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Abstract

The presented framework uses the localization concept of multiwavelet transform and EMD analysis to locate number plate from vehicle. Multiwavelet transform is similar to wavelet but unlike wavelet, it simultaneously provides orthogonality, symmetry, short support and vanishing moments. Multiwavelet is used to decompose the image and EMD helps to find the actual wave crest from the projected information provided by multiwavelet transform. The effectiveness of the proposed algorithm is improvised using pre- and post-processing steps which includes image enhancement and skew correction respectively. Proposed algorithm has also been tested on single and double line number plate. The performance of the proposed algorithm has been tested on various countries' number plates like Croatia, Austria, France, India, Greece etc. and in various conditions like shadow, dirt, blurry etc. Proposed system has detected number plate with high accuracy and in relatively less time.

Keywords: License Plate Recognition, Multiwavelet Transform, Hilbert-Huang Transform

1. Introduction

Automatic Number Plate Recognition is a special form of Optical Character Recognition (OCR) used to extract number plate from the vehicle image. ANPR is one of the fast growing fields, used in surveillance, police enforcement and control. It is the combination of three major fields i.e., image processing, pattern recognition and image detection. It is an efficient tool for intelligent transportation system [1]. Main aim of ANPR system is to collect information of a car on the basis of License Plate (LP) to identify the car as well as its owner details. Every country has its own License Plate Recognition (LPR) system because LP is country specific. ANPR systems installed at many survey points are used to collect information of the vehicle for automatic toll collection, car parking, pay-per-use road usage, and traffic law enforcement [2], [3], etc. It is

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