Web-Based Office Supplies Inventory System at CV Aulia Berkah Utama

M. Tegar Perkasa Nst, Zulfahmi Syahputra, Abdul Khaliq

Abstract

The web-based office inventory system at CV Aulia Berkah Utama aims to optimize office inventory management to support the operations of companies engaged in air conditioning services and training centers. The background to the problem is manual recording, which causes data errors, redundancy, and lack of time efficiency. This research designed a system using Flutter and Pocket base with a Rapid Application Development (RAD) approach to produce a user-friendly, accurate, and real-time application. The goal is to improve the efficiency of recording incoming and outgoing goods and stock reports. The contributions of this research include improved data accuracy, reduced redundancy, and easier access to information for management, thereby supporting better decision making.

Keywords**:** *Inventory System, Inventory Management, Rapid Application Development (RAD), Flutter, Pocket base, Stock Report.*

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Introduction

CV Aulia Berkah Utama, located at Jl. Bunga Pariama Blk. D No.2, Medan, is a company engaged in air conditioning services and training centers. In its operations, the company manages various office supplies such as technical equipment, training equipment, and administrative needs. However, inventory management is still done manually using notebooks and spreadsheets, which often leads to recording errors, inaccurate data, and difficulties in tracking stock. This process is not only time-consuming, but also hinders quick and accurate decision-making, especially in determining procurement needs.

Manual recording systems have several significant weaknesses, such as the risk of data loss, information redundancy, and lack of real-time access for management. According to (Muhlis & SW, 2023), errors in decision-making often occur due to a lack of accurate information from manual inventory systems. This is in line with the conditions at CV Aulia Berkah Utama, where stock reports are often out of sync with actual conditions, causing excess or shortage of stock that impacts the company's operational efficiency (Permana et al., 2024).

Advances in information technology offer solutions to overcome these problems through web-based inventory systems (Hartiwati, 2022). Research by (Arribe et al., 2023) shows that web-based systems can improve inventory management efficiency by providing accurate and integrated data. This system enables the recording of incoming and outgoing goods, tracking of storage locations, and automatic stock reporting, which is relevant to the needs of CV Aulia Berkah Utama to support its AC service and training center operations.

The implementation of a web-based system also supports better accessibility for users with various roles, such as administrators and staff (Khaliq et al., 2022). (Wahyuningrum & Jaka Gana, 2024) emphasize that a web-based inventory system with security features such as OTP can improve data storage efficiency and reduce the risk of information loss. Therefore, the development of this system is expected to overcome the limitations of the manual system at CV Aulia Berkah Utama, while also providing convenience in inventory management.

Literature Review

2.1 Related Research

Research by (Muhlis & SW, 2023) developed a web-based building material inventory system for PB Adi Jaya using PHP and MySQL. This system includes recording incoming and outgoing goods as well as stock reports, which improves data efficiency and accuracy. However, this system does not support real-time access and has limitations in scalability.

(Adi Prayitno & M. Irham, 2023) designed an inventory system for Raphael's Divan using the Prototype method. This system uses PHP and MySQL to manage furniture raw material stocks. Its weaknesses are the lack of security features and integration with other systems.

(Arribe et al., 2023) developed an inventory system for PT. Indofarma Global Medika, focusing on the integration of receiving, storage, and stock monitoring modules. This system improves operational efficiency, but its complexity is not suitable for small companies such as CV Aulia Berkah Utama.

(Wahyuningrum & Jaka Gana, 2024) developed an inventory system for BPJS Ketenagakerjaan with OTP security features. This system uses Waterfall and Bootstrap, but does not support cross-platform such as Flutter. This research is relevant because it emphasizes data security.

(Septanto, 2024) developed an inventory system for Pavlin Beauty Store using Waterfall. This system reduces recording errors, but does not provide real-time reports. This research serves as a reference for simple and effective system design.

