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Business Implementation by Utilizing the Use of Futsal Fields on the Top of the Syanggit Ulujami Building Based on the Web

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Abstract− The development of information technology has brought about a significant transformation in the management of business services, including in the sports facility rental sector such as futsal fields. This study aims to design and implement a web-based information system that supports the futsal field rental business process above the Syanggit Building, Ulujami. This system is designed to make it easier for users to make reservations online, make payments, and make it easier for managers to verify and manage transactions digitally. The research method used is the waterfall software development model, starting from the needs analysis stage, system design, implementation, to testing with the black-box method to ensure that all system functions run as expected. The results of this study are a web application that has main features such as user registration, schedule booking, uploading proof of payment, validation by the admin, as well as a transaction management dashboard and booking reports. The test results show that all features run well and are in accordance with user needs. The system interface is designed to be responsive and user-friendly, with clear navigation, paying attention to good UI/UX principles. This system not only makes it easy for consumers to make transactions efficiently, but also helps field managers improve service quality and operational efficiency. With the implementation of this system, the futsal field rental business is expected to be able to compete digitally and provide a better service experience to customers. This study provides a practical contribution to the use of digital technology in the management of sports facility services in a modern and professional manner.

Keywords: Information Systems, Futsal Field Rental, Web-Based Applications, Online Booking, Black-box Testing.

1. INTRODUCTION

The development of information technology has made a major contribution to the transformation of conventional businesses into more efficient and structured digital systems. One of the rapidly developing implementations is a web-based futsal field rental system. This digital system facilitates transactions between tenants and field managers (Fortunata & Cahyaningtyas, 2021). The existence of a digital platform provides easy access for users to make reservations online without having to come in person (Nurdinillah & Sukendar, 2023). This convenience is very relevant in increasing customer comfort and time management efficiency, as stated by (Wibowo et al., 2024).

A specially designed rental information system can also improve the accuracy of data management and rental schedules (Hendradi & Fathudin, 2024). A web-based rental system can minimize manual queues and increase service speed (Purwanto et al., 2023). The technology used in developing this application generally involves PHP and MySQL, which have proven to be quite reliable and flexible (Hernando & Dian, 2023). In its application, this system can utilize ordering methods such as "first come first served" to ensure fairness for all users (Pratama et al., 2023).

Features such as automatic confirmation and order notifications are needed to speed up the service process (Geasela et al., 2023). In addition, the web-based system also provides benefits in terms of reporting and documentation of rental transactions (Yulianti et al., 2022). The importance of an intuitive user interface in an online rental system to ensure ease of use (Suhendri et al., 2023). The use of the Laravel framework in developing this application provides advantages in terms of scalability and code efficiency (Ardin et al., 2020). Laravel-based systems can improve the professionalism of managing field rental businesses Bachtiar & Riyanto, 2025).

In the context of villages or regions, a field rental accounting information system can be implemented by BUMDes through a web-based approach (Yulianto et al., 2021). The Laravel framework is considered very effective in developing a more modern sports facility rental system (Anggoro & Suryadi, 2022). Meanwhile, CodeIgniter can be a lightweight and simple alternative in creating similar applications (Pratama & Rinaldi, 2021). A digital business approach can expand the market and increase the efficiency of sports facility management Kusuma & Dewi, 2020).

In terms of software quality, testing with the blackbox method needs to be carried out to ensure that all system functions run according to user needs (Maulana & Asmara, 2022). In addition, development models such as waterfall are also widely applied because they provide a systematic workflow from the analysis stage to implementation (Siahaan & Marbun, 2023). The use of a combination of Laravel and MySQL in developing rental applications has been shown to provide stability and ease of integration (Ramadhan & Hidayat, 2022). Digitalization of rental management can increase operational efficiency and create added value for users and business owners (Wahyudi & Anjani, 2021).

2. RESEARCH METHODOLOGY

This study uses a software engineering approach with the Waterfall development method, which is considered appropriate because it is able to provide a systematic workflow from needs analysis to implementation and maintenance. This model is suitable for projects with clear needs from the start and allows for structured documentation at each stage.

2.1 Data Collection Technique

Data collection techniques used include:

a. Interview

Conducted with managers and users to identify system needs.

b. Direct observation

To record the flow of conventional field rentals.

c. Literature study

By reviewing previous research on web-based rental systems.

d. Documentation

the form of proof of transactions, manual forms, and photos of rental activities.

