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RESEARCH ARTICLE

Development of an Android-Based Camera Rental System Application for Kedai Kamera Depok Using Android Studio Dolphin 2021.3.1 with the Rapid Application Development Method

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Abstract
In the contemporary digital landscape, the rental of goods has become a vital service model, driven by demands for accessibility. Kedai Kamera Depok, located in Depok City, Indonesia, is a key provider of camera rental services. However, customers often face significant challenges in accessing reliable information about item availability and specifications. As the business grows, it struggles to market its offerings effectively. This study employs the Rapid Application Development (RAD) methodology, encompassing phases like Requirements Gathering, Design Workshop, and Implementation. Data was collected via structured questionnaires from Kedai Kamera Depok's customers, ensuring user needs are integrated. The research aims to develop an Android-based reservation system for camera rentals, enabling seamless booking through mobile devices. Designed to enhance customer satisfaction and operational efficiency, this system seeks to address informational gaps and improve service delivery. The findings are expected to contribute to digital transformation in service-oriented businesses, offering a replicable model for similar enterprises facing comparable challenges in localized.

Keywords
Rental Services; Android Application; Rapid Application Development; Digital Solutions.

1 | INTRODUCTION

In the current digital era, technological advancements have significantly transformed the way human tasks are performed, driven by an escalating demand for practicality and efficiency. The proliferation of digital devices and applications has streamlined numerous processes, including the rental of goods and services, enabling users to access resources with unprecedented ease. This shift is particularly evident in the context of equipment rental, where customers seek effective and time-efficient solutions to meet their needs. The integration of technology into such services not only enhances accessibility but also redefines customer expectations, emphasizing the need for innovative platforms that facilitate seamless transactions. As defined by Martin (1999), information technology extends beyond mere computer hardware and software used for processing and storing data; it encompasses communication technologies that enable the transmission of information. Similarly, Haag and Keen (1996) describe information technology as a set of tools that assist users in working with information and performing tasks related to information processing. Among these tools, Android stands out as a versatile and widely adopted platform. Its portability and user-friendly interface make it an ideal medium for developing applications that cater to diverse needs, including rental services. Android-based applications provide a practical solution by allowing users to access services anytime and anywhere, thereby enhancing operational efficiency. In the realm of camera rental services, Android applications offer significant advantages by simplifying the booking process. Customers can browse available equipment, review specifications, and reserve items directly through their mobile devices. This eliminates the need for physical visits or prolonged communication with service providers, ensuring a more streamlined experience. However, such transactions often require adherence to specific terms and conditions set by rental providers to ensure clarity and accountability. The development of mobile applications for rental services thus represents a critical step toward meeting modern consumer demands for convenience and transparency.

Kedai Kamera Depok, a company based in Depok City, Indonesia, exemplifies the growing importance of technology in the rental sector. Located at Samping Toko Herbal, Jl. Nangka No.2, RT.007/RW.015, Beji, Kecamatan Beji, Kota Depok, Jawa Barat 16425, this enterprise specializes in camera rentals and sales, offering a wide range of brands such as Canon, Nikon, Sony, and Fujifilm. Despite its diverse inventory, Kedai Kamera Depok faces challenges in providing comprehensive information about product specifications and availability. Customers often struggle to select the appropriate camera due to insufficient details, which hampers their decision-making process. Additionally, as the business expands, it encounters difficulties in marketing its services effectively to a broader audience, highlighting the need for a digital solution to bridge these informational gaps. The implementation of an automated rental system through an Android-based application presents a viable solution to these challenges. Such a system can significantly reduce the time required for transactions, making the process more efficient for both customers and the business. By integrating features like product catalogs, detailed descriptions, and booking functionalities, an application can empower customers to make informed choices without the delays associated with traditional methods. However, the current lack of a robust information system at Kedai Kamera Depok underscores the urgency of developing a tailored digital platform that addresses these shortcomings. Research by Arif and Cholil (2019) highlights the potential of Android-based systems in camera rental services, demonstrating how mobile applications can enhance user experience through accessible interfaces and real-time information. Their study on a similar system for CV. Dipo Creativindo emphasizes the role of technology in simplifying rental processes, a concept directly applicable to Kedai Kamera Depok. Furthermore, Raymodud (2015), as cited in Wirasta and Febriansyah (2014), explores the design of web-based rental systems for event equipment, underscoring the importance of digital platforms in improving service delivery. These insights reinforce the notion that technology-driven solutions are indispensable for modern rental businesses aiming to remain competitive.

Additional studies provide broader perspectives on the role of information systems in service industries. Pramono and Widiasari (2023) investigate the development of open-source server solutions, illustrating how technology can be leveraged to address specific operational needs in localized contexts. Their work, while focused on a different domain, underscores the adaptability of digital tools in solving industry-specific problems. Similarly, Palupi and Pakereng (2023) examine the impact of web-based booking systems for wedding organizers, revealing how digital interfaces can streamline customer interactions and improve business efficiency. These findings collectively highlight the transformative potential of technology in service-oriented sectors, offering valuable lessons for the development of a camera rental application. The challenges faced by Kedai Kamera Depok are not unique but reflect broader issues in the rental industry, where the absence of efficient information systems often leads to customer dissatisfaction and operational inefficiencies. Addressing these issues requires a focused approach to problem formulation and solution design. Key questions arise: Can an Android-based camera rental application for Kedai Kamera Depok assist customers in renting cameras more effectively? Additionally, can such an application facilitate access to catalogs and product descriptions, thereby simplifying the selection process? These questions guide the exploration of technological interventions aimed at enhancing service delivery. To ensure a targeted approach, certain limitations must be acknowledged in the development of this application. The proposed system will include essential features such as a product catalog, rental terms, and contact information, enabling customers to view available items at Kedai Kamera Depok. It will be designed for implementation on Android-

compatible mobile devices, ensuring accessibility for a wide user base. The application will focus exclusively on providing information about rental items at Kedai Kamera Depok, without incorporating payment transactions or requiring an internet connection for operation, thus functioning offline. These constraints ensure that the solution remains practical and aligned with the specific needs of the target audience.

