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Abstract
In this study, the complete procedure of image-based license plate number recognition was presented, and we addressed the improvement for the common problems in each parts of license plate recognition system. The whole procedure was divided into four sections, that were separately preprocessing, vehicle plate area locating, character segmentation and character recognition. The vehicle plate area locating was achieved by the method base on fuzzy theory. The degree of pixels belonging amount vehicle plate were measured by two membership functions which have input parameters that respectively were saturation and intensity for the one and the edge feature for another. After fuzzy computation, used the two dimensional average filtering to get the areas which had higher density membership value and took them as the candidates for evaluating the exact license plate location. In the section of character segmentation, the fast, effective clustering algorithm and the tilt corrective algorithm were used for getting the correct and modified character connective components. In order to make the performance of character recognition higher, the module of mixture of experts was adopted for character recognition. The self-organization map acted the assigner and the gating network in this module, assigned similar classes into each sub-network called expert in the constructional period; Then, decided the decision weight of each expert in the active period. Thus, the amount of classes which each expert in charged would have been reduced so that the recognition rate will be promoted. After the experiment, we found that has obtained a 97.0% recognition rate of license plates and a 99.4% recognition rate of characters.
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