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RENTALIN APPS: Development of a Motorbike Rental Application Using Design Thinking for a Digital Rental Solution

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Abstract: The motorbike rental industry in Indonesia is characterized by significant challenges, including security risks, inefficient operations, and difficulty for customers in finding reliable rental services. This study aims to develop a comprehensive digital solution through the RENTALIN application, which addresses these challenges using a Design Thinking approach. The objective of this research was to create an application that enhances both the operational efficiency for rental owners and the user experience for customers. Data was collected from 13 motorbike rental owners, reported issues such as theft, fraud, and difficulties in tracking motorbikes. Additionally, surveyed customers indicated challenges in finding trustworthy rental services. Based on these findings, the RENTALIN application was designed with features such as GPS-based motorbike tracking, secure data verification systems, and an intuitive user interface. These solutions aim to improve security, expand market reach, and simplify the rental process. Testing of the prototype showed that the application effectively increases the efficiency and safety of the rental process, providing a more seamless experience for both rental owners and customers. RENTALIN demonstrates significant potential to become a leading platform in the Indonesian motorbike rental industry, offering targeted solutions to the sector's critical issues.

Keywords: RENTALIN App, Motorbike Rental, Design Thinking, Digital Solution, User Experience.

Introduction

In the rapidly evolving digital era, the demand for efficient and secure solutions in various service sectors has significantly increased. The vehicle rental industry, particularly motorbike rentals, is one such sector that has seen substantial growth in Indonesia (Rifki et al., 2024). However, this growth has also brought numerous challenges, including fraud, theft, and the complexities of customer verification processes. These challenges have highlighted the need for more robust and reliable digital solutions to support both rental owners and customers in navigating the rental process safely and efficiently.

RENTALIN, a newly developed motorbike rental application, emerges as a solution to address these issues by leveraging digital technology to streamline the rental process and enhance security for all parties involved. The application serves as a mediator between rental owners and customers, providing a platform where users can easily find and rent motorbikes while ensuring that both the vehicles and transactions are secure. The primary objective of RENTALIN is to simplify the motorbike rental process for customers by providing an accurate and fast service, while also supporting rental business owners in reaching a broader customer base and verifying customer data efficiently and securely.

The application is designed with a range of innovative features, including efficient data verification, secure transaction systems, and facial recognition technology integration. These features are intended to prevent common issues in the rental industry, such as fraud and theft, by providing a more reliable and user-friendly platform (Tribunnews, 2024). By integrating these advanced technological solutions, RENTALIN aims to offer a seamless and secure rental experience that benefits both customers and rental owners(Permana, 2024; Rahayu, 2023; Suntharalingam, 2023).

The inception of RENTALIN is rooted in the personal experiences of its founder, whose father, a motorbike rental owner, faced numerous challenges related to fraud and theft. This personal connection, combined with extensive research and interviews with other rental owners in Depok, revealed a widespread problem within the industry. A survey conducted among motorbike rental owners showed that 100% of them had encountered issues such as vehicle theft, fraud, and damages, which are significant threats to the sustainability of their businesses (Kumparan, 2024).

Moreover, reports from sources like Tribunnews (2023) have highlighted instances where foreign tourists posed as rental owners, deceiving users and causing financial losses. These findings underscore the urgent need for a more secure and reliable system in the motorbike rental industry. RENTALIN seeks to address these challenges by offering a solution that not only enhances the safety and convenience of the rental process but also supports the broader goals of smarter, more environmentally friendly, and more accessible mobility options for the Indonesian population(Bhatti, 2020; Mizuno, 2016; Osman, 2020).

Through the adoption of digital technologies and a focus on user security, RENTALIN is poised to revolutionize the motorbike rental industry in Indonesia. The application not only facilitates the rental process but also plays a crucial role in protecting both rental owners and customers from the risks associated with the current rental market. As such, RENTALIN represents a significant step forward in addressing the needs of a rapidly growing and evolving industry, aligning with the demands of modern consumers for practical, fast, and secure solutions in their daily lives.

