

Designer of "PESMART" App Website for Cooperatives in the UHAMKA Dormitory Environment

Muhamad Sadam Rivaldi¹⁾, Isa Faqihuddin Hanif²⁾, Farhan Nurhidayah³⁾, Pajar Marpandi⁴⁾,
Nabil Ahmad Fauzan⁵⁾.

^{1, 2, 3, 4, 5)} Department of Industrial Technology and Informatics, University of Muhammadiyah Prof. Dr. Hamka,
Jakarta, Indonesia

^{1*} sadamzaid49@gmail.com, ² isa@uhamka.ac.id, ³ nurhidayahfarhan265@gmail.com,

⁴ pajarmarpandi1@gmail.com, ⁵ nabdityakan@gmail.com

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ABSTRACT

Financial management and an efficient cashier system are critical elements in an institution's operations, including student dormitories. This research aims to design and develop the "PESMART" mobile application aimed at cooperative cashier management in the UHAMKA Dormitory. This application is designed to make it easier to manage financial transactions, monitor inventory, and provide real-time financial reports. The methodology used in developing this application is an Agile approach, which allows fast iteration and response to user feedback. Data was collected through interviews and surveys with hostel staff to identify critical needs. A wireframe design and interactive prototype were created using Figma. Initial test results show that the "PESMART" application has succeeded in increasing cashier management efficiency and reducing transaction recording errors. User satisfaction surveys indicate high satisfaction with the ease of use and features provided by the application. In conclusion, "PESMART" provides an effective digital solution for financial and cashier management in a dormitory environment, with recommendations for developing additional features in the future to further improve functionality and user experience.

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1. Introduction

Cooperatives are one of the essential pillars in supporting economic activities, especially in educational environments such as student dormitories. Cooperatives in the UHAMKA dormitory environment have a central role in providing daily needs for students at affordable prices. However, along with the increasing volume of transactions and the need for more effective management, cooperatives often face various obstacles in financial management, cashier systems, and real-time data reporting. In the UHAMKA Dormitory, problems such as manual transaction recording, system inconsistencies, and lack of transparency in financial reports are the main challenges in cooperative operations.

Financial management and an efficient cash register system are essential elements in the operation of various institutions, including student dormitories. Inefficient management can cause problems such as transaction recording errors, data loss, and difficulty obtaining real-time financial reports [1]. Cooperatives at Asrama UHAMKA face similar challenges in managing daily transactions and monitoring inventory. To overcome this problem, a digital solution can automate and simplify the cashier and financial management process [2].

Digital technology has proven to be an effective solution in increasing the efficiency of financial and operational management of various institutions. The "PESMART" mobile application was developed to meet this need by providing a platform that can simplify the management of financial transactions, monitor inventory, and produce financial reports in real time. Agile methodology is used in developing this application to enable rapid iteration and immediate response to user feedback [3].

Data is collected through interviews and surveys with hostel staff to identify their primary needs. Wireframe designs and interactive prototypes are made using Figma to ensure the application interface is intuitive and easy to use.

With this digital change, cooperatives in the UHAMKA dormitory are expected to improve their operational performance and provide convenience for cooperative administrators in managing transaction and inventory data. In the modern era that is increasingly dependent on technology, adopting web-based applications significantly reduces manual errors, speeds up the transaction process, and provides financial reports that can be accessed anytime and anywhere. Financial management and an efficient cashier system are essential for the operation of an institution, including student dormitories. This is to ensure smooth financial processes, accountability, and user satisfaction [4]. Asrama UHAMKA, for example, is faced with various problems in financial management and its cooperative cashier system. Based on research and data collection, some of the main problems faced by Asrama UHAMKA in financial management and the cooperative's cashier system, among others:

Manual transaction process: Transaction recording is still done manually, so it is prone to errors and takes a long time. Limitation of data and reporting: It is challenging to monitor inventory and obtain financial reports in real-time, making it difficult to make decisions [5]. System incompatibility: The existing cash register system is not integrated with other financial management systems, thus causing inefficiency and duplication of data. Lack of transparency: Lack of transparency in financial transactions, leading to potential leakage and misuse of funds. To overcome these problems, it is necessary to improve the knowledge and skills of cooperative managers and increase access to information and technology. One of the efforts that can be made is to design a "PESMART" website application for cooperatives in the UHAMKA Hostel environment.

