

ABSTRAK

Muhammad Herlin Fadli, 2025. **Perancangan Aplikasi Sistem Pengenalan Wajah Dengan Metode Convolutional Neural Network (CNN) Untuk Pencatatan Presensi Mahasiswa.** Tugas Akhir, Program Studi Informatika (S1), Universitas Bhinneka Nusantara, Pembimbing: Laila Isyriyah, M.Kom, Co. Pembimbing: Mukhlis Amien, M.Kom

Kata kunci: Presensi mahasiswa, Pengenalan wajah, CNN, Presensi otomatis

Kehadiran mahasiswa di perguruan tinggi berperan penting sebagai persyaratan administratif dan indikator kedisiplinan. Di Universitas Bhinneka Nusantara (UBHINUS), sistem presensi berbasis barcode melalui aplikasi PASPOR telah digunakan, namun memiliki kelemahan seperti potensi titip absen karena barcode dapat dibagikan. Untuk mengatasi hal tersebut, penelitian ini mengembangkan sistem presensi berbasis pengenalan wajah menggunakan metode Convolutional Neural Network (CNN) yang mampu mengenali identitas mahasiswa secara otomatis dan akurat. Penelitian ini dibatasi pada penggunaan di lingkungan UBHINUS dengan data yang digunakan hanya data wajah mahasiswa. Sistem dibangun menggunakan CNN dan basis data MySQL, serta diakses melalui perangkat ponsel atau laptop saat pembelajaran berlangsung di kelas. Pengujian dilakukan melalui uji akurasi dan black box testing. Uji akurasi menggunakan 35 data wajah mahasiswa menghasilkan tingkat akurasi sebesar 91,4%, menunjukkan kemampuan sistem dalam mengenali wajah dengan baik. Sementara itu, black box testing memastikan seluruh fitur berjalan sesuai fungsinya untuk semua jenis pengguna. Hasil penelitian menunjukkan bahwa sistem pengenalan wajah berbasis CNN ini mampu mencatat presensi mahasiswa secara otomatis, mengurangi potensi kecurangan, dan layak diimplementasikan dalam lingkungan akademik tanpa memerlukan perangkat keras khusus.

ABSTRACT

Muhammad Herlin Fadli, 2025. **Design of Facial Recognition System Application Using Convolutional Neural Network (CNN) Method for Recording Student Attendance.** Final Project, Study Program Informatics (S1), Universitas Bhinneka Nusantara, Advisor 1 : Laila Isyriyah, M.Kom., Advisor 2 : Mukhlis Amien, M.Kom

Keyword: Student attendance, Facial recognition, CNN, Automatic attendance

Student attendance at universities plays a crucial role as an administrative requirement and an indicator of discipline. At Bhinneka Nusantara University (UBHINUS), a barcode-based attendance system through the PASPOR application has been used, but it has weaknesses such as the potential for absenteeism due to the barcode being distributed. To address this, this study developed a facial recognition-based attendance system using the Convolutional Neural Network (CNN) method that is capable of automatically and accurately recognizing student identities. This study was limited to use within the UBHINUS environment, with only student facial data used as data. The system was built using CNN and a MySQL database, and was accessed via mobile devices or laptops during class. Testing was carried out through accuracy testing and black box testing. The accuracy test using 35 student facial data resulted in an accuracy rate of 91.4%, demonstrating the system's ability to recognize faces well. Meanwhile, black box testing ensured that all features functioned as intended for all types of users. The results of the study indicate that this CNN-based facial recognition system is capable of automatically recording student attendance, reducing environmental potential, and is feasible to implement in an academic environment without requiring special hardware.