



**INTEGRATION OF OCR TECHNOLOGY IN MOBILE ACCOUNTING SYSTEM :
A CASE STUDY AT SURI KARYA BERSAMA COMPANY ON IMPROVING
TRANSACTION RECORDING EFFICIENCY**

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Enhancing Transaction Recording Through Mobile-Based OCR Integration

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Abstract

This research presents the development and implementation of a mobile-based accounting system utilizing Optical Character Recognition (OCR) technology to enhance the efficiency of transaction recording at Sari Kaya Restoran. The primary goal is to reduce manual input errors and simplify the process of documenting financial transactions by providing receipts, which are often misread and prone to mistakes. The system works by capturing receipt images using a mobile application, converting scanned data into a structured, editable format using OCR, and then transferring the data to a centralized web platform. On the web interface, the user can view, edit, delete, and approve each transaction. A notification email is also generated and sent to the user upon successful completion of each transaction. Additionally, the prototype development method was applied to test OCR accuracy, improve user interface design, and ensure the system meets user needs through iterative testing and refinement. The results indicate that OCR integration significantly improves operational efficiency while reducing the burden of manual data entry. This research demonstrates that OCR-based automation, supported by a regulated accounting process, offers a practical and scalable solution for companies seeking to digitize and streamline their financial workflow processes.

Keywords: Optical Character Recognition, Mobile Accounting System, Transaction Recording, User Acceptance, Sari Kaya Restoran

Abstrak

Penelitian ini memaparkan pengembangan dan implementasi sistem berbasis teknologi mobile yang memanfaatkan teknologi Optical Character Recognition (OCR) untuk meningkatkan efisiensi pencatatan transaksi di perusahaan Sari Kaya Restoran. Tujuan utamanya adalah meminimalkan kesalahan input manual dan menyederhanakan proses pencatatan transaksi dari berbasis cetak ke sistem berbasis digital dengan mengintegrasikan fitur berbasis mobile aplikasi web. Integrasi menggunakan OCR untuk mengkonversi data gambar seperti receipt, gambar, dan lain-lain, ke integrasi data ke platform web berbasis internet. Di sisi lain, penelitian juga menerapkan metode pengembangan prototipe iteratif untuk memastikan pengembangan sesuai dengan kebutuhan pengguna. Hasil penelitian menunjukkan bahwa integrasi OCR secara signifikan meningkatkan efisiensi operasional dan mengurangi beban entri data manual secara signifikan.

Keywords: Pengaplikasian Sistem Cetak, Aplikasi Sistem Akuntansi, Pencatatan Data, Kepuasan Pengguna, Sari Kaya Restoran

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INTRODUCTION

In today's modern business environment, financial recording and management are fundamental to maintaining operational efficiency and supporting effective managerial decision-making. Financial data must be accurate and available in real time to ensure transparency and accountability. Unfortunately, many companies still rely on manual methods, including spreadsheets or physical documents such as receipts and invoices. These practices involve manual data entry, which is time-consuming, labor-intensive, and highly susceptible to human error. Manual processes also present challenges in tracking transactions,

reconciling accounts, and producing timely financial reports, especially in organizations with high transaction volumes. Additionally, physical documents are vulnerable to damage or loss, further complicating financial workflows and compromising data integrity. The need to capture transaction data directly at the point of activity has led to the adoption of mobile-based solutions. Employees working in the field, such as sales or purchasing staff, often collect receipts and transaction evidence that must be documented immediately to prevent data loss and errors. A mobile-based application integrated with Optical Character Recognition (OCR) technology allows



these employees to scan receipt receipts, automatically extracting key financial data such as date, amount, and vendor. This minimizes delays, reduces manual input, and improves the speed and accuracy of data collection in real time, supporting more efficient and responsive business processes.

Research related to the utilization of Optical Character Recognition (OCR) technology in mobile applications has been widely developed in recent years. Kumar and Wini Hutan (2024) developed an Android application that combines Automated Routine (AR) and OCR technology with Firebase backend. This application is able to recognize and extract text data from physical documents, then store and synchronize data in the Firebase Realtime Database. The study shows that the integration of AR and OCR on mobile devices can improve user experience and ease of data access. Furthermore, research by IRBM Journal (2022) introduced an Android-based character recognition application framework using Firebase ML Kit. This framework supports more than 50 languages, has offline capabilities, and focuses on user privacy aspects. The results show that the framework is effective for both printed and handwritten character recognition needs, and can be implemented in various OCR applications that demand high accuracy and fast data processing.

Mazuchuk, Nevalensky et al. (2024) in the Journal European des Systèmes Automatisés developed an Android-based mobile application that utilizes Firebase ML Kit and TensorFlow Lite. This system not only extracts text through OCR, but also processes the results using an NLP algorithm for semantic classification. The research shows how the OCR pipeline.

Recent studies have developed OCR-based mobile applications for text extraction from documents and receipts (Kumar & Wini Hutan, 2024; IRBM Journal, 2022; Mazuchuk et al., 2024). OCR technology in Android applications with Firebase integration is proven to be able to speed up the data input process and minimize typing errors. However, most of these studies still focus on the text extraction process in general, without integrating the scanned data into an accounting system that has a transaction validation and approval flow. In addition, there are not many studies that examine the implementation of mobile OCR systems in the context of companies in Indonesia, especially in the use of scanned data to support the recording of financial transactions thoroughly and accurately. The integration between OCR mobile applications and Laravel-based web platforms to verify and approve transaction data is also rarely used in previous studies.