Ultimately, this study aims to produce an application design that not only meets the technical needs of cooperatives in the UHAMKA dormitory but also supports the development of the cooperative economy with an excellent digital basis. With the design of the "PESMART" application website, it is hoped that the UHAMKA dormitory cooperative can operate better.

The focus of this problem includes manual transaction processes that are error-prone and time-consuming, limited data and reporting capabilities that hinder real-time inventory monitoring and decision-making, and a lack of transparency in financial transactions that can potentially cause loss—leakage of funds. The short-term goal of this research is to design the "PESMART" website application for cooperatives in the UHAMKA dormitory environment using Figma. The long-term goal is to develop the "PESMART" mobile application to simplify managing financial transactions, monitor inventory, generate real-time financial reports, and further refine this design into a fully functional mobile application.

2. Methods

The research method used is the Microsoft Solution Framework (MSF) method, a set of principles, models, disciplines, concepts, and guidelines designed by Microsoft to assist research in planning, developing, and disseminating effective information technology (IT) solutions [8]. The principles/methods of software development with the MSF methodology use milestone-based planning (waterfall model), provide predictable results accompanied by feedback and creativity from the development team, and must be sequential [9].

2.1. Supporting Theory

a. UI (User Interface) Design

User Interface is part of an information system that requires user interaction to create input and output [6]. Explains that a new information system affects many other existing information systems, and analysis must ensure that all work together. The system must also interact with users both inside and outside the organization. From this explanation, the User Interface has a vital role in the effectiveness

of an information system. Creating a user interface aims to make information technology accessible to users.

b. Design Concept

Design is a plan for creating an object, system, component, or structure. In a broader sense, design is an applied art and engineering that is integrated with technology. Design is applied in the form of a plan, which can be a proposal, drawing, model, or description [7].

c. Cognitive

This theory focuses on how humans process information, mainly how they use short memory to process information before storing it in long-term memory. This theory states that human memory capacity is limited, meaning that the user will become less proficient if an apparatus or system is too complex. This sharp cognitive decline can impair the user's ability to understand, comprehend, and perform tasks effectively. Due to this, while designing user interfaces (UI) such as "PESMART" applications, it is essential to maintain design elements so that users do not feel overwhelmed by excessive information or complicated processes. In the "PESMART" application, the user's cognitive load will decrease by streamlining the transaction process, using intuitive icons, and presenting clear instructions. This makes it easier for users to focus.

2.2. Research Stages

a. Library Survey

Study literature and research related to financial management, cashier systems, and mobile applications for cooperatives.

b. Problem Identification

Conducting interviews, observations, and document analysis to identify the problems faced by the UHAMKA Hostel Cooperative in the financial management and cashier system.

c. Planning

Determining the purpose and scope of the application and planning the main features of the "PESMART" website application design based on the needs of the UHAMKA Hostel Cooperative.

d. Design

Planning a website-based application design using the waterfall model.

3. Results and Discussions

The results of this research aim to design and develop a mobile-based cashier management application that is efficient and easy to use. The design results show that this application is able to better meet the cashier's operational needs, increasing efficiency and accuracy in transaction management.

The user interface (UI) design of the mobile application is designed to be responsive and easy to use [10]. The simple layout, intuitive use of icons, and easy-to-understand navigation ensure that cashiers can operate the application smoothly without requiring extensive training. This interface is optimized for mobile devices of various screen sizes, including smartphones and tablets. This application has fast and efficient transaction processing features, enabling integration with various payment methods such as cash, credit/debit cards, and QR payments. Tag and scanner features also make product scanning easy, speeding up the transaction process.

This mobile application has an inventory management module that enables real-time stock monitoring[11]. Cashiers can easily see the amount of stock available, update inventory, and manage reorders. This integration helps reduce the risk of running out of stock and ensures adequate availability of goods. This application provides comprehensive reporting features, including daily, weekly, and monthly sales reports. An interactive analytics dashboard provides insight into sales trends and business

performance. This information is precious for business owners who want to make better strategic decisions and plan business development.

When planning, we use the three planning processes used in designing apps. Of course, here, we use some third applications to help the planning process:

3.1. Needs Analysis

The first step in the needs analysis process is to identify the cooperative's and its members' needs. This involves gathering in-depth information through various methods such as interviews, surveys, and observations. Interviews with cooperative managers aim to understand the problems they face in managing the cooperative and their expectations of the application that will be made. In addition, a survey of cooperative members can provide insight into their views and expectations regarding cooperative services [12]. Direct observation of the cooperative's daily activities also helps in understanding the workflow and interaction between members and cooperative managers. All this information is then analyzed to identify the main needs that must be fulfilled by the application.