2.2 Theoretical Basis

The theoretical basis of this study includes the concepts of inventory management, information system development, and supporting technologies such as Flutter and Pocket base. These theories form the foundation for designing an efficient, accurate, and user-friendly system. Inventory management focuses on managing stock to ensure availability without excess or shortage. According (Hijrah & Maulidar, 2021), effective inventory management can improve a company's operational efficiency. Information system development using the Rapid Application Development (RAD) approach enables rapid iteration and collaboration with end users (Fachri et al., 2023). Flutter technology supports responsive interface development, while Pocket base provides a lightweight and integrated database (Nelly Sofi & Riza Dharmawan, 2022).

2.3 Inventory Management

Inventory management is the process of managing stock to meet operational needs at minimal cost. According to (Hijrah & Maulidar, 2021), inventory management includes recording incoming and outgoing goods and storage to prevent excess or shortage of stock. A good inventory system must provide real-time data to support decision making. In the context of CV Aulia Berkah Utama, inventory management is necessary to manage technical equipment and training supplies. A web-based system can automate this process, reduce human error, and increase time efficiency. Research by (Arribe et al., 2023) shows that web-based inventory systems can improve data accuracy and integration with other systems. This concept forms the basis for the proposed system development.

2.4 Rapid Application Development

An information system is a combination of technology, people, and processes for managing data and generating useful information. According to (Wirda Fitriani et al., 2023), web-based information systems enable fast and flexible data access through a browser. In inventory management, information systems must support data input, output, and reporting functions. This study uses the Rapid Application Development (RAD) approach to ensure that the system is developed according to user needs (Rianto & Amrin, 2023). A good information system must also be integrated with a normalized database to avoid redundancy. Research by (Muhlis & SW, 2023) shows that inventory information systems can improve the speed and accuracy of stock management.

2.5 Database Normalization

Database normalization is the process of eliminating redundancy and ensuring data integrity. According to (Putra & Rezeki, 2022), normalization to 3NF (Third Normal Form) ensures that each table only stores data relevant to its entity. In inventory systems, normalization is important for managing data on goods, storage locations, and transactions without duplication. This study uses Pocket base as a database that supports normalization. Normalization also facilitates the creation of accurate and efficient stock reports, as demonstrated by (Arribe et al., 2023) in a web-based inventory system.

2.6 Flutter

Flutter is a user interface development framework developed by Google. According to (Nelly Sofi & Riza Dharmawan, 2022), Flutter enables the development of responsive and user-

friendly cross-platform applications. In this study, Flutter was used to build an inventory system interface that can be accessed via the web. The advantages of Flutter are its ability to produce consistent displays and fast performance. This system will utilize Flutter widgets to create item input forms and stock reports that are easy to use by administrators and staff.

2.7 Pocket base

Pocket base is a lightweight open-source backend that supports database management and authentication. According to the official Pocket base documentation, Pocket base provides an API that is easy to integrate with Flutter (Sitorus et al., 2025). In this study, Pocket base was used to store data on goods, transactions, and stock reports. Pocket base's real-time feature enables direct data updates, which is important for stock reports at CV Aulia Berkah Utama. The system also utilizes event hooks for task automation, such as report label creation.

2.8 User Interface

The user interface is an important component in information systems to ensure ease of use. According to (Wijaya & Utomo, 2023), a user-friendly interface must be intuitive and support user efficiency. In this study, the interface was designed using Flutter to produce easily accessible input forms, dashboards, and stock reports. This interface will be tailored to the needs of administrators and staff at CV Aulia Berkah Utama, with a focus on simple navigation and a responsive display.

2.9 Stock Report

Stock reports are an important feature in inventory systems to provide information about the availability of goods. According to (Arribe et al., 2023), real-time stock reports can improve managerial decision-making. In this system, stock reports are generated based on incoming and outgoing goods data stored in Pocket base. This feature allows management to monitor stock directly and identify procurement needs. This research will integrate stock reports with an easyto-read interface and export them to formats such as PDF

Research Methodology

3.1 Problem Analysis

The office inventory system at CV Aulia Berkah Utama currently still uses a manual approach with paper-based records and spreadsheets. This process causes several significant obstacles, such as difficulties in tracking stock in real time, the risk of data entry errors, and slow stock and transaction reporting. The lack of data integration between departments, such as between asset management and transactions, also complicates decision making. In addition, the absence of an automated system to manage item categories and storage locations causes inefficiencies in the company's operations. CV Aulia Berkah Utama, which is engaged in air conditioning services and training centers, needs a web-based system to overcome these problems. This system must be able to manage asset, category, location, and transaction data in an integrated manner using Flutter and Pocket base technology.

