

Attendace System Based on Fingerprint and Face Recognition Using the YOLO

Method and WhatsApp Gateway

(Case Study at SMK Negeri 1 Tapen Bondowoso)

Supervised by oleh Nugroho Setyo Wibowo, ST. MT

Rizal Mahendra

Study Program of Informatics Engineering

Departemen of Information Technology

Jurusan Teknologi Informasi

ABSTRACT

The student attendance recording process at SMK Negeri 1 Tapen Bondowoso is currently still conducted manually, making it susceptible to data manipulation, loss of recapitulation, and a lack of transparency for parents. This study aims to develop a fingerprint and face recognition-based attendance system integrated with a WhatsApp gateway as an automatic notification medium for students' parents. The system was developed using an ESP32, an AS608 sensor, as well as Laravel and Flask frameworks. The test results indicated that the YOLOv8 model training achieved high performance, with a mAP50 of 0.99, Precision of 0.0985, Recall of 0.987. Functional testing of the face recognition feature yielded an accuracy rate of 92%, while the fingerprint sensor testing showed a FAR of 0% and an FRR of 4%. Furthermore, the WhatsApp gateway integration successfully transmitted attendance notifications to parents' smartphones in real-time. Functional testing of all system features using Black Box Testing demonstrated that every feature operated correctly and as intended. Based on the User Acceptance Test (UAT) conducted with the school, the system achieved a feasibility percentage of 93.33%, indicating that the attendance system is user-friendly and ready for implementation.

Keywords : Attendance System, Biometrics, Fingerprint, Face Recognition, YOLOv8, WhatsApp Gateway.