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Author Chen-Che Lu
Author's Email Address No Public.
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Abstract
Nowadays, the Web camera has been broadly used and applied to many fields in industry. The purpose of this research is to study real-time pattern recognition using the Web camera, which is a promising solution to some fields in modern computer industry such as keyboard recognition. In this paper, an effective real-time pattern recognition system using the Web camera is proposed and evaluated against real objects - dices. First, the system converted the original image from RGB to HSV color space, followed by polarizing the image. The observed image further went through an iterative morphological process to eliminate noisy data. Following the mathematical morphological approach, Region Filling is to fill up the depressions or holes on the ground of the number of the dices. And erosion gets rid of noisy data such as shadows. Meanwhile, a pixel shrinking technique was employed to speed up the image processing. Finally, the system applied a clustering technique to pixels in order to classify the numbers of dices. There are 500 test patterns that are used in the experiment. The results show that the recognition rate is up to 90% in the application of dices recognition. Based on the experimental results, it is practical to apply the Web Camera to other recognition applications.
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