2.2 System Development Method

Application development uses the Waterfall model which consists of the following stages:

a. System Requirements

Identify key features such as booking schedules, account registration, payments, notifications, and management reports.

b. System Design

Create a design for the user interface (UI), database architecture, and system navigation flow.

c. Implementation

The program code is written using the PHP programming language with the Laravel framework, and the MySQL database.

d. Pengujian

The system is tested using the blackbox testing method to test the functionality of the system from the user's perspective.

e. Maintenance

The system will be repaired and adjusted based on user feedback after implementation.

2.3 System Testing Techniques

To ensure the system runs according to needs, the blackbox testing method is used. This testing focuses on the input and output of the system, without looking into the source code. The goal is to ensure that all main features such as login, field booking, payment, schedule confirmation, and transaction reports run as expected.

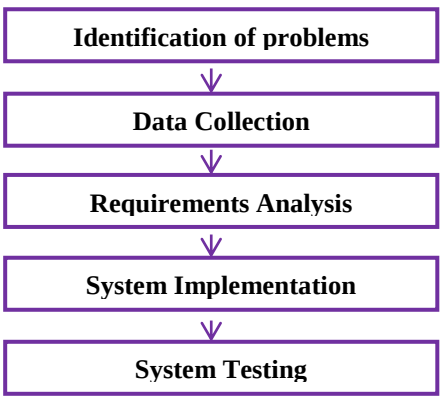

Figure 1. Research Stage

Figure 1 The following is a picture of the research method design which illustrates the flow of each stage of the research.

3. RESULTS AND DISCUSSION

After going through the stages of needs analysis, design, and implementation using the Laravel framework and MySQL database, a web-based futsal field rental system was successfully built with the following main features:

3.1 Home Page

Displays initial information, homepage, order now, field availability schedule, and user login.

Figure 2. System Home Page View

Figure 2 This feature provides initial information to users regarding the futsal field booking service. Main Components: Navigation Header: Consists of menus such as Home, Booking, Login, Admin. Main Banner: Image or illustration of a futsal field with a welcoming text explaining the service. Featured Features: Displays advantages such as “Easy Booking”, “Online Payment”, and “Strategic Location”. Call to Action (CTA): Large buttons such as “Book Now” that direct to the booking page.

3.2 User Registration and Login

This feature allows users to create an account, login, and access the booking feature.

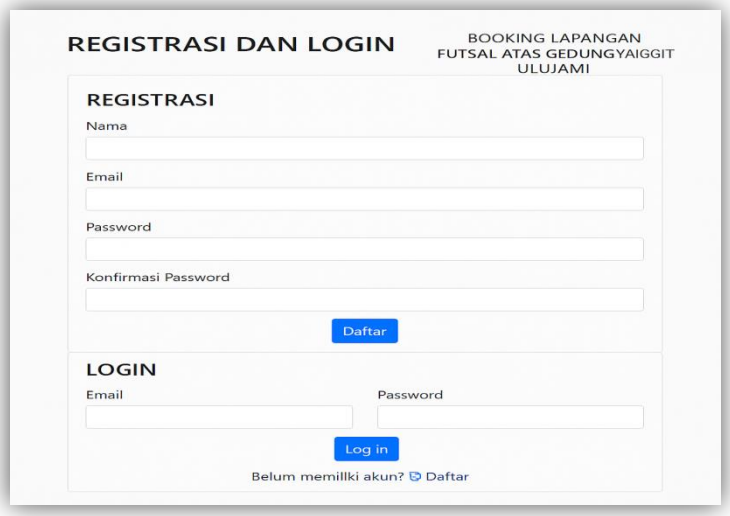

Figure 3. User Registration and Login Form View

Figure 3 This feature allows new users to register and existing users to log in. Page Components: Registration Form: Input: Full name, email, password, confirm password. Button: “Register” to save data. Login Form: Input: Email and password. Button: “Login”. Navigation Link: “Don’t have an account? Register”.

3.3 Field Booking

Users can choose the date, time, and duration of the field rental based on real-time availability.

