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Vehicular Speed Detection Camera System Using Video Stream

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Abstract : In this paper, a new Vehicular Speed Detection Camera System that is applicable as an alternative to traditional radars with the same accuracy or even better is presented. The real-time measurement and analysis of various traffic parameters such as speed and number of vehicles are increasingly required in traffic control and management. Image processing techniques are now considered as an attractive and flexible method for automatic analysis and data collections in traffic engineering. Various algorithms based on image processing techniques have been applied to detect multiple vehicles and track them. The SDCS processes can be divided into three successive phases; the first phase is Objects detection phase, which uses a hybrid algorithm based on combining an adaptive background subtraction technique with a three-frame differencing algorithm which ratifies the major drawback of using only adaptive background subtraction. The second phase is Objects tracking, which consists of three successive operations - object segmentation, object labeling, and object center extraction. Objects tracking operation takes into consideration the different possible scenarios of the moving object like simple tracking, the object has left the scene, the object has entered the scene, object crossed by another object, and object leaves and another one enters the scene. The third phase is speed calculation phase, which is calculated from the number of frames consumed by the object to pass by the scene.

Keywords : radar, image processing, detection, tracking, segmentation
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