Once the needs of the cooperative and its members have been identified, the next step is to compile a list of features required in the application. These features are designed to meet the needs that have been identified previously. For example, the member registration feature makes the registration process easier and more efficient. Product management helps cooperative managers in managing stock and product information. The transaction feature facilitates the purchase and payment of products by cooperative members. Financial reports give cooperative managers access to financial data that is important for decision-making. Finally, the communication feature enables better communication between managers and cooperative members, such as announcements or internal discussions. With these features, the application is expected to increase the operational efficiency of the cooperative and provide a better experience for its members.

3.2. Wireframing

The next step in designing an application is to create a basic wireframe to describe the structure of the application page. Wireframing is an important stage in the process of designing a digital media (screen design process) [13]. At this level, we determine the location of the navigation menu, button position, input form, image, and text on each page of the application. For example, on the home page, we placed the navigation menu at the bottom of the screen to facilitate access with the thumb, the information banner at the top to display important announcements, and the main feature shortcut in the middle of the screen. The product page will have a list of products with clearly visible pictures and prices, as well as a button to add the product to the cart. The process of creating a wireframe is important to ensure that the structure of the application is logical and easy to use before proceeding to the more detailed level of visual design.

3.3. UI/UX design

Once the basic wireframe is complete, the next step is to create a visual design with Figma based on the wireframe. At this level, the main focus is creating a user experience (UX) that is intuitive and easy to use. Visual design involves the selection of colors, typography, icons, and other graphic elements that support the planned layout. Figma enables team collaboration in real-time so that every change can be immediately seen and commented on by other team members[14]. After the initial visual design is completed, testing is done by involving real users to get feedback on the comfort and ease of use of the application. Based on this feedback, design iterations are done to improve aspects that are less than optimal. This process of testing and iteration continues until the design reaches the desired standard, ensuring that the application is not only visually appealing but also functional and user-friendly[15].