The primary objectives of this initiative are twofold. First, it aims to create an application that allows customers to browse and understand the specifications of cameras available for rent at Kedai Kamera Depok, thereby supporting informed decision-making. Second, it seeks to reduce the time spent by customers during the rental process, enhancing overall convenience. By achieving these goals, the application is expected to improve customer satisfaction and optimize business operations. The integration of Android-based technology into camera rental services at Kedai Kamera Depok represents a strategic response to the evolving demands of the digital age. Drawing on insights from Martin (1999), Haag and Keen (1996), and contemporary studies such as those by Arif and Cholil (2019), Raymodud (2015), Pramono and Widiasari (2023), and Palupi and Pakereng (2023), this initiative underscores the critical role of information systems in modern service delivery. By addressing the specific challenges faced by Kedai Kamera Depok, including limited product information and marketing inefficiencies, the proposed application aims to set a precedent for digital transformation in localized rental businesses. This endeavor not only responds to immediate operational needs but also contributes to the broader discourse on leveraging technology for enhanced customer engagement and business growth in the rental sector.

2 | BACKGROUND THEORY

The rapid evolution of information technology has revolutionized various sectors, including service-based industries such as equipment rental, by introducing efficiency, accessibility, and user-centric solutions. In the digital age, technology serves as a cornerstone for simplifying complex processes, enabling businesses to meet the growing demands for practicality and speed. This transformation is particularly evident in the development of mobile applications, which have become indispensable tools for facilitating transactions and enhancing customer experiences. The integration of platforms like Android into service delivery systems exemplifies how technology can address operational challenges, providing seamless access to information and services. This background theory explores the foundational concepts of information technology, the role of Android-based applications in modern service industries, and the methodologies and frameworks that underpin the development of such systems, with a focus on camera rental services. At its core, information technology encompasses a broad spectrum of tools and systems designed to manage, process, and transmit data. Haag and Keen (1996) define information technology as a set of tools that assist users in working with information and performing tasks related to information processing, emphasizing its role in enhancing productivity and decision-making. Their seminal work, *Information Technology: Tomorrow's Advantage Today*, highlights how technology provides a competitive edge by streamlining operations across industries. Similarly, Martin (1999), as cited in various studies, extends this definition to include not only computer hardware and software but also communication technologies that facilitate the exchange of information. These foundational perspectives underscore the multifaceted nature of technology as a driver of innovation, particularly in service-oriented sectors where timely access to information is critical.

The advent of mobile technology, particularly the Android platform, has further amplified the impact of information technology on everyday operations. Android, known for its open-source nature and widespread adoption, offers a versatile environment for developing applications tailored to specific needs. Suprianto and Agustina (2012) in their book *Pemrograman Aplikasi Android* discuss the flexibility of Android in creating user-friendly applications, making it an ideal choice for businesses seeking to digitize services. This platform's portability and accessibility enable users to interact with systems anytime and anywhere, a feature that is particularly beneficial for rental services where customers require real-time information on availability and specifications. Studies by Alfarisi (2019) on Android-based camera recognition applications and Finsa Bayu Erlanda (2015) on mobile guides for digital camera usage further illustrate how Android can be leveraged to educate and assist users in specialized domains like photography equipment rental. Digital platforms have emerged as vital tools for addressing operational inefficiencies and improving customer satisfaction. Arif and Cholil (2019) explore the implementation of an Android-based camera rental system for CV. Dipo Creativindo, demonstrating how mobile applications can simplify booking processes and provide detailed product information. Their findings reveal that such systems reduce transaction times and enhance user experience by offering intuitive interfaces. Similarly, Raymodud (2015), as cited in Wirasta and Febriansyah (2014), examines web-based rental systems for event equipment at Narda Pesta, highlighting the importance of digital catalogs and reservation functionalities in streamlining operations. These studies collectively affirm the transformative potential of technology in rental businesses, providing a precedent for applying similar solutions to camera rental enterprises facing comparable challenges.

Beyond specific rental applications, broader research on digital systems offers insights into the adaptability of technology across diverse sectors. Pramono and Widiasari (2023) investigate the development of open-source

server solutions using ShinobiCE, showcasing how customizable technology can address localized operational needs. Their work, while focused on surveillance systems, underscores the value of tailored digital tools in enhancing efficiency. Palupi and Pakereng (2023) further contribute to this discourse by examining web-based booking systems for wedding organizers at Max Entertainment Kudus. Their study illustrates how digital interfaces can improve customer interactions and operational workflows, a principle directly applicable to camera rental services seeking to optimize booking processes. The development of Android-based applications relies heavily on structured programming and design methodologies to ensure functionality and user satisfaction. Purbasari *et al*. (2024) in *Algoritma Pemrograman* provide a comprehensive overview of algorithmic principles that form the backbone of application development, emphasizing the importance of logical structuring in coding. Similarly, Wali (2020) in *Modul Praktikum Rekayasa Perangkat Lunak* and Wali *et al*. (2023) in *Pengantar 15 Bahasa Pemrograman Terbaik di Masa Depan* discuss software engineering practices and programming languages that are instrumental in creating robust applications. These resources highlight the technical foundations necessary for building reliable systems, ensuring that Android applications for rental services are both efficient and scalable.