Methodology

This study adopts a Design Thinking methodology, focusing on two primary perspectives: motorbike rental owners and customers. Through a combination of in-depth interviews and surveys, the research seeks to understand the specific challenges faced by both parties and evaluate the effectiveness of the Rentalin application in addressing these issues. The primary goal of this research is to ensure that the application benefits both the

owners and customers by making the rental process more secure, efficient, and user-friendly.

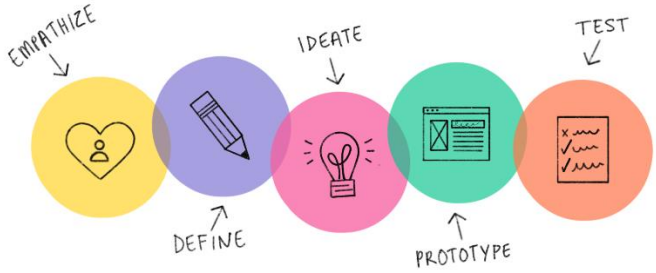


Figure 1 Design Thinking Process

1. **Empathize: Understanding Rental Owners' Challenges**
   - Conducted with five motorbike rental owners in Depok, these interviews aimed to gather detailed insights into their operational challenges. The main issues identified include security concerns such as motorbike pawnings, parts theft, and vehicle fraud. Additionally, owners highlighted ineffective promotional strategies and difficulties in verifying customer data (Smith, 2021; IDEO, 2020).
   - A broader survey was conducted with 13 rental owners across Indonesia, including a 69.2% majority from outside the JABODETABEK area and 30.8% within it. The survey revealed that 92.3% of owners expressed the need for an online platform to expand market reach, and 100% emphasized the necessity of a specialized system for tracking and maintaining their motorbikes (Johnson, 2021; Lee, 2020). Moreover, 84.6% agreed on the need to extend customer outreach, and all respondents had experienced issues such as motorbike theft, damage, or fraud.

Empathize: Understanding Customer Needs

- Customer surveys provided valuable insights into the specific challenges faced by users of motorbike rental services. The survey included a diverse sample, with 83.3% male and 16.7% female respondents, and highlighted significant difficulties in locating motorbike rental services, particularly in non-tourist areas such as JABODETABEK. The results showed that 100% of respondents experienced challenges in finding rental services and obtaining reliable information about motorbike rentals in their vicinity (Garcia et al., 2021). These findings underscore the necessity for a centralized, user-friendly platform that could address these common issues.
- In addition to the surveys, in-depth interviews were conducted with 12 residents of Depok to further explore the customer experience. The interviews, which included a mix of 66.67% male and 33.33% female participants, revealed several key pain points. These included the difficulty in finding reliable rental services in non-tourist areas, concerns about potential fraud, particularly through social media, and the lack of clear information regarding motorbike availability. These challenges reflect broader issues within the industry that require targeted solutions to enhance the customer experience.

2. **Define**

   Based on the data collected from interviews and questionnaires, the Define stage involves the formulation of a clear problem statement. This analysis helps identify the key pain points experienced by business owners and customers, as well as specify their needs (IDEO, 2020). The problem statement developed at this stage guides the subsequent phases of the design process.

3. **Ideate**

   In the Ideate phase, the research team engages in brainstorming sessions to generate creative ideas that address the identified problems. The primary focus of this ideation process is to develop practical and innovative solutions aimed at improving the processes and services within the motorbike rental industry (Johnson & Smith, 2021).

4. **Prototype**

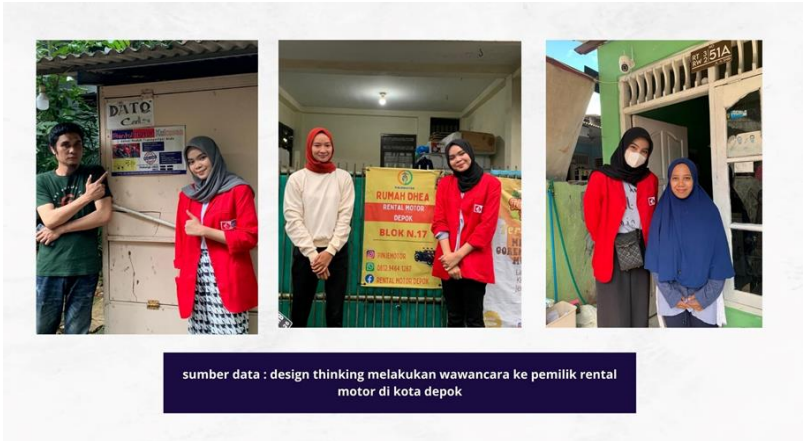
   From the generated ideas, the most promising solutions are selected and realized in the form of a prototype. This prototype is an early representation of the Rentalin platform, designed to facilitate motorbike rental business management and simplify the customer's search for rental services (Taylor & Brown, 2021).

