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Car Detection Using Cascade Classifier on Embedded Platform

(Conference Paper)

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Abstract

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Advanced Driver-Assistance Systems (ADAS) help reducing traffic accidents caused by distracted driving. One of the features of ADAS is Forward Collision Warning System (FCWS). In FCWS, car detection is a crucial step. This paper explains about car detection system using cascade classifier running on embedded platform. The embedded platform used is NXP SBC-S32V234 evaluation board with 64-bit Quad ARM Cortex-A53. The system algorithm is developed in C++ programming language and used open source computer vision library, OpenCV. For car detection process, object detection by cascade classifier method is used. We trained the cascade detector using positive and negative instances mostly from our self-collected Malaysian road dataset. The tested car detection system gives about 88.3 percent detection accuracy with images of 340 by 135 resolution (after cropped and resized). When running on the embedded platform, it managed to get average 13 frames per second with video file input and average 15 frames per second with camera input. © 2019 IEEE.

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Author keywords

Cascade Classifiers

FCW system

image processing

Object Detection

Vision-based ADAS

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Engineering controlled terms:

Advanced driver assistance systems

Automobile drivers

C++ (programming language)

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- 1 Viola, P., Jones, M.
 (2004) *Merl-a Mitsubishi Electric Research Laboratory Rapid Object Detection Using A Boosted Cascade of Simple Features Rapid Object Detection Using A Boosted Cascade of Simple Features*

- 2 Nur Shazwani, A., Ibrahim, M.M., Ali, N.M.
 Comparison of forward vehicle detection using haar-like features and histograms of oriented gradients (HOG) technique for feature extraction in cascade classifier
 (2017) *Journal of Telecommunication, Electronic and Computer Engineering*, 9 (2-13), pp. 75-80.
jtec.utem.edu.my/

- 3 Liu, K., Mattyus, G.
 Fast Multiclass Vehicle Detection on Aerial Images
 (2015) *IEEE Geoscience and Remote Sensing Letters*, 12 (9), art. no. 7122912, pp. 1938-1942. Cited 101 times.
<http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=8859>
 doi: 10.1109/LGRS.2015.2439517

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