Methodologies such as the Rapid Application Development (RAD) and Waterfall models play a crucial role in guiding the development process. Zalukhu *et al*. (2023) describe the use of RAD in designing an Android-based dictionary application for the Nias language, noting its emphasis on iterative development and user feedback to achieve rapid deployment. Conversely, Wicaksono and Purnomo (2023) apply the Waterfall methodology in developing an Android-based information system for public transport testing, illustrating its structured approach to sequential phases of development. Both methodologies offer valuable frameworks for creating applications tailored to specific needs, such as camera rental systems, by balancing speed and thoroughness in design and implementation. Unified Modeling Language (UML) further supports system design by providing a standardized way to visualize and structure software architecture. Haviluddin (2011) and Munawar (2018) elaborate on UML's role in object-oriented system analysis and design, emphasizing its utility in mapping out application functionalities and user interactions. These insights are critical for developing rental applications where clear navigation and functionality are paramount. Sulindawati and Fathoni (2010) also discuss system design analysis, reinforcing the need for meticulous planning to ensure that digital solutions meet user expectations.

Recent studies on Android-based applications across various domains provide additional context for their applicability in rental services. Nurwansyah *et al*. (2023) and Saktiadji *et al*. (2023) explore booking systems for swimming pools and sports fields, respectively, using Android Studio and Firebase to implement first-come-first-serve mechanisms. Their work highlights the feasibility of real-time booking features in mobile applications. Similarly, Siregar *et al*. (2023) and Bangun *et al*. (2023) focus on location-based service (LBS) applications for hotel and social venue searches, demonstrating how Android can integrate geolocation features to enhance user accessibility. Asmara *et al*. (2023) further showcase LBS in employee attendance systems, illustrating the platform's versatility in operational. Innovative uses of Android technology also extend to promotional and educational tools. Setyadi and Sutanto (2023) develop an application for promoting indie musicians, while Ramadhan and Waluyo (2023) create a 3D augmented reality application for educational purposes. These examples underscore Android's potential to deliver specialized content, a feature that can be adapted for camera rental applications to provide detailed equipment tutorials or promotional offers. Iqbal and Wali (2022) also contribute by developing a digital library application, emphasizing the role of mobile platforms in information dissemination, which parallels the need for comprehensive product data in rental systems.

Economic and organizational perspectives further contextualize the adoption of technology in service industries. Sadono (2011) in *Makro Ekonomi Teori Pengantar* discusses broader economic implications of technology adoption, suggesting that digital tools can drive cost efficiencies and market expansion for small businesses. Megawati *et al*. (2015) and Haryati Suharto (2017) explore information systems for business operations and hotel reservations, respectively, highlighting how digital solutions improve customer engagement and operational transparency. Jamaluddin *et al*. (2023) add to this by examining web-based ordering systems for printing services, reinforcing the cross-industry applicability of booking and reservation technologies. In synthesizing these perspectives, several key themes emerge. First, information technology, as articulated by Haag and Keen (1996) and Martin (1999), forms the bedrock of modern service delivery by enabling efficient information processing and communication. Second, Android's flexibility, as discussed by Suprianto and Agustina (2012), positions it as a leading platform for accessible and user-friendly applications. Third, empirical studies by Arif and Cholil (2019), Raymodud (2015), and others validate the efficacy of digital systems in rental and booking contexts. Finally, technical and methodological frameworks from Purbasari *et al*. (2024), Wali (2020), and Haviluddin (2011) provide the necessary tools to design robust applications. Together, these insights establish a comprehensive theoretical foundation for leveraging Android-based systems to enhance camera rental services, addressing both operational challenges and customer needs in a digital landscape.

3 | METHOD

This research was conducted at Kedai Kamera Depok, a business entity specializing in camera rental services and related equipment support in Depok City, Indonesia. Established by Yoga Dwi Sugandi on September 3, 2017, the company is strategically located next to Toko Herbal at Jl. Nangka No.2, RT.007/RW.015, Beji, Kecamatan Beji, Kota Depok, Jawa Barat 16425. Kedai Kamera Depok envisions becoming a pivotal enterprise that supports the creative industry by providing high-quality photography and videography equipment, thereby enhancing the output of its clientele. The company serves a diverse customer base of 75 individuals, comprising both new and regular members from various age groups and residential backgrounds, each with unique schedules and needs. The research was carried out over a four-month period from January to April 2023, focusing on the development of a digital solution to streamline the rental process and improve customer access to information. The methodology adopted for this study is the Rapid Application Development (RAD) approach, a software development framework that prioritizes iterative processes, continuous user feedback, and adaptability to changing requirements. RAD is particularly suited for projects requiring swift deployment and flexibility, as it emphasizes rapid prototyping and iterative refinements over rigid, sequential phases. According to Naz and Khan (2015), in their critical review published in the *International Journal of Software Engineering and Its Applications*, RAD techniques facilitate faster development cycles by involving end-users throughout the design and testing phases, ensuring that the final product aligns closely with user needs. This iterative nature is further supported by Chua *et al*. (2010) in *Rapid Prototyping: Principles and Applications*, who highlight the significance of rapid prototyping in accelerating development while maintaining quality through iterative feedback loops. The RAD methodology's adaptability makes it an ideal choice for developing an Android-based application for Kedai Kamera Depok, where evolving user requirements and time constraints are critical considerations.