5. **Test**

   The testing phase involves engaging the community in Depok as users to evaluate the functionality and practicality of the proposed solution. The Rentalin prototype is tested by these users to gather feedback on its effectiveness (Lee et al., 2021). This feedback is crucial for iterative refinement, ensuring that the final solution meets the users' needs and is ready for implementation.

Result and Discussion

This study identified and analyzed the challenges from two primary perspectives: motorbike rental owners and rental customers. By employing the Design Thinking methodology, data was gathered through interviews and surveys with motorbike rental owners to understand the problems they face. Additionally, surveys were conducted with customers to evaluate the Rentalin application from the user's perspective. The main goal of the application is to facilitate and benefit both parties involved in the rental process.



sumber data : design thinking melakukan wawancara ke pemilik rental motor di kota depok

Figure 2 Owners Interview

Challenges Faced by Rental Owners

The data collected from the surveys and interviews revealed significant insights into the challenges faced by rental owners. A survey conducted with 13 motorbike rental owners across Indonesia—69.2% of whom were from outside the JABODETABEK area and 30.8% from within—highlighted several key issues:

- Need for an Online Platform

  A striking 92.3% of the respondents indicated a strong need for an online platform to expand their market reach and enhance business visibility. This indicates the crucial role that digital platforms like Rentalin can play in the motorbike rental industry.

- Tracking and Maintenance

  100% of the respondents emphasized the need for a specialized system to track and maintain their motorbikes. The ability to efficiently manage and secure their fleet is a critical concern for all rental owners, underscoring the importance of integrating robust GPS and tracking features in the Rentalin application.

- Expanding Customer Reach

  84.6% of owners expressed the desire to expand their customer base. This suggests that while traditional rental services might be limited in reach, a digital platform could significantly broaden the scope of potential customers.

- Security Issues

  Alarmingly, every rental owner reported experiencing security issues such as motorbike pawnings, parts theft, and fraud. This unanimous concern highlights the critical need for enhanced security features, such as advanced data verification and secure transaction systems, to mitigate these risks.