This research aims to fill the gap by designing and implementing an OCR-based mobile

accounting system connected to an accounting web platform, and evaluating its impact on operational efficiency, data accuracy, and user satisfaction at Sari Karya Desserts Company.

The objectives of this research are to develop an application system utilizing Optical Character Recognition (OCR) technology to automate the input of data from physical documents into a digital system. This research also aims to integrate a financial reporting system that is real-time, accurate, and easily accessible by company management. Furthermore, it seeks to reduce reliance on manual processes in order to improve work efficiency and minimize the risk of recording errors. Finally, the research is intended to provide intuitive data analysis tools to support strategic decision-making within the company.

METHODS

This study adopted a prototyping development methodology to build the mobile-based OCR accounting system. The prototyping approach was chosen because the system requirements were not fully defined in the beginning of the project and needed to be refined iteratively with active involvement from end users.

The prototyping process began with the initial identification of core user requirements through interviews and observation of existing transaction recording processes at Sari Karya Desserts Company. Based on this input, an early prototype of the mobile OCR application was developed, featuring basic functions for capturing receipt images and extracting key transaction data. The prototype was then evaluated by prospective users, who tested its ability to scan and transcribe receipt details such as date, amount, and vendor. Feedback was gathered to identify deficiencies in the recognition accuracy, user interface, and overall usability of the application.



Figure 1. Prototyping Method

Following this evaluation, iterative improvements were implemented on the prototype to address user concerns and enhance its functionality. This cycle of prototype evaluation and refinement was repeated several times until the system met user expectations in terms of data accuracy, ease of use, and integration with the

Laravel-based accounting web platform for transaction validation and approval. By employing the prototyping method, the development team was able to continuously validate the OCR performance, adapt the system to user needs in a practical business environment, and minimize the risk of system mismatch or user dissatisfaction after deployment. This iterative design process ensured that the final system was both functional and user-centered, improving transaction recording efficiency as intended.

RESULT

A. Use Case Diagram

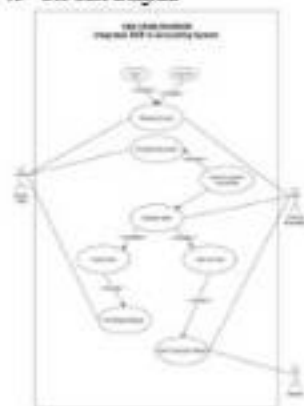


Figure 2 Use-Case Diagram

Project leads scan receipts by logging in to the OCR application. Manual verification is done as a check before the data is sent to the web accounting system where finance/accounting will validate the data whether the receipt is accepted or rejected. If the receipt is rejected, then the project lead must re-scan it by adding notes.

B. Data Flow Diagram

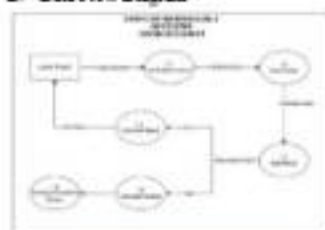


Figure 3 Data Flow Diagram

C. Activity Diagram of Scanning Document

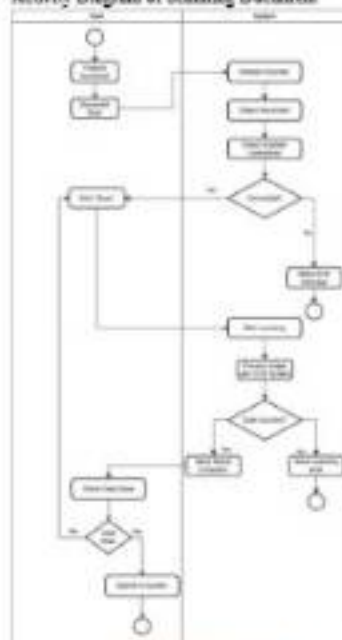


Figure 4 Activity Diagram

D. Dashboard Page

The dashboard page displays the status of the document along with the number of documents according to the current process.



Figure 5 Dashboard Page

ABSTRACT

This research is conducted by presenting the development and implementation of an accounting system that utilizes mobile-based Optical Character Recognition (OCR) technology to improve the efficiency of recording transactions at Suri Karya Bersama company.

The main objective of this project is of course to minimize manual input errors and simplify the process of documenting financial transactions from printed receipts. Of course, it is often time consuming and prone to errors. The system captures images of receipts through a mobile application, processes them using OCR technology to extract key data such as date, amount and item and then forwards the data to a Laravel-based web platform. On the web, the accounting team can review, validate and approve each incoming transaction.

This qualitative case study approach was applied to provide a performance evaluation of the system in terms of data accuracy, processing time and user satisfaction. In addition, the prototype method was adopted during the development period to validate the accuracy of OCR, improve the user interface and adapt the system to the actual needs of users through multiple testing and improvement cycles.

This shows that OCR integration has improved operational efficiency and reduced manual workload. This system demonstrates that OCR-based automation with repeatable prototypes can be a solution for companies looking to digitize financial workflows.

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