Abstract

Handwritten Devanagari character plays a vital role in the research area. Number of technique has been adopted in previous decades and still some new are arising to get good results from recognition system. In Devanagari, Compound character are complex in structure, they are written by combination two or more character. Due to complex structure in it, it gives a challenging task to the researchers. The occurrence of compound in the script is upto 8 to 10%.

In this research paper, a recognition system for handwritten and printed Devanagari Compound Character is proposed bases on orthogonal moment i.e. Legendre and Zernike moment as a feature are used to recognize the Devanagari character. The character image is preprocessed and normalized to 30X30 pixel sizes, and used for structural classification where the character is classified into three classes. After classifying the character it is partitioned and
from each zone moment feature are extracted. The proposed system is trained and tested on 27000 handwritten collected from writer of different profession, 10800 printed Devanagari basic and compound character database under APS Designer Software. For classification fivefold cross validation test is used with SVM to obtain average percentage of recognition accuracy. The RR for Printed is 98. 42 % (basic) and 98. 31% (compound) and for Handwritten is 98. 51% (Basic) and 98. 30% (Compound) by SVM. The total number of classes is 48 Basic character and 60 Compound + split character. The obtained results were compared with some related existing approaches. Owing to the proposed technique, the results obtained show higher efficiency regarding classifier accuracy.

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**Index Terms**

Computer Science 
Pattern Recognition

**Keywords**

Devanagari Compound character 
Legendre Moment 
Zernike Moment 
k-Fold 
SVM