

ABSTRACT

Manual attendance systems in educational institutions like Telkom University are often inefficient and prone to errors. To address this issue, an automated attendance system based on Face Recognition technology was developed. This research aims to design a modern solution that enhances the efficiency and security of student attendance recording by leveraging advanced algorithms for biometric identification.

The system's implementation begins with the use of a camera to capture student facial images in real-time. These images are then processed using the FaceNet method, an algorithm that converts each face into a unique numerical representation known as a "face embedding." After a successful identification and matching process against the existing data, the attendance information, which includes the student's name and status, is automatically saved to a database and exported into an Excel file format.

To test its reliability, the system was evaluated based on speed and accuracy under various scenarios, including different video resolutions, number of people, and distances. The test results show that the highest accuracy of 94.4% was achieved at the closest distance (75 cm), and reached 100% when processing a single person, though it decreased to 88.8% for four people. Processing times varied from 3.36 seconds (1 person, 360p) to 6.42 seconds (4 people, 720p), depending on the number of people and the resolution used.

Keywords: Attendance System, Biometrics, Face Recognition and Facenet