

ABSTRAK

The rapid progression of technological advancements, particularly in the digitalization of image data, has significantly facilitated numerous sophisticated applications, including pattern recognition. A prominent example can be observed within the education system of UIN Sunan Gunung Djati Bandung, where the Student Identification Number (NIM) constitutes a pivotal component in a wide range of academic service operations. At present, processes such as the verification of scholarship documentation, updating of PD DIKTI data, and the borrowing of library materials are predominantly executed through manual means, frequently resulting in operational inefficiencies and the occurrence of human errors. To address these challenges, this study investigates the application of the template matching algorithm for recognizing the NIM on the Student Identity Card (KTM).

This study is conducted to systematically evaluate the implementation of template matching for NIM recognition, assess the performance of the proposed method, and ascertain its impact on enhancing student services. The experimental findings reveal that the template matching algorithm demonstrates variable success rates across three trials (9/20, 8/20, and 8/20 instances correctly identified). The detection accuracy is determined to be influenced by factors including, but not limited to, template values, the presence of noise, variations in lighting conditions, and the parameter settings of the Canny edge detection process.

The results substantiate the potential of the template matching algorithm to significantly improve the efficiency of student services by automating the NIM recognition process. Nonetheless, several technical limitations, particularly those impacting detection accuracy, necessitate further refinement to optimize its performance. This research highlights the critical importance of enhancing the algorithm to establish a robust and effective system for academic service delivery.