The application of RAD in this context aligns with various contemporary studies that demonstrate its efficacy in software development. For instance, Manik *et al*. (2023) utilized RAD in developing an Android-based educational math game for elementary students, as detailed in *Design Journal*, showcasing how this method supports quick iterations and user-centric design in mobile applications. Similarly, Herman *et al*. (2022) applied RAD principles in creating an information system for ice block production at Perum Perikanan Indonesia, Banda Aceh, emphasizing its role in addressing specific operational needs efficiently (*Journal Dekstop Application*). Nurzahri and Ahmad (2022) also adopted RAD for a field extension worker information system at the Sabang Family Planning Agency, highlighting its effectiveness in rapid deployment for localized solutions. Additionally, Rahmi and Imilda (2023) leveraged RAD for a student internship management system at the Aceh Government's Department of Manpower, further validating its applicability in managing iterative development processes. While RAD forms the core methodology, the research also draws inspiration from complementary approaches and technologies discussed in related literature. Siregar *et al*. (2023), in their work on an Android-based hotel search application in Jakarta published in *Computer Journal*, integrate Location-Based Service (LBS) methodologies using Android Studio, illustrating how specific technical frameworks can enhance application functionality. Similarly, Bangun *et al*. (2023) developed an LBS-based application for locating social venues in Kebayoran Lama, as documented in *Design Journal*, underscoring the importance of integrating user location data to improve service accessibility. These studies, while not directly tied to RAD, provide valuable insights into enhancing the proposed camera rental application with features like geolocation, which could be iteratively developed under the RAD framework.

A critical component of this research methodology involves the use of Unified Modeling Language (UML) to design and visualize the application's structure and user interactions, ensuring clarity in the development process. UML diagrams serve as blueprints for the system, mapping out functionalities and workflows. Several diagrams were created to represent different aspects of the Kedai Kamera Depok application, each with a specific focus on user interaction and system flow. As depicted in Figure 1, titled *Use Case Diagram Kedai Kamera App*, this diagram illustrates the primary interactions available to users, including accessing the main menu, category button, rental terms button, and store contact button.

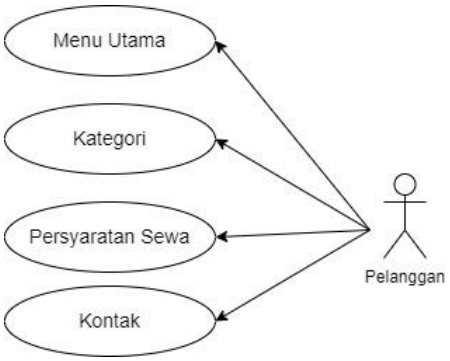

Figure 1. Use Case Diagram of the Camera Shop Application

Figure 2, labeled *Activity Diagram Menu Utama*, outlines the initial workflow users encounter when navigating the main menu of the Kedai Kamera Depok application for rental purposes. Figure 3, named *Activity Diagram Kategori*, details the subsequent steps users take when selecting the category button to proceed with the rental process. Figure 4, titled *Activity Diagram Persyaratan Sewa*, shows the workflow when users access the rental terms button to understand the conditions for renting equipment. Figure 5, labeled *Activity Diagram Kontak*, represents the process users follow when selecting the contact button to reach out to the store.

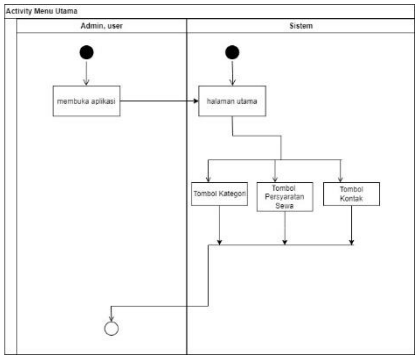

Figure 2. Main Menu Activity Diagram

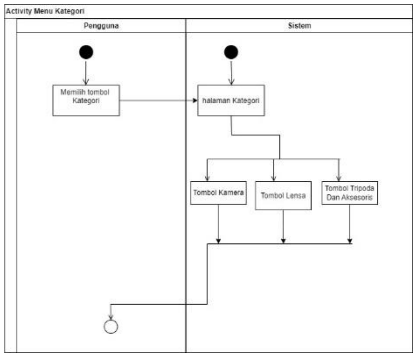

Figure 3. Category Activity Diagram

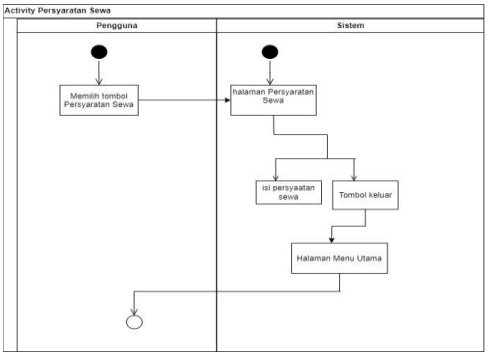

Figure 4. Lease Requirements Activity Diagram

Figure 6, named *Activity Diagram Menu Kategori Kamera*, describes the flow when users select the camera icon within the category menu to explore available cameras for rent. Figure 7, titled *Activity Diagram Menu Lensa*, illustrates the steps users take when choosing the lens icon within the category menu to view lens options for rental.