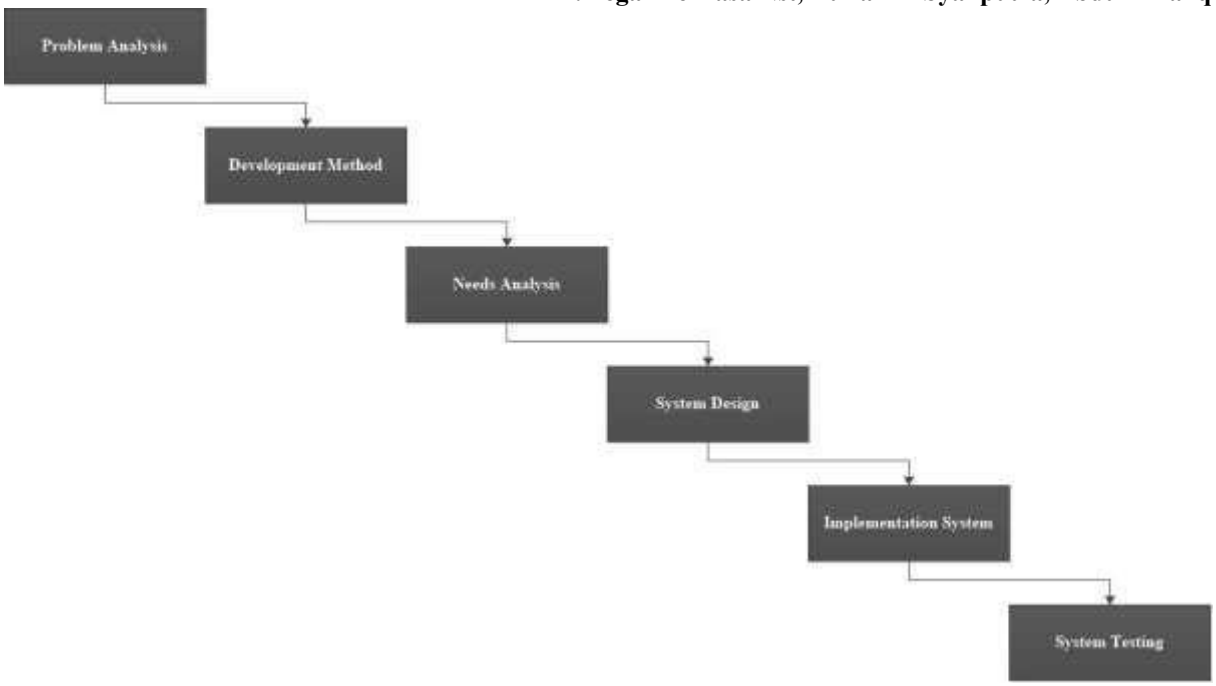


Figure 1. Research Stages

Figure 1 shows the system development flow or System Development Life Cycle (SDLC) used in the research entitled "Web-Based Office Supplies Inventory System at CV Aulia Berkah Utama". This process begins with Problem Analysis, which is the stage of identifying problems in the manual inventory system that often cause data errors and delays in reporting (Syahputra et al., 2024). Next, Development Method determines the approach used, namely Rapid Application Development (RAD) so that the system can be developed quickly through prototypes and user feedback. The Needs Analysis stage analyzes the functional and nonfunctional requirements of the system, such as recording incoming and outgoing goods, realtime stock reports, and role-based user access. Then, System Design designs the system structure, flowcharts, database, and user-friendly web interface. After that, Implementation System is the stage of realizing the design into a web-based system using technologies such as Flutter and Pocket base. Finally, System Testing is carried out to ensure that all features run according to the needs and objectives of the research, namely to create an inventory system that is efficient, accurate, and capable of supporting managerial decision-making at CV Aulia Berkah Utama.

