DEVELOPING FACE RECOGNITION ATTENDANCE APPLICATION FOR STUDENTS USING CONVOLUTIONAL NEURAL NETWORK

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ABSTRACT

Conventional attendance systems, such as signature logs and QR code scanners, exhibit several weaknesses, particularly concerning efficiency and susceptibility to fraud, including manipulating absence records. This study developed a student attendance application that employs facial recognition technology based on Convolutional Neural Networks (CNN) to address these issues. By leveraging deep learning techniques, this system can automatically recognize students' faces and record their attendance more accurately. The development of this application involved several stages: collecting student facial datasets, preprocessing the data, training the CNN models, and implementing a web-based system using PHP and MySQL. Model evaluation was conducted by testing the system's performance on test data under various lighting conditions and facial angles. The experimental results demonstrated that the developed CNN model attained an accuracy of 96.67%, with a precision of 96.86%, a recall of 96.67%, and an F1-score of 96.69%. Given the high level of accuracy demonstrated by this system, it is poised to serve as a pioneering solution that promises to enhance the efficiency and security of automated student attendance recording.

***Keywords**: Face Recognition, Convolutional Neural Network, Student Attendance, Deep Learning, Accuracy*