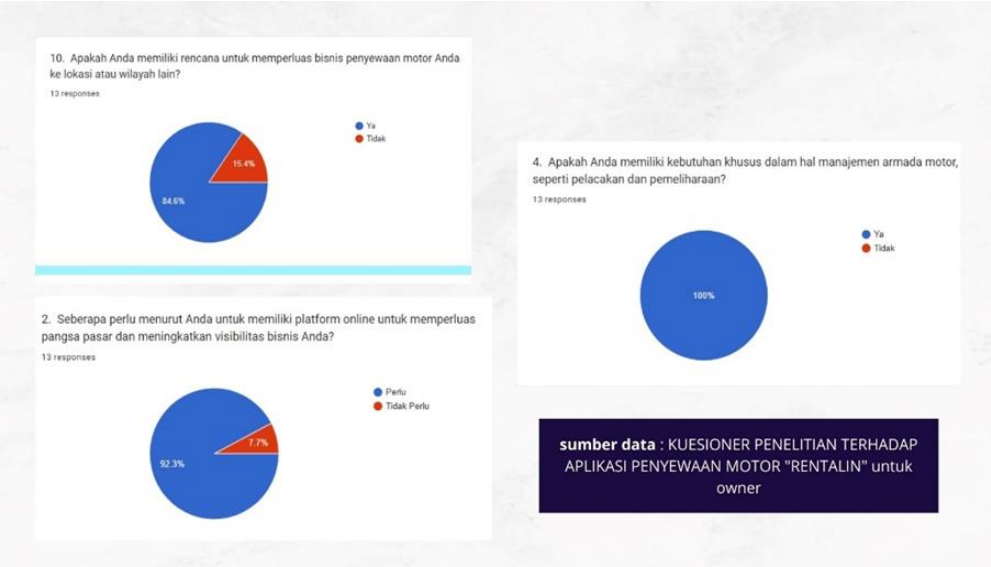


Figure 3 Owner Survey Result

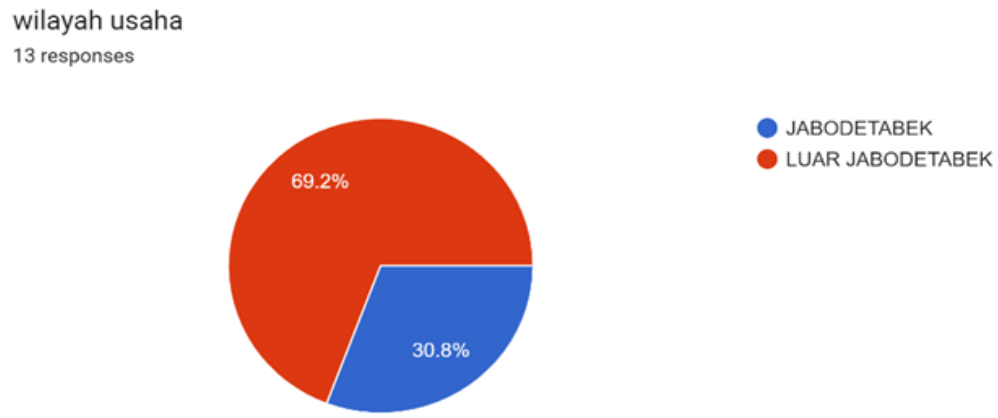


Figure 4 Survey Result by Location

The interviews conducted with five motorbike rental owners in Depok further supported these findings. Owners reported significant challenges in ensuring the security of their vehicles, ineffective promotional strategies, and difficulties in verifying the authenticity of customer data. These challenges align with the broader survey results and emphasize the necessity of a comprehensive solution that Rentalin aims to provide.

Challenges Faced by Customers

The customer surveys, which included 83.3% male and 16.7% female respondents, revealed that all participants had encountered difficulties in finding motorbike rental services. This issue was particularly pronounced in non-tourist areas such as JABODETABEK, where reliable information about motorbike rentals is scarce.

Further in-depth interviews with 12 residents of Depok (66.67% male and 33.33% female) identified additional customer challenges:

- Difficulty in Finding Reliable Rentals

  Customers often struggle to locate trustworthy motorbike rental services, especially in areas that are not popular tourist destinations.
- Risk of Fraud

  Many customers reported concerns about potential fraud, particularly when interacting with individuals posing as rental owners on social media platforms.
- Uncertainty in Motorbike Availability

  Customers also expressed frustration with the lack of clear information regarding the availability of motorbikes, which often leads to difficulties in planning their rentals.