Results

The user interface of the Web-Based Office Inventory System for CV Aulia Berkah Utama is designed to support efficient and intuitive office asset management. This system uses the Flutter framework with Dart to build a responsive and consistent interface on the web platform. The interface is designed with a user-centered approach, ensuring ease of use for users with varying levels of technological expertise, such as administrators and staff at CV Aulia Berkah Utama. Each interface element, such as forms, dashboards, and reports, is optimized to support company operations in the fields of air conditioning services and training centers. The design utilizes Pocket base as the backend for fast data management and SQLite for efficient data storage. The interface includes features such as registration, login, asset management, categories, locations, transactions, and stock reports, all implemented with a clean and functional layout.

4.1 Form Login



Figure 2. Form Login

Figure 2 shows the login form is the main gateway for users to access the system. This interface provides email and password fields, with local validation to check the input format before sending data to Pocket base for authentication. The design uses Flutter with Material Design elements for a consistent look. The 'Login' button initiates the authentication process, and an error message is displayed if the credentials are incorrect. This interface is designed to ensure secure access and ease of use for staff at CV Aulia Berkah Utama.

4.2 Form Dashboard

Figure 3 shows the dashboard is the main page that displays a summary of important information, such as total assets, recent transactions, and inventory at CV Aulia Berkah Utama. This interface uses widgets such as Card and GridView in Flutter to display data visually. The simple UI shows inventory and transaction trends, taken from Pocket base via API. The dashboard is designed to provide a quick overview for administrators and staff, facilitating operational decision-making.