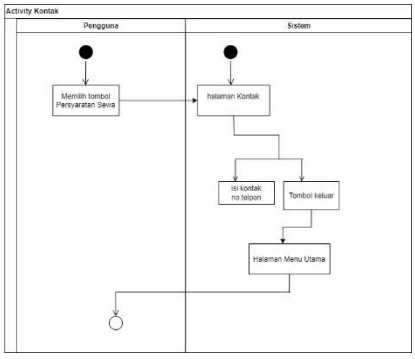

Figure 5. Contact Activity Diagram

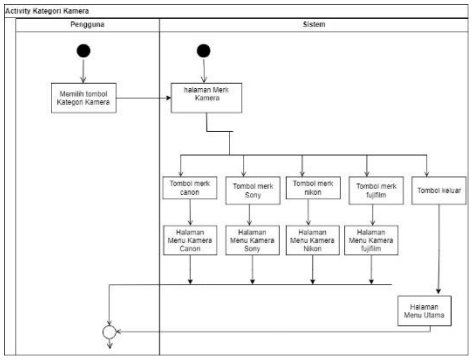

Figure 6. Activity Diagram Menu Category Camera

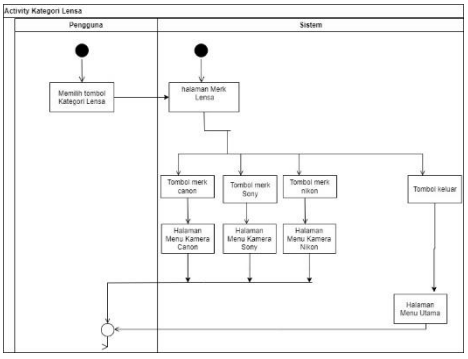

Figure 7. Lens Menu Activity Diagram

These UML diagrams, as supported by Haviluddin (2011) and Munawar (2018) from the previously referenced works, provide a structured approach to system design, ensuring that all user interactions and system functionalities are meticulously planned and visually represented. Their integration into the RAD methodology allows for iterative refinement of the application based on visual feedback and user testing, aligning with the principles discussed by Naz and Khan (2015). Furthermore, the choice of RAD is reinforced by its successful

application in various service-oriented systems, as evidenced by prior studies such as Zalukhu *et al*. (2023), who utilized RAD for an Android-based dictionary application, demonstrating its suitability for rapid, user-focused development. This methodology ensures that the Kedai Kamera Depok application can be developed and refined quickly to meet customer needs, incorporating feedback at each stage to enhance usability and functionality. By combining RAD with UML design and drawing on technical insights from LBS implementations as seen in Siregar *et al*. (2023) and Bangun *et al*. (2023), this research methodology provides a robust framework for creating an effective Android-based camera rental application tailored to the specific context of Kedai Kamera Depok. The research methodology leverages the strengths of RAD to facilitate a flexible and iterative development process, supported by UML diagrams for clear system visualization and inspired by complementary technologies like LBS for potential feature enhancements. The comprehensive approach, grounded in the works of Herman *et al*. (2022), Nurzahri and Ahmad (2022), Rahmi and Imilda (2023), Manik *et al*. (2023), Siregar *et al*. (2023), Bangun *et al*. (2023), Naz and Khan (2015), and Chua *et al*. (2010), alongside relevant prior references, ensures that the resulting application will address the operational challenges faced by Kedai Kamera Depok while meeting the expectations of its diverse customer base. If further details or adjustments are needed, I am ready to assist.

4 | RESULTS AND DISCUSSION

4.1 Results

The implementation phase of the Android-based application for Kedai Kamera Depok marks a vital stage in transforming the conceptual framework into a fully operational digital platform for camera and equipment rental services. This section elaborates on the diverse interface components and navigational workflows designed to provide an efficient and user-friendly experience for both new and returning members. Through an iterative development approach, the application's interfaces were continuously refined based on user feedback, ensuring alignment with the operational needs and customer expectations of Kedai Kamera Depok. Upon successful authentication, users are directed to the primary interface, which functions as the central navigation hub of the application. This main menu interface presents key functionalities through distinct interactive elements, allowing users to explore equipment categories, review rental policies, and access contact information for further assistance. The design emphasizes intuitive navigation, enabling users to quickly access desired features without unnecessary complexity, reflecting a strong commitment to user-centered design.

From the central hub, users can navigate to a categorized inventory interface that organizes available equipment into specific sections for cameras, lenses, tripods, and accessories. This category selection interface provides a clear overview of rentable items at Kedai Kamera Depok, streamlining the browsing process. Within the camera category, a brand-specific interface further refines the selection, featuring major manufacturers such as Canon, FujiFilm, Sony, and Nikon. Each brand's dedicated interface offers a scrollable list of available models, with item counts ranging from two for Nikon to nine for Canon, ensuring comprehensive visibility. Similarly, the lens category includes a brand-specific interface for Canon, Sony, and Nikon, with scrollable lists containing three to six items per brand, facilitating detailed exploration. The tripod and accessories interface also employs a scrollable layout, displaying eight items, allowing users to browse the full inventory without visual overload. Further detailing the camera and lens selections, individual brand interfaces for cameras include specific displays for Canon, Sony, Nikon, and FujiFilm, each with scrollable lists showcasing their respective models—nine for Canon, six for Sony, two for Nikon, and three for FujiFilm. Likewise, lens brand interfaces for Canon, Sony, and Nikon present scrollable lists with three items for Canon and six each for Sony and Nikon, ensuring users have access to detailed product options. These interfaces are crafted to maintain clarity and ease of navigation across various inventory sizes.

Beyond equipment browsing, the application includes dedicated interfaces to support the rental process. A rental terms interface outlines the conditions and requirements for renting equipment at Kedai Kamera Depok, providing essential information to ensure transparency and address user queries proactively. Another interface focuses on communication, presenting contact details with two phone numbers to assist users in connecting with store staff for transactional support, adhering to the business's procedural framework.

