ABSTRACT

Optical Character Recognition (OCR) is a computer's ability to recognize and convert character in a document into a digital symbolic representation. One of the documents that can be used is a C1 model form of PPWP 2014. In PPWP 2014, national recapitulation took quite a long time because it was done manually. By utilizing OCR, vote counting can be done automatically by peforming handwritten numeral recognition on C1 model form of PPWP 2014 that have been digitized so that recapitulation process can be done quickly. But the problem is that everyone has different way of writing numeral character, so the handwritten numeral recognition process is expected to recognize the digits well.

Offline handwritten digit recognition system built to recognize handwritten numeral characters on C1 model form. C1 model form are collected and formed into a data set. The system consists of several stages, the first stage is preprocessing stage to create image skeleton of handwritten numeral character. The processed image is fed in feature extraction process using modified Freeman Chain Code by simply dividing the image region, histogram chain code formation, and addition of four visual characteristics. Next, the results of feature extraction is tested on two classification methods namely K-NN and ANN Backpropagation.

Testing on handwritten numeral recognition system using modified Freeman Chain Code shows that this method is able to recognize handwritten numeral characters in C1 model form data set quite well. By simply dividing image into 9 region, normalizing histogram chain code, and adding four visual character, the best accuracy rate can reach 90.18% by using K-NN and reach 93.60% by using ANN Backpropagation.

Keywords: Offline, OCR, Freeman Chain Code