

A real-time Malaysian automatic license plate recognition (M-ALPR) using hybrid fuzzy

ABSTRACT

The Road Transport Department of Malaysia has endorsed a specification for car plates that includes the font and size of characters that must be followed by car owners. However, there are cases where this specification is not followed. This paper proposes a new methodology to segment and recognize Malaysian car license plates automatically. The proposed methodology solves the problem of segmenting different length licenses such as license with different number of character and number. There are two main objectives for this paper: first is to develop fuzzy rules to recognize the segmented characters and numbers from the same input-sets, which is the same size without overlapping between the characters and numbers sets. Secondly, this paper proposes a method to recognize non-standard plates by Template Matching theorem. Finally, the hybrid method of Fuzzy and Template matching is tested on 300 samples of car images captured in outdoor environment. The results yield 90.4% recognition accuracy, the Fuzzy based required 1.7 seconds and Template matching based took 0.75 seconds to perform the recognition. The adaptability factor of the hybrid method is also discussed.

Keyword: Automatic license plate recognition; Fuzzy logic system; Template matching theorem