Figure 8. Main Menu Display

Figure 9. Category View

Figure 10. Rental Requirements View

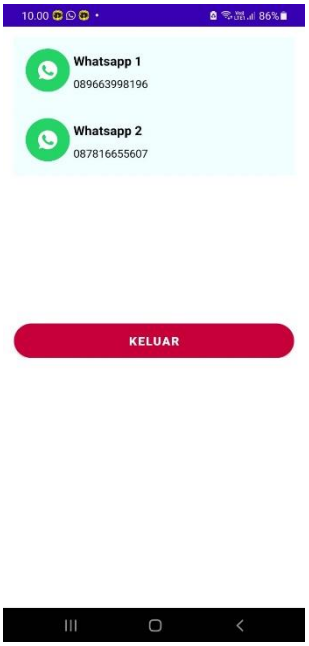

Figure 11. Contact View

The rental process itself is facilitated through a booking form interface where users input necessary details to initiate a reservation. This links to a transaction summary interface that generates a unique identifier for each rental, serving as a reference for equipment pickup, while also displaying the rental duration to keep users informed. A notification interface instructs users to present their transaction identifier to staff at Kedai Kamera Depok, reinforcing procedural compliance. Within this notification, an integrated contact option redirects users to the communication interface for immediate assistance if needed, prioritizing user accessibility.

Figure 12. Camera Brand Display

Figure 13. Lens Brand Display

Figure 14. Nikon Lens Menu Display

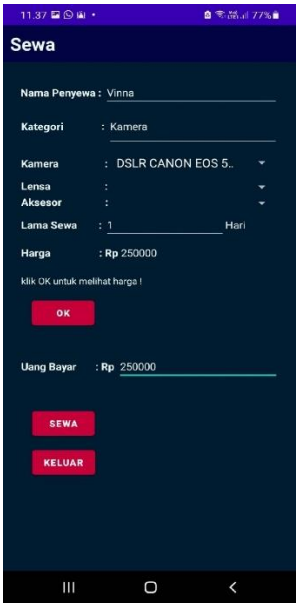

Figure 15. Rental Menu Display

Additionally, a transaction status interface provides users with an overview of their rental, including the unique identifier and rental period, ensuring clarity during equipment collection. A follow-up instruction interface within the notification system guides users on next steps, such as contacting staff or confirming details, further enhancing the user experience through structured guidance. The design of these interfaces incorporates scrollable functionalities where necessary, especially in inventory listings, to accommodate varying stock sizes while

maintaining a clean and navigable user experience. This approach enhances usability and ensures scalability for future inventory expansions without requiring extensive redesigns. The iterative development process played a crucial role in refining these interfaces through multiple cycles of user testing and feedback integration, ensuring each component meets the practical needs of Kedai Kamera Depok's diverse clientele. The implementation of the application design for Kedai Kamera Depok encompasses a comprehensive suite of interfaces tailored to facilitate the equipment rental process, from initial exploration to transaction completion. The development prioritizes user engagement and operational efficiency, with each interface meticulously constructed to provide clear navigation paths and relevant information. This contributes to an improved customer experience and optimized rental operations, showcasing the effectiveness of a thoughtfully executed digital solution in a service-oriented.

4.2 Discussion

The implementation of an Android-based application design for Kedai Kamera Depok is an important step in realizing a digital platform that supports efficient camera and equipment rental services. This stage transforms the conceptual framework into a functional system with a focus on an intuitive user experience, both for new and registered customers. By adopting the Rapid Application Development (RAD) method, the development process is carried out iteratively, allowing for continuous refinement of the application interface based on user input. This approach ensures that the resulting application is in accordance with the operational needs and expectations of Kedai Kamera Depok customers, as explained in a study on rapid development techniques by Naz and Khan (2015) which highlights the importance of flexibility and adaptation in the development cycle. When users successfully authenticate, they will be directed to the main interface that serves as the application's navigation center. This main menu interface provides access to various important features through clearly designed interactive elements, such as equipment category exploration, rental policy information, and contact details for further assistance. The design prioritizes ease of navigation so that users can quickly find the desired features without hassle, a principle that is in line with the user-based design approach. From this navigation center, users can access an inventory interface that groups gear into categories such as cameras, lenses, tripods, and accessories. Each category is designed to make searching easier, with scrollable lists showing available items, such as cameras from top brands such as Canon (9 items), Sony (6 items), Nikon (2 items), and FujiFilm (3 items), and lenses with a range of items ranging from 3 to 6 per brand. The tripods and accessories interface also displays 8 items in a scrollable format, ensuring a clean display despite varying stock levels.

In addition to the equipment browsing feature, the application is equipped with a dedicated interface to support the rental process. The terms and conditions interface provides important information regarding the rental procedure at Kedai Kamera Depok, ensuring transparency and answering user questions from the start. There is also a communication interface that lists two telephone numbers as support contacts, allowing users to contact store staff for transaction needs. The rental process itself is supported by an order form interface that allows users to enter the required data, followed by a transaction summary interface that generates a unique identifier as a reference for equipment pickup while displaying the rental duration. A notification interface is also present to remind users to show the transaction identifier to staff, with an integrated option to return to contact details if needed. This approach reflects the importance of user accessibility, as emphasized in research on location-based applications by Siregar *et al*. (2023) and Bangun *et al*. (2023).

