HANDWRITTEN NUMERAL AND MATHEMATICAL OPERATOR CHARACTER RECOGNITION BASED ON ZERNIKE MOMENTS USING HYBRID FUZZY C-MEANS – K-NEAREST NEIGHBOR AND SUPPORT VECTOR MACHINE

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ABSTRACT

Nowadays, there are many technologies associated with digital image recognition of handwritten characters that are part of pattern recognition. Handwriting recognition is important for information processing that allows transferring the contents of handwritten documents from paper to the computer.

In this final project hybrid Fuzzy C-Means – K-Nearest Neighbor and Support Vector Machine (SVM) based feature extraction Zernike Moments are developed as classification method of handwriting recognition numbers and mathematical operators. The reason for using the feature extraction method because it has the advantage of not changing the rotation, has a level sensitive for low noise, and have a perpendicular character. From the test results of classification method Support Vector Machine method, it has a higher accuracy rate than the hybrid Fuzzy C-Means – K-Nearest Neighbor. The Support Vector Machine has an accuracy rate of 97%, while for the hybrid Fuzzy C-Means – K-Nearest Neighbor has an accuracy rate of 79%.

Keywords: Fuzzy C-Means, K-Nearest Neighbor, Preprocessing, Support Vector Machine, Zernike Moments