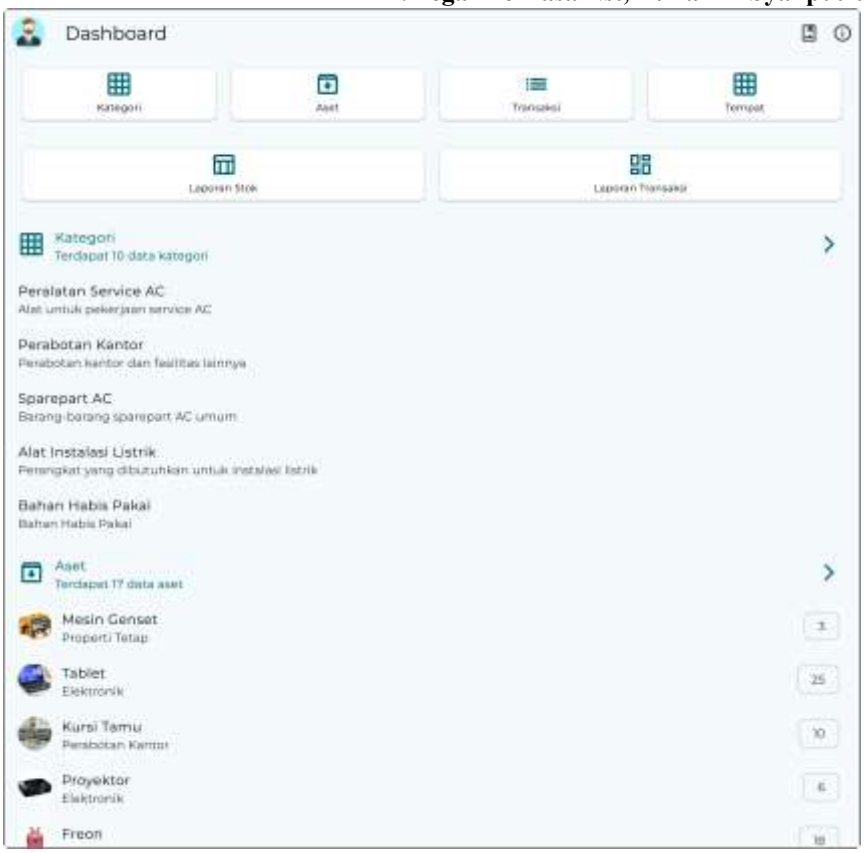


Figure 3. Form Dashboard

4.3 Asset List

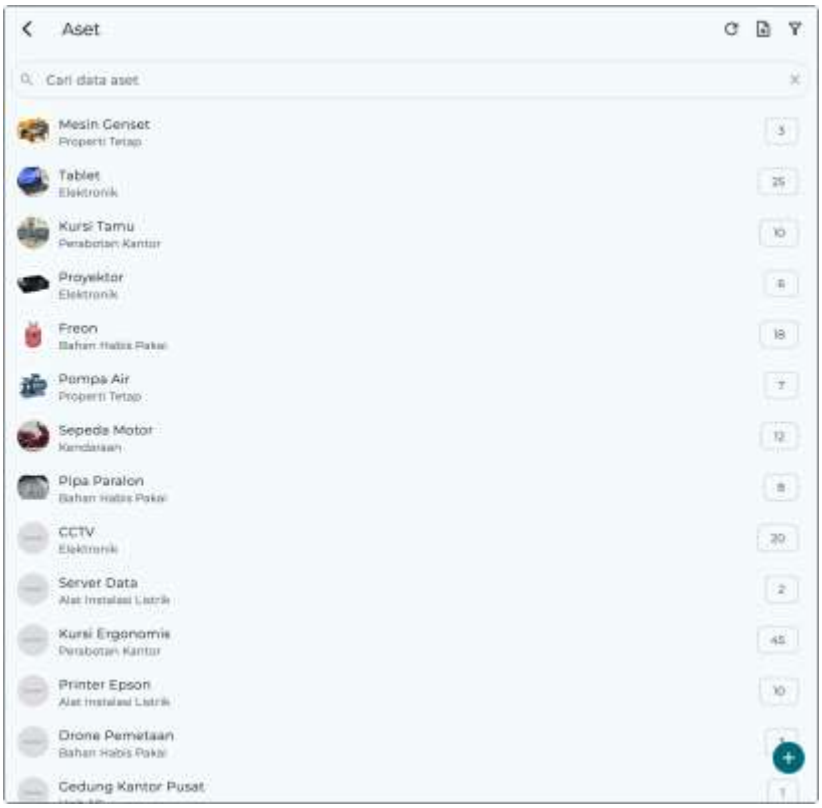


Figure 4. Asset List

Figure 4 shows the asset list page displays all office items registered in the system, including asset name, category, and location. This interface uses List View on Flutter to display data in List Tile format, with options to search, filter, and sort data. Action buttons allow users to view details or edit assets. Data is retrieved from Pocket base and displayed in real-time, ensuring that information is always up-to-date for the operational needs of CV Aulia Berkah Utama.