The application interface design utilizes the scroll function on the inventory list to accommodate variations in stock quantities without sacrificing user visual comfort. This approach not only improves usability but also ensures scalability for future inventory expansion without requiring significant design changes. The iterative process implemented through the RAD method, as discussed by Chua *et al*. (2010) in the context of rapid prototyping, plays a critical role in refining each interface through cycles of testing and integrating user feedback. This ensures that each component meets the practical needs of Kedai Kamera Depok's diverse customers. In addition, the development of this application also refers to best practices in Android programming, as outlined by Suprianto and Agustina (2012), to ensure optimal performance and compatibility across devices. The implementation of the application design for Kedai Kamera Depok resulted in a comprehensive set of interfaces to facilitate the equipment rental process, from initial exploration to transaction completion. With a focus on user engagement and operational efficiency, each interface is designed to provide clear navigation paths and relevant information, as supported by research on Android-based rental systems by Arif and Cholil (2019). These results contribute to improving customer experience and optimizing rental operations, demonstrating the effectiveness of well-designed digital solutions in a service context, in line with the findings of Nurwansyah *et al*. (2023) on Android-based booking applications. This approach is a clear evidence of the application of modern development methods in creating relevant and useful technological solutions.

5 | CONCLUSIONS AND FUTURE WORK

Based on the research outcomes regarding the development of the Android-based Camera Rental System Application for Kedai Kamera Depok using Android Studio Version Dolphin 2021.3.1 with the Rapid Application Development (RAD) method, several conclusions can be drawn. This camera rental application system enables customers to access detailed descriptions of various equipment available at Kedai Kamera Depok, including cameras, lenses, tripods, and accessories, thereby assisting them in making well-informed decisions before renting. Additionally, the application is designed to streamline the rental process through an intuitive interface, minimizing the time required for browsing inventory, placing orders, and completing transactions, ultimately enhancing the overall user experience. The RAD approach applied in the development of this application ensures that each feature is developed iteratively, taking into account user feedback, resulting in a digital solution that aligns with the operational needs of Kedai Kamera Depok and customer expectations, as supported by the research of Naz and Khan (2015) on rapid development techniques.

To further enhance the functionality and impact of this application, several development steps can be considered for future work. First, integrating an online payment feature into the application would allow customers to complete transactions directly through the platform, reducing the need for physical interaction during payment and increasing user convenience. Second, enhancing the notification system with more advanced features, such as automated reminders for equipment returns or notifications about newly available items, could improve customer experience and support inventory management. Lastly, expanding the application to other platforms, such as iOS or web-based systems, would broaden its accessibility, enabling a larger customer base to benefit from the digital rental services offered by Kedai Kamera Depok. These future enhancements aim to build upon the current foundation to create a more comprehensive and user-friendly solution.

REFERENCES

Alfaris, L., Gustian, D., Setyorini, R., Romli, I., Putri, A. Y. P., Herjuna, S. A. S., Syamsiyah, N., Yuniansyah, Aziza, N., Muhammad, A. C., Umar, N., & Wali, M. (2022). *Riset operasi*. Indie Press.

Alfarisi, S. (2019). Aplikasi Media Pengenalan Jenis Kamera dan Lensa Berbasis Android. *Jurnal Sisfotek Global*, *9*(1).

Arif, M., & Cholil, S. R. (2019). Sistem penyewaan kamera pada CV. Dipo Creativindo berbasis Android. *Pengembangan Rekayasa dan Teknologi, 15*(2), 76–81.

Asmara, D. P., Faizah, N., & Kambry, M. A. (2023). Aplikasi presensi kehadiran online pada karyawan PT. Bringin Karya Sejahtera dengan metode Location-Based Service menggunakan Android Studio dan MySQL. *Design Journal, 1*(1), 64–71. https://doi.org/10.58477/dj.v1i1.58

Bangun, Y. P., Faizah, N., & Koryanto, L. (2023). Aplikasi pencarian tempat nongkrong daerah Kebayoran Lama dengan metode LBS (Location-Based Service) menggunakan Android Studio. *Design Journal, 1*(1), 55–63. https://doi.org/10.58477/dj.v1i1.28

Chua, C. K., Leong, K. F., & Lim, C. S. (2010). *Rapid prototyping: Principles and applications*. World Scientific.

Erlanda, F. B., & Made, I. (2015). *Pengembangan aplikasi mobile panduan penggunaan kamera digital dan lensa DSLR* [Unpublished manuscript or thesis]. (Details of institution or publisher not provided).

Haag, S., & Keen, P. (1996). *Information technology: Tomorrow's advantage today*. McGraw-Hill College.

Haryati Suharto, S. N. (2017, November). *Sistem informasi reservasi Hotel Permata Jayapura*. Repository Informasi Universitas BSI.

Haviluddin. (2011). Memahami menggunakan UML (Unified Modelling Language). *Jurnal Informatika Mulawarman, 6*(1), 1–15.

Herman, Mukhtar, M., & Ihsanuddin. (2022). Ice block production manufacturing information system, Perum Perikanan Indonesia, Banda Aceh. *Journal Dekstop Application (JDA), 1*(2), 60–66. https://doi.org/10.59431/jda.v1i2.315

Iqbal, T., & Wali, M. (2022). IDOL: Retrofit-Kotlin service-based online digital library application and college open data repository. *International Journal Software Engineering and Computer Science (IJSECS), 2*(1), 1–8. https://doi.org/10.35870/ijsecs.v2i1.760

Iqbal, T., & Wali, M. (2022). IDOL: Retrofit-Kotlin service-based online digital library application and college open data repository. *International Journal Software Engineering and Computer Science (IJSECS), 2*(1), 1–8. https://doi.org/10.35870/ijsecs.v2i1.760

Jamaluddin, Hajriyanti, R., & Bahruni. (2023). Sistem informasi pemesanan produk percetakan berbasis web pada CV. Page Grafika Banda Aceh. *Computer Journal, 1*(1), 23–32. https://doi.org/10.58477/cj.v1i1.32

Manik, J., Faizah, N., & Ginting, W. (2023). Pengembangan aplikasi game edukasi matematika SD 02 Pagi Pondok Labu berbasis Android dengan metode Rapid Application Development menggunakan Adobe Flash CS6. *Design Journal, 1*(1), 99–108. https://doi.org/10.58477/dj.v1i1.62

Megawati, M., Alhumaira, M., & Aprianty, T. R. (2017). Sistem informasi PT. Heng Sun Mulia Pratama Jambi menggunakan PHP dan MySQL. *STMIK Politek. PalComtech*, 1–10.

