

# **Implementation of MTCNN and FaceNet in Face Recognition-Based Digital Attendance System**

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## **ABSTRACT**

Conventional attendance systems in educational environments often face efficiency issues and are vulnerable to fraud, such as proxy attendance. This research aims to design a digital attendance system utilizing face recognition powered by deep learning techniques to enhance the accuracy and efficiency of attendance tracking. The development process follows the Design and Development Research (DDR) methodology. The system applies Multi-Task Cascaded Convolutional Networks (MTCNN) for detecting faces and FaceNet for extracting facial features into numerical embedding vectors. The experimental results indicate that the system performs remarkably well, achieving an accuracy rate of 96%, precision of 100%, and recall of 95%. The False Acceptance Rate (FAR) of 0% demonstrates a high level of security, as the system is able to reject all unregistered faces. However, the system still has limitations when handling extreme tilted face poses and distances beyond 150 cm, which lead to decreased detection performance. Overall, this system is feasible to support the digitalization of academic administration in a more transparent and efficient manner.

**Keywords:** deep learning, digital attendance, FaceNet, face recognition, MTCNN.