4.4 Category List

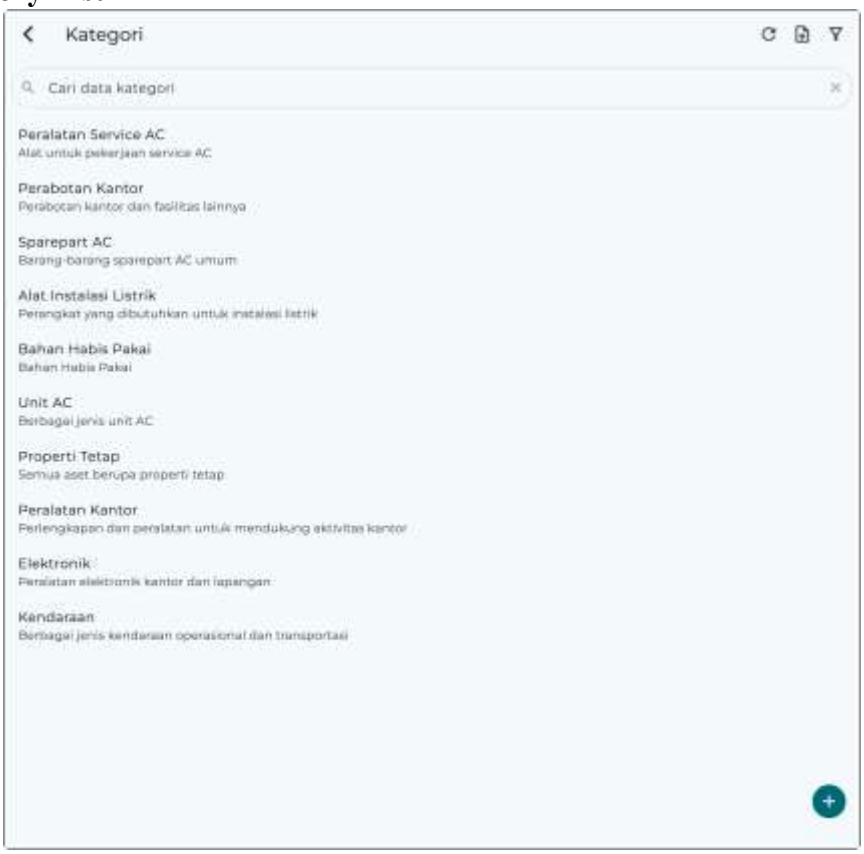


Figure 5. Category List

Figure 5 shows the category list page displays all asset categories used in the system, such as air conditioning service equipment or training center tools. This interface uses List View with List Tile to display category names and brief descriptions. Search and filter features are available to facilitate navigation. Category data is retrieved from Pocket base, ensuring efficient category management for the operational needs of CV Aulia Berkah Utama.

4.5 List of Places

Figure 6 shows the location list page displays asset storage locations, such as warehouses or training centers. This interface uses List View with List Tile to display location names and descriptions. Search and filter features are available for user convenience. Location data is retrieved from Pocket base, ensuring efficient location management for CV Aulia Berkah Utama's operations.



Figure 6. List of Places

4.6 Transaction List

Figure 7 shows the transaction list page displays all asset transactions, such as borrowing or returning items. This interface uses List View with List Tile to display information such as date, transaction type, and related assets. Search and filter features are available for easy navigation. Data is retrieved from Pocket base in real-time, ensuring that transaction information is always up-to-date for the operational needs of CV Aulia Berkah Utama.