Munawar. (2018). *Analisis perancangan sistem berorientasi objek dengan UML (Unified Modelling Language)*. Informatika.

Naz, R., & Khan, M. N. A. (2015). Rapid applications development techniques: A critical review. *International Journal of Software Engineering and Its Applications, 9*(11), 163–176.

Nurwansyah, A., Faizah, N., & Ginting, W. (2023). Aplikasi pemesanan e-ticket di Kolam Renang Primer Koperasi Angkatan Laut (Primkopal) Lanmar Jakarta berbasis Android dengan metode First Come First Serve menggunakan Android Studio dan Firebase. *Computer Journal, 1*(1), 42–52. https://doi.org/10.58477/cj.v1i1.63

Nurzahri, M., & Ahmad, L. (2022). Field extension worker information system, Sabang Family Planning Agency. *Journal Dekstop Application (JDA), 1*(2), 75–83. https://doi.org/10.59431/jda.v1i2.317

Purbasari, W., Iqbal, T., Inayah, I., Munawir, Sutjiningtyas, S., Hikmawati, E., Natsir, F., Widhiyanti, A. A. S., Wali, M., Haris, M. S., & Basri, H. (2024). *Algoritma pemrograman*. CV. Haura Utama.

Rahmi, T., & Imilda. (2023). Student internship information management system at the Aceh Government's Department of Manpower and Population Mobility. *Journal Dekstop Application (JDA), 2*(1), 32–40. https://doi.org/10.59431/jda.v2i1.321

Ramadhan, M. A. N., & Waluyo, A. F. (2023). Development of Android-based 3D building augmented reality application at Jogja Student Islamic Boarding School 2. *International Journal Software Engineering and Computer Science (IJSECS), 3*(3), 205–212. https://doi.org/10.35870/ijsecs.v3i3.1674

Sadono, S. (2011). *Makro ekonomi teori pengantar*. PT. Rajagrafindo Persada.

Saktiadji, B. N., Faizah, N., & Koryanto, L. (2023). Aplikasi pemesanan lapangan olahraga Usman Harun Sport Center berbasis Android dengan metode First Come First Serve menggunakan Android Studio dan Firebase. *Computer Journal, 1*(1), 53–63. https://doi.org/10.58477/cj.v1i1.64

Setyadi, H. A., & Sutanto, Y. (2023). Genetic: Aplikasi Android sebagai media promosi musisi indie. *Jurnal JTIK (Jurnal Teknologi Informasi dan Komunikasi), 7*(4), 543–551. https://doi.org/10.35870/jtik.v7i4.1028

Siregar, D. R. S., Koryanto, L., & Faizah, N. (2023). Aplikasi pencarian hotel di Kota Jakarta berbasis Android dengan metode Location Based Service (LBS) menggunakan Android Studio. *Computer Journal, 1*(1), 64–72. https://doi.org/10.58477/cj.v1i1.65

Sulindawati, & Fathoni, M. (2010). Pengantar analisis perancangan sistem. *Jurnal SAINTIKOM, 9*(2), 1–[halaman akhir artikel]. Accessed on April 19, 2016, from http://lppm.trigunadharma.ac.id/public/fileJurnal/F51F3-OK-Jurnal14-SDW-MF-APSI-1.pdf.

Suprianto, D., & Agustina, R. (2012). Pemrograman Aplikasi Android. *Malang: Mediakom*.

Wali, M. (2020). *Modul praktikum rekayasa perangkat lunak*. Ellunar Publisher.

Wali, M., Nengsih, T. A., Hts, D. I. G., Choirina, P., Awaludin, A. A. R., Yusuf, M., Aminuddin, F. H., Purwandari, N., & Baradja, A. (2023). *Pengantar 15 bahasa pemrograman terbaik di masa depan: Referensi & coding untuk pemula*. PT. Sonpedia Publishing Indonesia.

Wicaksono, M. E., & Purnomo, H. D. (2023). Sistem informasi uji KIR angkutan umum berbasis Android menggunakan metode Waterfall (Studi Kasus: Dinas Perhubungan Salatiga). *Jurnal JTIK (Jurnal Teknologi Informasi dan Komunikasi), 7*(1), 80–91. https://doi.org/10.35870/jtik.v7i1.682

Wirasta, W., & Febriansyah, I. (2014). Perancangan Sistem Informasi Penyewaan Alat-Alat Pesta Berbasis Web Di Narda Pesta. *Jurnal Lpkia*, *1*(1), 1-8.

Zalukhu, D. J., Karo, P. K., & Faizah, N. (2023). Perancangan aplikasi kamus bahasa daerah Nias berbasis Android dengan metode Rapid Application Development (RAD) menggunakan Android Studio. *Computer Journal, 1*(1), 9–14. https://doi.org/10.58477/cj.v1i1.30.

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