



# RECOGNITION AND TRACKING OF MOVING OBJECTS

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**Abstract :** Now-a-days, it's becoming very important to know about any information in a digital way in order to avoid crimes and other mischief activities. Conventional methods that are used now do have limited advantages as we have to check for every minute information in a thorough way. By using this method, we need not put strenuous hours over monitors, instead it gives the complete information about what, how and when that happened over there.

The problem of motion-based object tracking can be divided into two parts:

1. Detecting moving objects in each frame
2. Associating the detections corresponding to the same object over time.

**Index Terms** - Information, Crimes, Conventional methods, Limited advantages, Strenuous, Detecting

## I. INTRODUCTION

The area of automated surveillance systems is currently of immense interest due to its implications in the field of security. Surveillance of vehicular traffic and human activities offers a context for the extraction of significant information such as scene motion and traffic statistics, object classification, human identification, anomaly detection, as well as the analysis of interactions between vehicles, between humans, or between vehicles and humans. A wide range of research possibilities are open in relation to visual surveillance and tracking.

Automatic tracking of objects can be the foundation for many interesting applications. An accurate and efficient tracking capability at the heart of such a system is essential for building higher level vision-based intelligence. Tracking is not a trivial task given the non-deterministic nature of the subjects, their motion and the image capture process itself. The goal of the work is

(a) To set up a system for automatic segmentation and tracking of moving objects in stationary camera video.

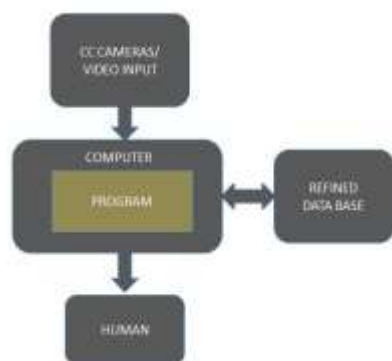
(b) To make significant improvements in commonly used algorithms.

## II. EXISTING SYSTEM

In the existing system the algorithm is completely depends on the image processing techniques and it will be restricted to the detection of only some objects in the images and also mainly depends on the colour of the object and it will have the huge amount of noise because it doesn't have any intelligent system running and we have to take some extra steps to avoid this noise and it makes the algorithm more complicated and we have to write another new program for different object and if we tune it to be more precise also we cannot guarantee a precise output. Only video can be taken by using the present systems or conventional methods. Sometimes this feature becomes disadvantageous when we need to count the number of incomings and outgoing. In those cases, it becomes highly difficult and strict manual interaction is needed in order to know what that actually happened over a given location.

### III. PROPOSED METHOD

Along with the normal image processing techniques we will be using the some intelligent systems to detect objects and it completely depends on the features of the object but not on the shape or the colour of the object, therefore it will be the most efficient and precise algorithm it will not have the unnecessary noise and there is no need of extra steps to avoid this noise and this make the algorithms simple and user understandable. As we are using the intelligent training system it can be used to detect any kind of the object. Here after tuning the program to be more precise we can expect a correct output without any noise. Here the components we use are camera, computer installed with Matlab and a data base to store data.



### IV. OBJECTIVES

- To detect moving objects in a frame.
- To keep account on number of objects that have crossed the frame already.
- Object in the sense anything that moves i.e., can be extended to vehicle detection and other moving thing tracking.
- To calculate the total number of incomings and outgoings.
- There are many available methods for object detection, but they are used only to detect normal objects.

### V. SOFTWARE USED

MATLAB(matrix laboratory) is a multi-paradigm numerical computing environment. A proprietary programming language developed by MathWorks, MATLAB allows matrix manipulations, plotting of functions and data , implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages, including C,C++,C#, Java, Fortran and Python.

Although MATLAB is intended primarily for numerical computing, an optional tool box uses the MuPAD symbolic engine, allowing access to symbolic computing abilities. An additional package, Simulink, adds graphical multi-domain simulation and model-based design for dynamic and embedded systems.

### VI. WORKING IN ABRIEF

Detection of moving objects and motion-based tracking are important components of many computer vision applications, including activity recognition, traffic monitoring, and automotive safety. The problem of motion-based object tracking can be divided into two parts:

1. Detecting moving objects in each frame
2. Associating the detections corresponding to the same object over time.

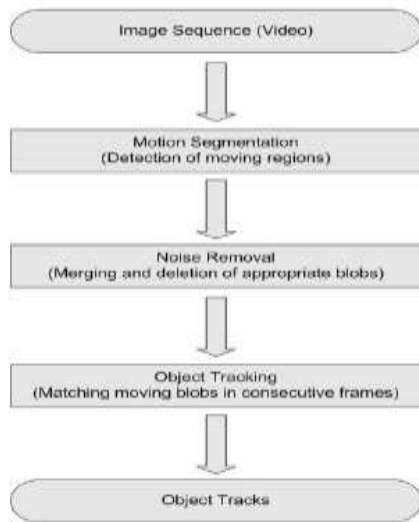
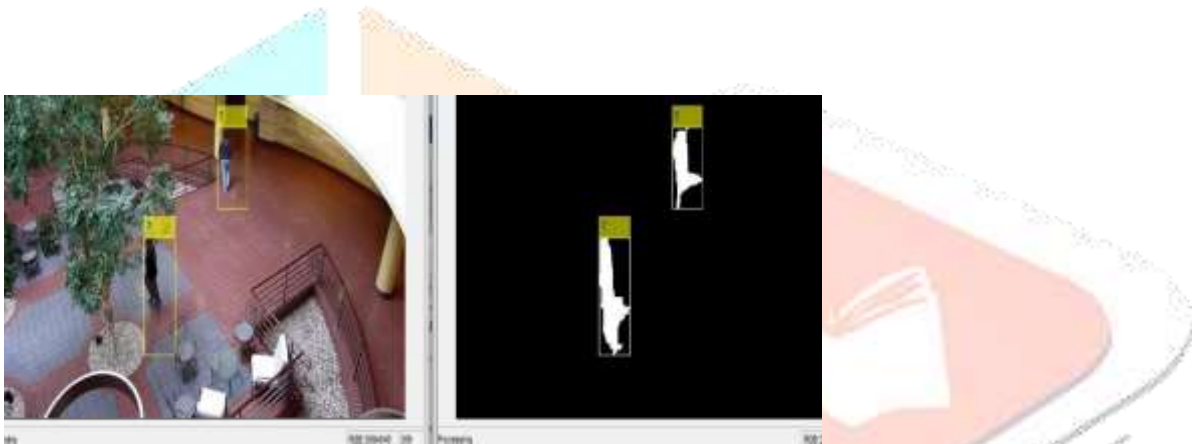


Figure 1.1. Block diagram of the system

## VII. RESULTS



## VIII. ADVANTAGES

- No need of manual involvement.
- Less complex.
- Avoids time taking processes.
- No man power required.
- Except in the initiation, no proper maintenance is essential.

## IX. APPLICATIONS

- Activity recognition.
- Traffic recognition.
- Automotive safety.
- Computer vision applications.
- Can be extended to counting of vehicles also.

## X. DISADVANTAGES

- Sensitive to the change of external environment.
- Values suitable for one cctv system do not work for every cctv inputs.

## XI. CONCLUSION

For this project, we achieve with an object-tracking program that can automatically track multiple objects. We add intelligence to our program to track moving object automatically without being specified by users. It detects the motion, segments moving objects, and then tracks the min the frames following the first two frames. Tracking accuracy is quite good based on the resultant moving objects are correctly tracked through the whole sequence.

## XII. REFERENCES

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