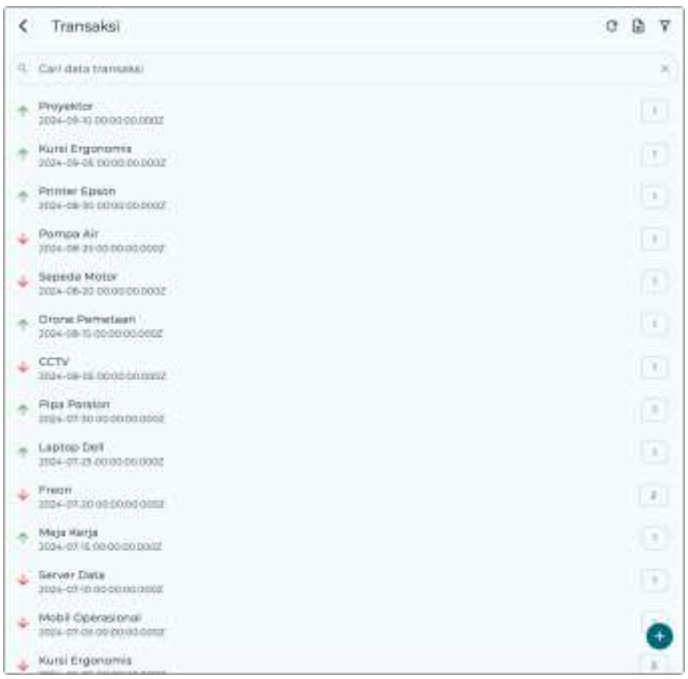


Figure 7. Transaction List

4.7 Stock Report List

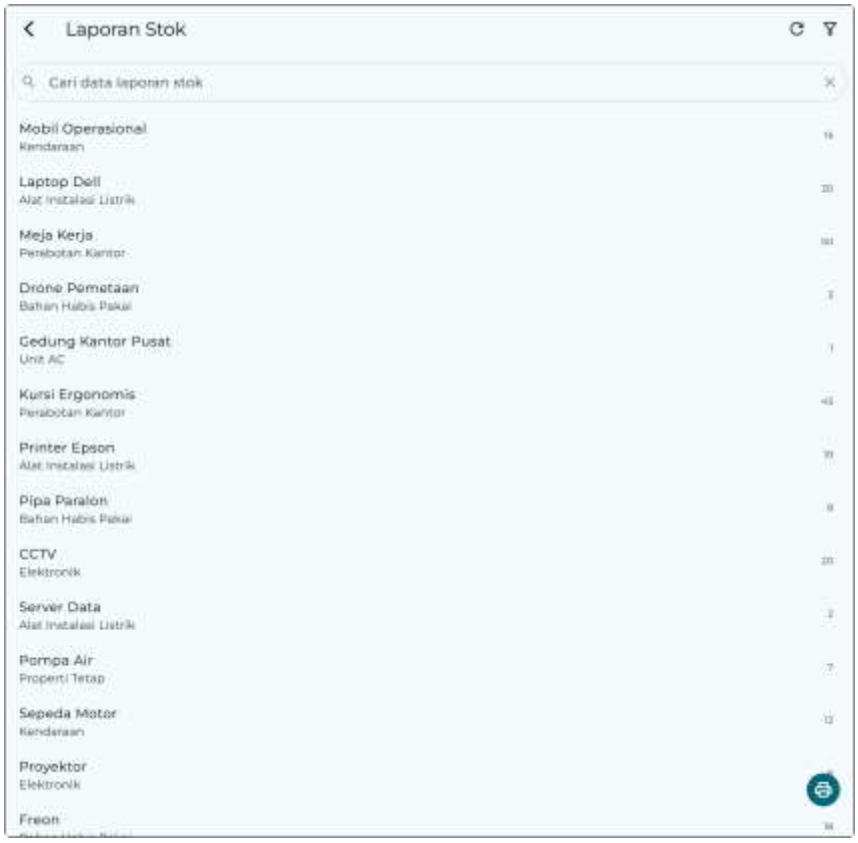


Figure 8. Stock Report List

Figure 8 show the stock report list page displays a summary of asset stock based on category or location. This interface uses List View with List Tile to display stock data, with options to filter by date or category. Data is retrieved from Pocket base through a view collection for efficiency. This interface supports CV Aulia Berkah Utama's needs in monitoring stock in real time.

4.8 Print Stock Report

Figure 9 show the stock report print page allows users to generate stock reports in PDF format. This interface displays a preview of the report before printing, using Flutter to render data from Pocket base. The ‘Print’ button triggers the export process to PDF, ensuring that the report can be used for official documentation purposes at CV Aulia Berkah Utama.



Figure 9. Print Stock Report

4.9 About the Application

Figure 10 show the application page displays information such as the application name, version, and company contact details. This interface uses Column and Text in Flutter to organize information in a simple manner. Data is retrieved from Pocket base (app settings collection), ensuring that company information such as the address of CV Aulia Berkah Utama is always up to date.



Figure 10. About the Application

Conclusion

This research successfully developed a Web-Based Office Inventory System that meets the needs of CV Aulia Berkah Utama in managing assets for AC service operations and training centers. The system, built with Flutter and Pocket Base, is able to overcome major problems ranging from difficulties in tracking assets, managing transactions, to creating stock reports and provides a more responsive and efficient process. Automated recording features reduce manual work time, inventory and transaction reports are presented in real-time with high accuracy, and the intuitive interface makes it easy for administrators and staff with limited technical skills. Pocket Base integration ensures that data is stored securely and is easily accessible, so that over all the system has proven to support company operations with a high level of usage success. To improve performance and usability, the system should add advanced search with filters such as asset range and status, and provide an offline mode so that it can still be used in areas with weak internet connections. Input validation on various forms needs to be strengthened to prevent the storage of non-standard data, while customizable report formats— including PDF— will provide greater flexibility for managerial reporting needs. In addition, data loading optimization and pagination/caching mechanisms are recommended to keep the system agile as the number of assets and transactions increases.

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