Abstract

The work presented in this paper focuses on recognition of isolated handwritten numerals in Devanagari and Gurumukhi script. The proposed work uses four feature extraction methods like Zoning density, Projection histograms, Distance profiles and Background Directional Distribution (BDD). On the basis of these four types of features we have formed 10 feature vectors using different combinations of four basic features. This work uses Support Vector machines (SVM) for the classification of numerals. A total of 2000 samples of numerals are taken for Gurumukhi and Devanagari and we have attain a maximum recognition accuracy of 99.6% in case of Gurumukhi Numeral recognition and 99% for Devanagri Numeral recognition. In addition to SVM classifier, we have also used two similarity based classifiers Euclidean distance and Square chord distance for the classification purpose. With Euclidean distance, a recognition accuracy of 99% and 91.67% is obtained for Gurumukhi and Devanagri numerals respectively. Similarly with Square Chord distance accuracy of 95.33% and 81.67% is obtained for Gurumukhi and devanagri numerals respectively.


Sandhya Arora, Debotosh Bhattacharjee, Mita Nasipuri, "Combining Multiple Feature Extraction Techniques for Handwritten Devnagari Character Recognition" IEEE Region 10 Colloquium and the Third ICIIS, Kharagpur, INDIA December 8-10, 2008.


Anita Rani , Rajneesh Rani , Renu Dhir "Combination of Different Feature Sets and SVM Classifier for Handwritten Gurumukhi Numeral Recognition" International Journal of Computer Applications Volume 47—No. 18, June 2012.


Design and Simulation of Handwritten Gurumukhi and Devanagri Numerals Recognition


Index Terms
- Computer Science
- Pattern Recognition

Keywords
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- Feature extraction
- Support vector machine
- Classification