

Traffic Flow Investigation at Intersections by Applying Image Analysis Techniques

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ABSTRACT

Automatic traffic monitoring has always been the goal of intelligent transportation systems. However, the traditional monitoring work of traffic intersections most still rely on manual count methods to survey traffic volumes by visual observation now, that wastes much human resources and time costs, while manual count methods are not precise and accuracy. In this paper, at the original region and the goal region we use multi-camera to detect foreground objects and extract and transform the features, and then store the features into the temporary database. According to the time difference mechanism, we extract the goal region of vehicle features to match the original region of vehicles features. If the two objects' features are be transformed and matched by extracting objects' features(position, shape, color) are similar, the two objects will be the same vehicle. In addition, in this paper it can be used to automatically determine the region of interest(ROI) by the traffic flow of continuous images. It detects all vehicles in ROI to reduce processing time of the frame. The results of our research can save human resource, and does not use manual count method to survey; on the other hand, it also can automatically survey turning traffic flow. In order to provide traffic information to Traffic Control Center(TCC), our systems can be more effective controlled by automatically surveying turning traffic flow at the intersection, so that each traffic area can be achieved the most efficient use by controlling the traffic signals, easing traffic flow, and reducing the opportunity of idle lanes.

Keywords : multiple camera、 video surveillance systems、 feature extraction、 image analysis

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