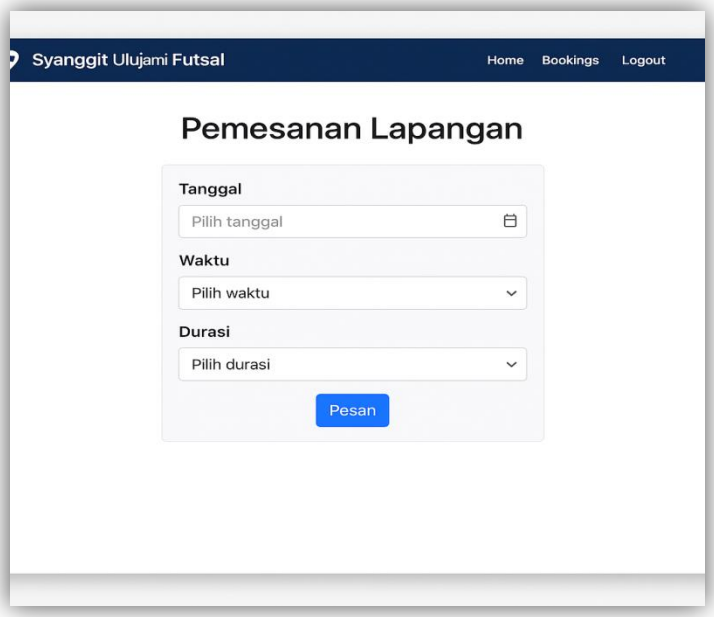

Figure 4. Field Reservation Form Display

Figure 4 This feature is a user form to make a field reservation by selecting the date to be used to play futsal. As well as selecting the playing time and duration of the futsal game desired by the user who makes the field reservation.

3.4 Payment and Confirmation

The system provides payment instructions and a page to upload proof of transfer.

Figure 5. Payment and Confirmation Page View

Figure 5 This feature provides a medium for uploading proof of payment after making a booking. Main Components: Booking Information: Display booking data such as date, time, and field location. Payment Instructions:

Bank transfer or QRIS instructions. Proof of Payment Upload Form: Input: Image/pdf file. Button: "Confirm". Automated Validation: The system will mark the payment status as "Paid" after the admin verifies.

3.5 Admin Dashboard

Admin can manage rental schedules, verify payments, view transaction history, and print reports.

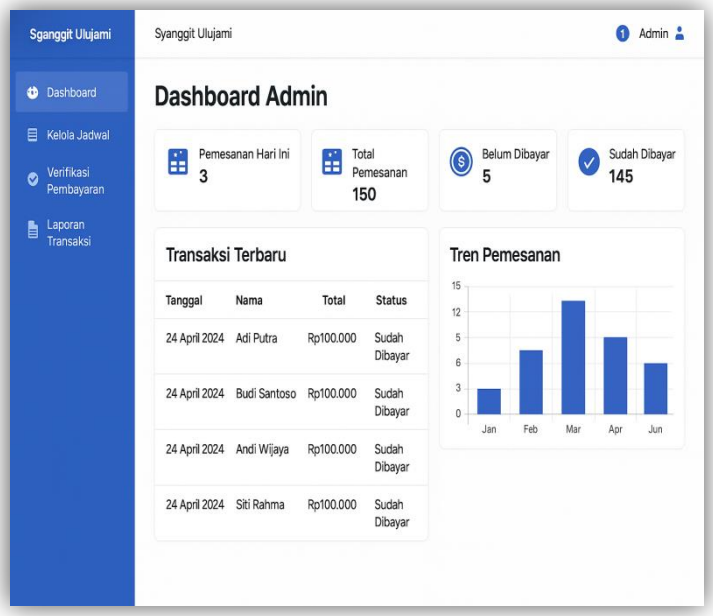

Figure 6. Admin Dashboard Page View

Figure 6 This feature is a control center for administrators to manage orders and transactions. Components: Sidebar Menu: Dashboard, Manage Schedule, Payment Verification and Transaction Report. Summary Statistics: Total orders today, Number of transactions that have been and have not been paid. Latest Transactions: List with date, orderer name, total payment, and status. Order Trend: Bar chart shows monthly statistics.

3.5 Blackbox Testing Results

The following are blackbox testing methods used to test the functionality of the application without looking at the internal structure of the code. Testing is carried out based on the main scenarios, and the results are as follows:

Table 1. System Testing Scenarios

Tested Features	Test Scenario	Results	Information
Registration and Login	Input valid user data	Success	As expected
Field Booking	Book at available time	Success	Schedule saved
Double Booking Validation	Book at booked time	Failure	As expected
Upload Proof of Payment	Upload file with valid format	Success	File saved
Transaction Report	Admin accesses report for specific period	Success	Report displayed

4. CONCLUSION

The implementation of a web-based information system in the management of the futsal field above the Syanggit Ulujami Building has proven to be able to increase operational efficiency and user comfort. Users no longer need to come directly or make reservations by phone, because all processes can be done automatically and in real-time. This system also helps managers in managing schedules, transaction reports, and payment verification efficiently. In testing the system using blackbox. The test results showed that all the main functions of the system ran well and according to expectations. No bugs or critical errors were found during testing. The system is ready for operational use. With this system, the economic potential of the Syanggit Ulujami Building also increases because business management becomes more structured and accountable. In addition to providing added value to the surrounding community, this system also opens up opportunities for collaboration with other digital platforms such as electronic payments and social media-based promotions.

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