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Vehicle Detection and Counter

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ABSTRACT
My task had as its objective the realization of a proof of concept of an Automated Vehicle Counting system based on computer vision techniques. The software serves as a statistics provider for the transport department to prevent traffic jams by estimating road usage or for infrastructure constructors to schedule maintenance of existing roads or build new ones.

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I. INTRODUCTION

In this, we present the state of the art of the most two important concepts our system will be based on. We will start by introducing two different, though complementary detection methods used currently in video surveillance generally and for building vehicle data flow estimation systems. In the second part, we will discuss some of the existing tracking methodologies linked to our goal. At the end of each section, we announce the adopted approach for the design and the motivating reasons. A more recent and developed survey about the different computer vision methods employed for similar goals could be found here.

II. METHODS

We will present two approaches for object detection in This section: The first, like[3],[4],and many others cited in the following section, works by identifying which parts of the image are not fixed by studying temporal discontinuities in the video signal.
The output is a segmentation of the image representing the background and the moving objects. These algorithms often work directly at a pixel level; therefore, the semantics of its result is quite poor.

2.1 OPTICAL METHOD

Opticalflow algorithms are designed to characterize the move mentin a scene. A teach pixelor block is assigned a motion vectorv from a source image and target image.This paragraph aims to briefly describe the challenges of estimating the optical flow.

2.2 PATTERN RECOGNIZATION

The object detection approaches based on pattern recognition use statistical learning algorithms to separate the background of the objects sought. These methods allow recognizing the appearance or the general appearance of the objects here vehicles. To do this they produce a more or less rich discriminate model of what constitutes a vehicle.

III. ADOPTED APPROACH FOR DETECTION

We decided to use the background subtraction method over the classifier for more than one reason. First, training a “good” classifier could take a long time, which is a luxury we didn’t have in thisproject.And by good,it’s meant that the system will detect accurately atleast over 90% of vehicles. Secondly, the background subtraction methods are very efficient since objects in the scene we are analyzing (highway video surveillance recording) are mostly vehicles and they are moving thus they could be detected whatever their appearance. Moreover, we have the flexibility to choose the position and the angle of the camera to be fixed on. Finally, thisis a basic technique in video surveillance.
also gave a review of related topics. Going any further in explanation will be beyond the main purpose of this document. Meanwhile, given reference will lead curious readers to what they are seeking.

IV. CONCLUSION

Improving the result of the background subtraction module, e.g. eliminatingvehicle shadow or improving its performance with a parallel implementation using GPU orothers.Improving the data correspondence module by considering more features(for example colors or blob size) when realizing thematching.Developing a web application that computes and displays the different metricsextracted.One other improvement might be integrating vehicle classification in order to allow more possibilities for computing a more sophisticated set ofstatistics.

REFERENCES

[1]. RobertP.Loce,EdgarA.Bernal,WenchengWu,RajaBala,"Computervisioninroadway transportation systems: a survey," J. Electron. Imaging. 22 (4), 041121,2013.

[2]. C. Stauffer et W. E. L. Grimson : Adaptive Background Mixture Models for Real Time Tracking. In Proceedings of the International Conference on Computer Vision and Pattern Recognition,1999.

[3]. C. Stauffer et W. E. L. Grimson : Learning patterns of activity using real-time tracking. Pattern Analysis and Machine Intelligence,2000.

[4]. Y.-T. Chen, C.-S. Chen, C.-R. Huang et Y.-P. Hung : Efficient hierarchical method for background subtraction. Pattern Recognition,2007.

[5]. Thierry Chesnais. Contextualisation d'un d´etecteur de pi´etons : application `a lasurveillance d'espaces publics. Other. University's Blaise Pascal - Clermont-Ferrand II, 2013.

[6]. T.ZhaoetR.Nevatia:Bayesianhumansegmentationincrowdedsituations.InProceedings of the International Conference on Computer Vision and Pattern Recognition,2003.

[7]. K. Toyama, J. Krumm, B. Brumitt et B. Meyers : Wallflower : Principles and practice of backgroundmaintenance.InProceedingsoftheInternationalConferenceonComputerVision, 1999.

[8]. K. Kim, T. H. Chalidabhongse, D. Harwood et L. Davis : Background modeling and subtractionbycodebookconstruction.InProceedingsoftheInternationalConferenceonImage Processing,2004.

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