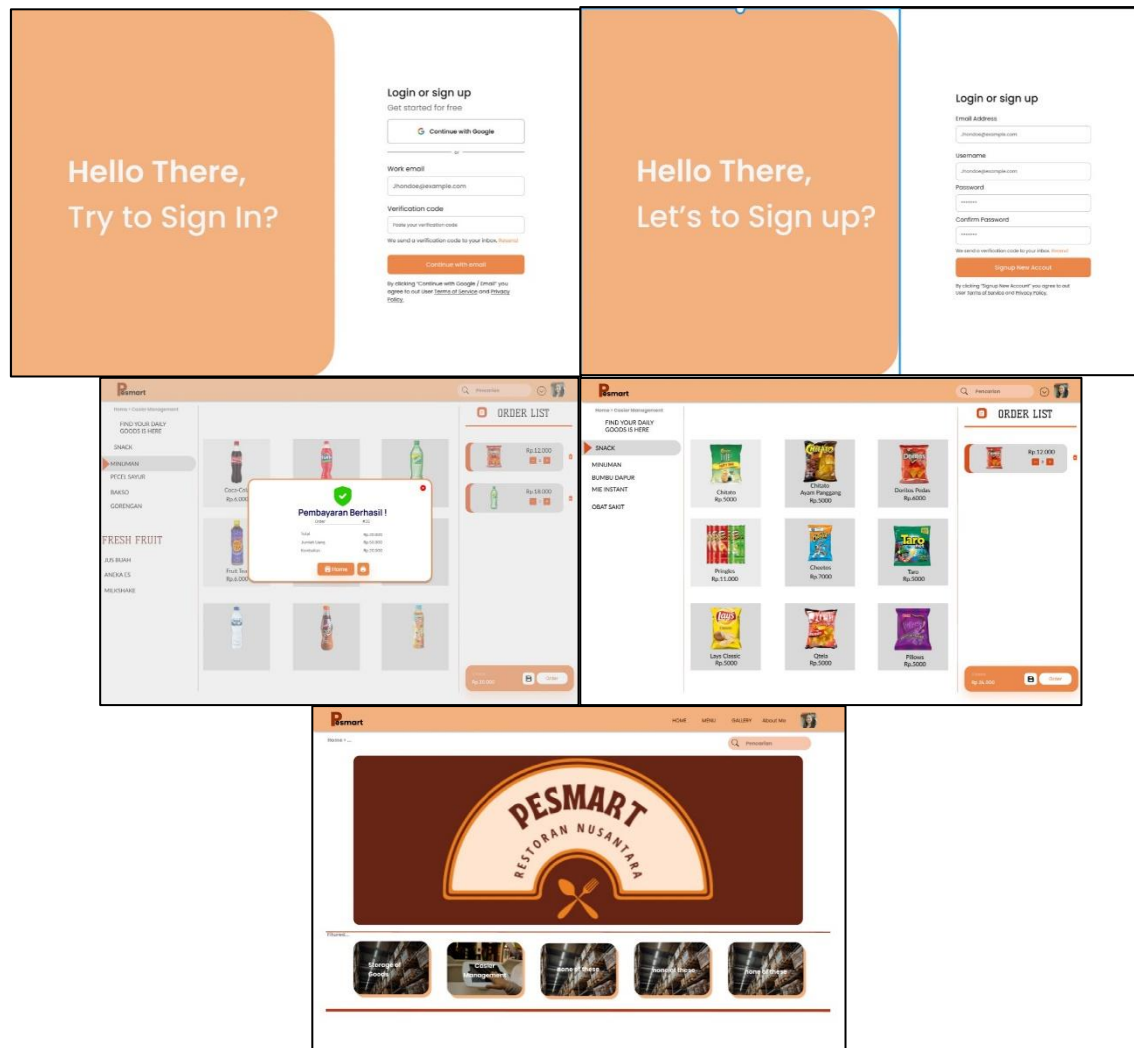


Figure 1. PESMART Homepage Design with Figma App

a. Sign-In Page:

The top-left image shows the sign-in screen of the PESMART mobile application; on the left side features a welcoming message "Hello There, Try to Sign In?" on the right side, the login form provides two options. Sign in with Google: A button that allows users to sign in using their Google account quickly. Email and Verification Code: Users can log in by entering their work email and the verification code sent to their email inbox. There are clear instructions on how to enter the code in the designated field.

b. Sign-Up Page:

The top-right image displays the sign-up screen, and the left side encourages new users to register with the message "Hello There, Let's to Sign up?" On the right side, there is a registration form where users are asked to provide the following details:

- Email Address: The user must input their email.
- Username: A unique username is required.
- Password: The user needs to create a password.
- Confirm Password: The user is asked to confirm their password by entering it again.

c. Successful Payment Notification:

The middle-left image shows a successful payment notification with the message "Pembayaran Berhasil!" (Payment Successful!). The notification includes important transaction details such as the

date, items purchased, and the total amount. This feedback mechanism ensures the user is aware of the completion of their transaction and gives them a sense of security.

d. Product Selection Interface:

The middle-right image depicts the product selection interface, allowing users to browse and add items to their cart. Various product categories, such as "Snacks" and "Beverages," are listed on the left-hand side, while individual products are displayed in a grid format on the right. The user-friendly interface ensures easy navigation with precise categorization, a visible search bar, and an "Order List" section where users can review their selected items.

e. PESMART Homepage Design:

The bottom image showcases the homepage of the PESMART application, branded with the PESMART logo and the tagline "Restoran Nusantara." The large logo and images provide a clear brand identity, while the navigation options allow users to explore different platform sections. The design appears modern and visually appealing, utilizing bold fonts and imagery that emphasize the restaurant's focus on local Indonesian cuisine.

The PESMART mobile application prioritizes user convenience and trustworthiness through its design and functionalities. Sign-In and Sign-Up Process: the screens for logging in and registering are crafted to be simple and effective. By offering quick access via Google sign-in or email verification, the application minimizes obstacles for users, allowing them to join or access their accounts swiftly and efficiently. Explicit Payment Confirmation: The notification for successful payments keeps users informed about their transactions. This clarity provides reassurance and enhances the overall credibility of the platform, instilling confidence in users for their future purchases.

4. Conclusion

The mobile application "PESMART" was created to help cooperatives in UHAMKA Hostels manage their finances and cash register system. This application is designed to overcome some of the main problems cooperatives face, such as the manual transaction process: automating the recording of transactions, thus minimizing errors and saving time. Data and reporting limitations: provide real-time inventory tracking and financial reporting to aid decision-making. Increase the transparency of financial transactions to prevent leakage and misuse of funds.

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