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This can be use for finding missing or wanted person in surveillance camera network or premises of CCTV. This will help the government to find a person or object which is important to them or need for some purpose.

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