Real-Time Retrieval for Images of Documents in Various Languages

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We propose a real-time image retrieval system using a web camera for documents in various languages. This is an extension of the real-time image retrieval for English documents [1]. As shown in Fig. 1, the user can retrieve document images from a database by capturing paper documents with a web camera.

The overview of the proposed system is shown in Fig. 2. Firstly, feature points are extracted from a captured image using a web camera. Based on correspondences of feature points, a retrieval result is calculated. The retrieval result and captured region are presented to the user.

In the English document image retrieval system [1], centroids of word regions are used as feature points to describe documents. This is because centroids of word regions can be extracted easily and have discriminative arrangements. On the other hand, in some languages including Japanese and Chinese, words are not separated. Therefore alternative feature points such as centroids of character regions are required. However, centroids of character regions have insufficient discrimination power because they are aligned regularly in those languages. In the proposed method, this problem is solved by using the additional features extracted from character regions. For example, areas of character regions are calculated and its ranking among the neighboring character regions is employed as a new feature that augments the centroids.

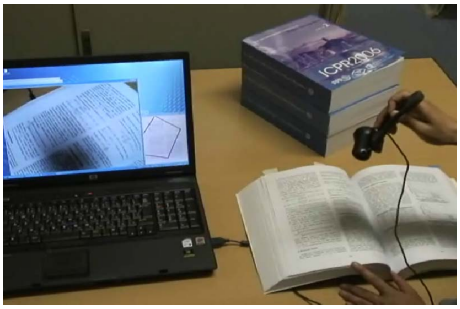

Figure 1. A scene of the demonstration.

A sample program of the proposed system will be available at [2].

References

[1] T. Nakai, K. Kise, and M. Iwamura. Real-time document image retrieval with more time and memory efficient llah. In *Proceedings of CBDAR2007*, pages 168–169, Sept. 2007.

[2] Real-time document image retrieval with llah. from http://www.imlab.jp/LLAH/.

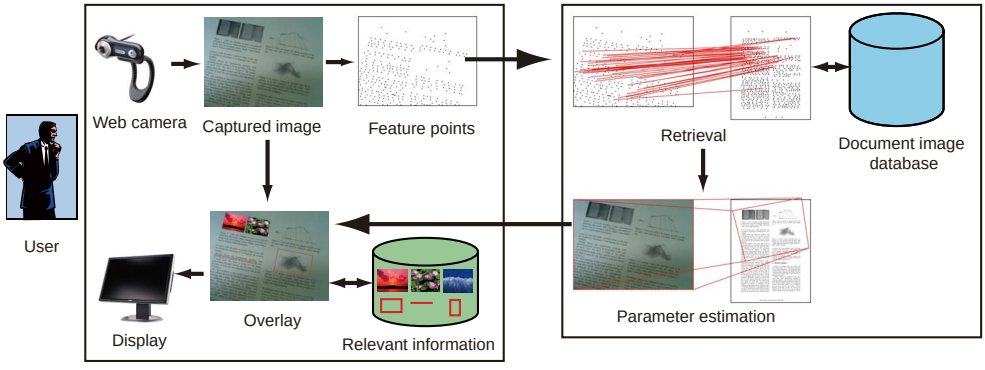

Figure 2. The overview of the proposed system.