ABSTRAK

Aksara Lampung merupakan sistem penulisan tradisional yang kini semakin jarang digunakan. Pengenalan otomatis tulisan tangan aksara ini menjadi solusi potensial untuk mendukung pelestarian budaya, meskipun masih menghadapi tantangan berupa variasi bentuk, orientasi, dan ukuran tulisan. Oleh karena itu, dibutuhkan metode ekstraksi fitur yang mampu merepresentasikan bentuk dan tekstur karakter secara optimal sebelum proses klasifikasi.

Penelitian ini bertujuan mengembangkan sistem pengenalan tulisan tangan aksara Lampung dengan mengombinasikan metode Histogram of Oriented Gradient (HOG) untuk fitur bentuk dan kontur, serta Local Binary Pattern (LBP) untuk fitur tekstur lokal. Hasil ekstraksi kedua metode digabungkan dan diklasifikasikan menggunakan algoritma Support Vector Machine (SVM) dengan *kernel* RBF.

Hasil pengujian menunjukkan kombinasi LBP (P=24,R=3P=24, R=3P=24,R=3, *uniform*) dan HOG (*orientations*=9, *pixels_per_cell*=(8,8), *cells_per_block*=(2,2)) dengan SVM (C=10,γ=0.1C=10, \gamma=0.1C=10,γ=0.1) menghasilkan akurasi 96%. Hal ini membuktikan pemilihan parameter yang tepat pada tahap ekstraksi dan klasifikasi sangat memengaruhi kinerja sistem.

Berdasarkan temuan tersebut, dapat disimpulkan bahwa kombinasi HOG dan LBP efektif dalam merepresentasikan karakteristik tulisan tangan aksara Lampung, dan integrasinya dengan SVM memberikan performa klasifikasi tinggi. Pendekatan ini berpotensi diterapkan pada sistem pengenalan aksara daerah untuk mendukung pelestarian budaya melalui teknologi.

Kata Kunci : Aksara Lampung, Histogram of Oriented Gradient, Local Binary Pattern, Support Vector Machine, Pengenalan Tulisan Tangan

ABSTRACT

Lampung script is a traditional writing system that is now increasingly rare in use. Automatic recognition of handwritten Lampung characters offers a potential solution to support cultural preservation, although it still faces challenges such as variations in shape, orientation, and size of the characters. Therefore, a feature extraction method capable of optimally representing the shape and texture of characters is required before the classification process.

This study aims to develop a handwritten Lampung script recognition system by combining the Histogram of Oriented Gradient (HOG) method for shape and contour features with the Local Binary Pattern (LBP) method for local texture features. The extracted features from both methods are combined and classified using the Support Vector Machine (SVM) algorithm with a Radial Basis Function (RBF) kernel.

Experimental results show that the combination of LBP (P=24,R=3P = 24, R = 3P=24,R=3, uniform) and HOG (orientations = 9, pixels_per_cell = (8, 8), cells_per_block = (2, 2)) with SVM (C=10,γ=0.1C = 10, \gamma = 0.1C=10,γ=0.1) achieves an accuracy of 96%. This demonstrates that selecting the right parameters in both the feature extraction and classification stages significantly affects system performance.

Based on these findings, it can be concluded that the combination of HOG and LBP is effective in representing the characteristics of handwritten Lampung script, and its integration with SVM provides high classification performance. This approach has the potential to be applied in local script recognition systems to support cultural preservation through technology.

***Keywords**: Lampung script, Histogram of Oriented Gradient, Local Binary Pattern, Support Vector Machine, Handwriting Recognition*