Abstract

Designing an automatic pattern recognition system is a challenging task. However, despite the design challenges, its enormous application potentials have attracted the attention of researchers and developers over the last four to five decades. Design of recognition systems for handwritten character applications has been a subject of intensive research, and the search is still on for a robust technique capable of dealing with natural variations in handwritten characters. In this paper the performance of Hopfield neural network (HNN) model in recognizing the handwritten Oriya (an Indian language) digits is addressed. The implementation has been carried out in two different ways. In first case, 290 test patterns (29 elements of each classes 0-9) created by different persons in Microsoft Paint were presented to the network in image form of 12×12. It is found that the network recognized 97.95% of the input characters correctly even if 40% of the input characters were having a significant level of noise. In the second experiment, the inputs were the collected handwritten characters in image format. A total of 1500 different input patterns were fed to the network sequentially and 95.4% recognition accuracy is achieved. All the activities such as preprocessing of data (image cropping, resizing, digitization and implementations) have been carried out using MATLAB.
References

- Bhowmik, T. K., Parui, S. K., Bhattacharya, U., Shaw, B. 2006 An HMM Based Recognition Scheme for Handwritten Oriya Numerals. 9th International Conference on Information Technology (ICIT’06) 0-7695-2635-7/06

Index Terms

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