

Computer Vision Application: Vehicle Counting and Classification System from Real Time Videos

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Abstract: *Traffic analysis is a problem that city planners have been dealing with for years. Smarter methods are developed to analyze traffic and speed up the process. Traffic analysis can record the number of vehicles and vehicle classes in an area at a given time. People have been developing such mechanisms for decades now, but most of them involve using sensors to calculate the direction of moving vehicles and identify vehicles to track vehicle numbers. Although this system has matured over time and is very effective, they are not budget-friendly. The problem is that such systems require periodic maintenance and calibration. Therefore, this project aims to calculate and classify the vehicle based on vision. The system involves capturing frames from video to detect and count vehicles using Gaussian Mixture Model (GMM) background subtraction, then classifying vehicles by comparing contour areas with predicted values. A significant contribution of the paper is the comparison of two classification methods. Classification is done using Contour Comparison (CC) and Bag of Features (BoF) methods.*

Keywords: Vehicle counting, Traffic analysis, Contour Comparison.

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