

Implementation of Face Recognition using MobileNetV2 for Student

Attendance at Taruna Bakti Vocational High School Kertosono

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ABSTRACT

The development of face recognition technology provides an opportunity to improve the effectiveness of attendance systems in educational institutions. SMK Taruna Bakti Kertosono still uses an attendance process that requires considerable time and is prone to recording errors. This study aims to implement a Convolutional Neural Network (CNN) model based on the MobileNetV2 architecture in a face recognition-based attendance system and evaluate its performance in recognizing students' faces. The dataset consists of facial images from 80 students of SMK Taruna Bakti Kertosono, captured from three different angles: frontal, right profile, and left profile. The preprocessing stage includes background removal, face cropping, image resizing, and data augmentation before the training process. Model performance was evaluated using a classification report and 5-Fold Cross Validation, followed by system testing. The experimental results show that the model achieved an accuracy of 98.58%, precision of 98.83%, recall of 98.58%, and an F1-score of 98.57%. The 5-Fold Cross Validation produced an average testing accuracy of 98.93% with a standard deviation of 0.45%. These results indicate that the implementation of the CNN model using the MobileNetV2 architecture is capable of supporting an automatic student attendance system with high recognition accuracy.

Keywords: *face recognition, Convolutional Neural Network, MobileNetV2, attendance system.*