

A Background Subtraction Based Moving Object Detection Around the Host Vehicle

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Abstract : In this paper, we propose moving object detection method which is helpful for driver to safely take his/her car out of parking lot. When moving objects such as motorbikes, pedestrians, the other cars and some obstacles are detected at the rear-side of host vehicle, the proposed algorithm can provide to driver warning. We assume that the host vehicle is just before departure. Gaussian Mixture Model (GMM) based background subtraction is basically applied. Pre-processing such as smoothing and post-processing as morphological filtering are added. We examine "which color space has better performance for detection of moving objects?" Three color spaces including RGB, YCbCr, and Y are applied and compared, in terms of detection rate. Through simulation, we prove that RGB space is more suitable for moving object detection based on background subtraction.

Keywords : gaussian mixture model, background subtraction, moving object detection, color space, morphological filtering

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