STUDY ON DIFFERENT MESHING TECHNIQUES AND NORMALIZED VECTOR DISTANCES FOR HANDWRITTEN MALAYALAM CHARACTER RECOGNITION

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Abstract

In this work we implemented different meshing (Zoning) algorithms VIZ Fixed, Fuzzy, Global Elastic and Local Elastic, for the offline recognition of handwritten Malayalam characters. The feature used for classification is normalized vector distance of each block (Zone). Vector distance is measured from the image origin, block origin, image centroid and block centroid. For feature extraction, normal images as well as directional images were used. A database of 9000 handwritten samples of thirty Malayalam characters was used for the study. Classification was carried out with an MLP network. It is found that Fixed meshing with vector distance measured from the block centroid gives superior performance compared to the other methods. Based on previous work, it is also observed that the vector distance measured from the centroid gives better performance than the measurement from Image / Block origin. The work is further extended by incorporating two more simple features – aspect ratio and position of image centroid, which improved recognition accuracy. Finally a new feature is defined based on ratio of pixels on the vertical halves of a character image. The addition of the new feature resulted in an average increase of 2% in recognition accuracy.