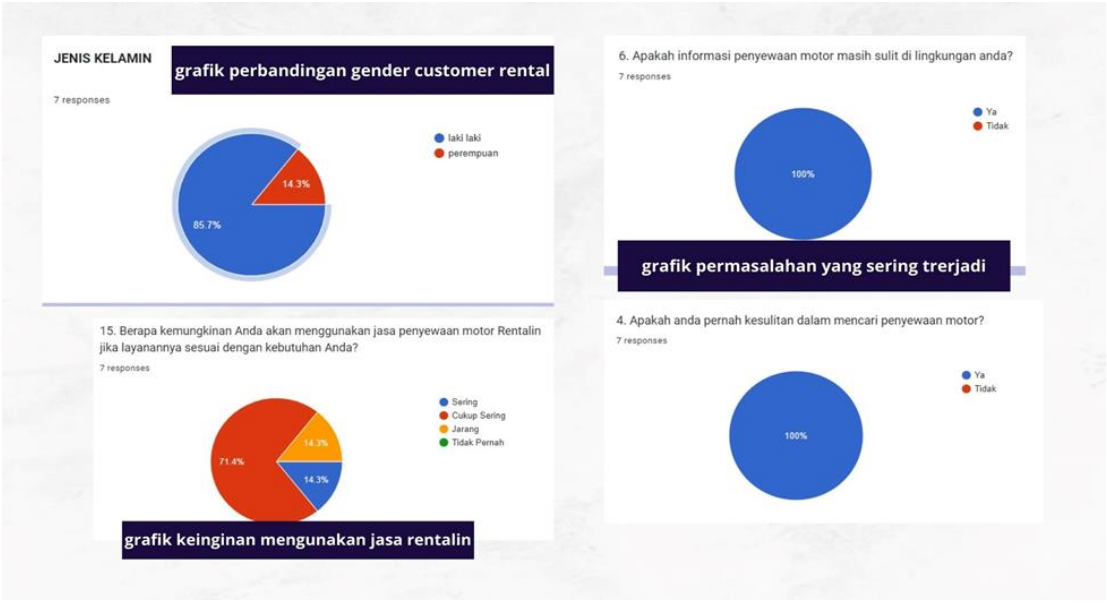


Figure 5 Survey Result by Gender, Problems and Needs

Rentalin's Solutions

In response to these identified challenges, Rentalin offers concrete solutions designed to address both the owners' and customers' needs:

- **For Owners**

  Rentalin provides an online platform that significantly improves business visibility and market reach. The application integrates advanced GPS tracking and secure data verification features, ensuring that owners can manage and protect their fleet effectively. Additionally, Rentalin serves as a promotional tool, helping owners target and attract new customers.



Figure 6 Prototype Display for Owners

- **For Customers**

  Rentalin simplifies the rental process through an intuitive user interface that ensures a quick and efficient booking experience. The application also guarantees secure payments and protects customers from fraud by implementing strict data verification procedures. Furthermore, real-time information on motorbike availability helps customers make informed decisions and avoid the frustrations associated with unreliable rentals.

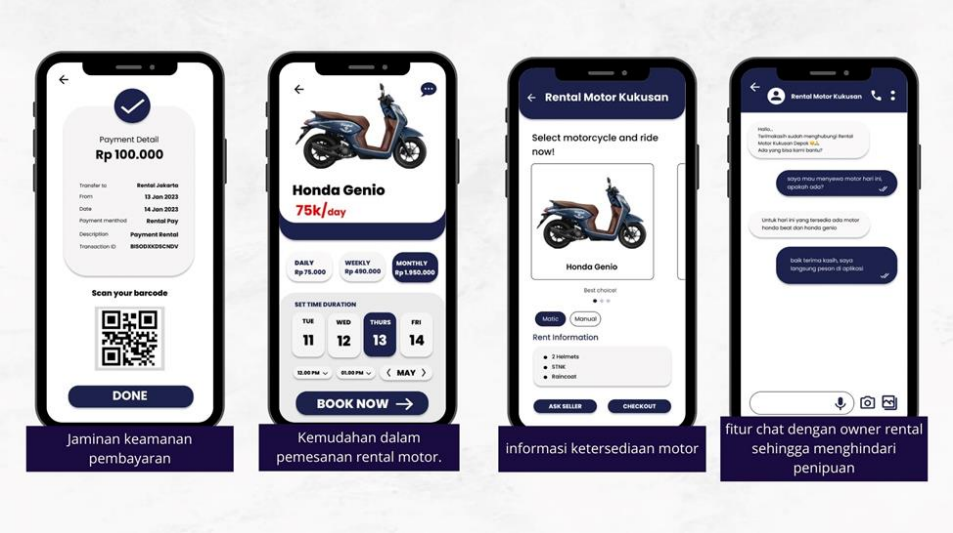


Figure 7 Prototype Display for Users

Conclusion

The development of the RENTALIN application using a Design Thinking approach has successfully created a relevant and significant digital solution for the motorbike rental industry. Through the five key stages—Empathize, Define, Ideate, Prototype, and Test—the

application was comprehensively designed to address the various challenges faced by motorbike rental owners and customers. Innovative features such as GPS-based motorbike tracking, secure data verification systems, and an intuitive user interface not only simplify the motorbike rental process but also enhance security and trust in transactions. Testing results indicate that the application provides a more efficient, safe, and convenient rental experience for both users and rental owners. Therefore, RENTALIN has the potential to become a leading platform in the motorbike rental industry in Indonesia.

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