Face Detection System for Improving Community Security Using the K-Nearest Neighbor Method *(*Sistem Deteksi Wajah Untuk Peningkatan Keamanan Masyarakat Menggunakan Metode *K-Nearest Neighbor)*

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ABSTRACT

The increase in crime and the challenges in identifying perpetrators have become significant issues in community safety. The lack of information regarding criminals and the infrequency of 24-hour patrols make the identification process increasingly difficult. This study develops a facial recognition system using the K-Nearest Neighbor (K-NN) method to detect criminals. The pre-processing steps involve converting images to grayscale, enhancing contrast, detecting faces with haar cascades, cropping, resizing, and intensity normalization to produce good quality images before feature extraction using Local Binary Pattern (LBP). Classification with K-NN was performed with various k values, namely k = 1 yielding 100% accuracy, k = 3 yielding 66% accuracy, k = 5 yielding 56% accuracy, and k = 7 yielding 53% accuracy.

Keywords *: Machine learning, Laravel, Python, Open CV, K-Nearest Neighbor*