ABSTRACT

Conventional attendance systems (such as manual methods or QR codes) are prone to manipulation and inefficient, while existing face recognition technologies often have limited accuracy due to sensitivity to variations in facial conditions. This research aims to implement and integrate the YOLOv11 and InsightFace models into a web-based application platform to develop an attendance system that is more trustworthy, secure against falsification, and accurate. YOLOv11 was selected as the primary face detector due to its superior performance, while InsightFace was utilized for feature extraction and identity verification. Functional testing results indicate that the system operates according to the design specifications. Face recognition testing achieved a confidence level of 0.95 (95%). Furthermore, usability testing using the System Usability Scale (SUS), involving 8 expert respondents (expert judgment), yielded a score of 81.87, classified as Acceptable, Grade B, and Excellent. This demonstrates that the system possesses high usability, is easy to comprehend, and is accurate, showing significant potential for widespread implementation.

Keywords: *YOLOv11, InsightFace , Face Recognition, Attendance System, Usability*

ABSTRAK

Sistem presensi konvensional (manual atau kode QR) rentan terhadap manipulasi dan tidak efisien, sementara teknologi *face recognition* yang ada masih terbatas akurasinya karena sensitif terhadap variasi kondisi wajah. Penelitian ini bertujuan mengimplementasikan dan mengintegrasikan model *YOLOv11* dan *InsightFace* ke dalam platform aplikasi berbasis website untuk menghasilkan sistem presensi yang lebih tepercaya, aman dari pemalsuan, dan akurat. *YOLOv11* dipilih sebagai detektor wajah utama karena kinerjanya yang lebih baik, sementara *InsightFace* digunakan untuk ekstraksi fitur dan verifikasi identitas. Hasil pengujian fungsionalitas menunjukkan sistem berjalan sesuai rancangan. Pengujian pengenalan wajah mencapai tingkat keyakinan (*confidence*) sebesar 0.95 (95%). Selain itu, pengujian usabilitas menggunakan *System Usability Scale* (SUS) terhadap 8 responden ahli (*expert judgment*) menghasilkan skor 81,87, yang masuk kategori *Acceptable*, *Grade* B, dan *Excellent*. Hal ini membuktikan sistem memiliki tingkat kegunaan yang baik, mudah dipahami, dan akurat, serta memiliki potensi besar untuk diterapkan secara luas.

Kata Kunci: *YOLOv11*, *InsightFace* , *Face Recognition*, Sistem Presensi, Usability