

ABSTRAK

Personal finance tracker diperlukan untuk mengatasi praktik pencatatan keuangan pribadi yang masih banyak dilakukan secara manual sehingga rentan tidak konsisten, rawan kesalahan input, dan sulit dianalisis. Penelitian ini berasumsi bahwa kombinasi deteksi objek dan OCR pada struk belanja dapat mengurangi beban input sekaligus meningkatkan ketertiban pencatatan transaksi. Tujuan penelitian adalah merancang dan membangun aplikasi pencatatan keuangan pribadi berbasis *mobile* yang mendukung pencatatan manual dan otomatis melalui pemindaian struk, serta mengevaluasi kinerja model deteksi dan sistem OCR *end-to-end* pada skenario penggunaan nyata. Metode yang digunakan meliputi pengumpulan dan anotasi dataset struk ke dalam empat kelas *region* (*struk_belanja*, *info_toko*, *item_belanja*, *total*), pelatihan model YOLOv8 sebagai pendeteksi *region*, integrasi dengan EasyOCR pada *backend FastAPI*, serta pengembangan antarmuka Flutter dengan penyimpanan lokal SQLite dan prinsip *offline-first*. Hasil evaluasi menunjukkan precision 87,91%, recall 83,81%, mAP50 87,21%, dan mAP50–95 61,96%, dengan mAP50 per-kelas di atas 81%. Pengujian akurasi sistem OCR *end-to-end* pada 15 struk aktual menghasilkan skor 130 dari maksimum 150 poin ($\pm 86,67\%$) dengan jarak pemotretan optimal 9–18 cm, sedangkan pengujian *usability* menggunakan *System Usability Scale* (SUS) terhadap 20 responden menghasilkan skor rata-rata 84,25 (kategori *Excellent*). Temuan ini menunjukkan bahwa aplikasi Caku Finance mampu mendukung pencatatan keuangan pribadi secara lebih cepat, terstruktur, dan mudah digunakan, meskipun akurasi pada kondisi struk tertentu masih perlu ditingkatkan.

Kata kunci: *personal finance tracker*, OCR, Flutter, YOLOv8, struk belanja



ABSTRACT

Personal finance trackers are needed to address manual personal budgeting practices that are often inconsistent, error-prone, and difficult to analyse. This research assumes that combining object detection and OCR on shopping receipts can reduce manual input effort while improving the orderliness of transaction records. The objective is to design and develop a mobile-based personal finance tracking application that supports both manual entry and automated recording through receipt scanning, and to evaluate the performance of the detection model and the end-to-end OCR system in real-world scenarios. The methodology includes collecting and annotating a receipt dataset into four regions (struk_belanja, info_toko, item_belanja, total), training a YOLOv8 model for region detection, integrating it with EasyOCR on a FastAPI backend, and building a Flutter front-end with local SQLite storage following an offline-first architecture. The evaluation results show a precision of 87.91%, recall of 83.81%, mAP50 of 87.21%, and mAP50–95 of 61.96%, with per-class mAP50 values above 81%. End-to-end OCR accuracy testing on 15 real receipts yields a total score of 130 out of 150 points ($\approx 86.67\%$) with an optimal capture distance of 9–18 cm, while usability testing using the System Usability Scale (SUS) with 20 respondents produces an average score of 84.25 (Excellent category). These findings indicate that the Caku Finance application can support faster, more structured, and user-friendly personal finance tracking, although recognition accuracy for certain receipt conditions still needs improvement.

Keywords: personal finance tracker, OCR, Flutter, YOLOv8, receipt recognition

