

Web-Based Information System for Haji and Umrah Services: A Case Study of CV. Cendana Travel Banda Aceh

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Keywords

Banda Aceh; CV. Cendana Travel; Hajj and Umrah; Pilgrim Services; Web-Based Information System

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Abstract

The rapid advancement of information technology has encouraged various institutions and service companies to adopt information systems to support their operational activities, including Hajj and Umrah travel agencies. CV. Cendana Travel Banda Aceh, as one of the providers of Hajj and Umrah services, still faces challenges in managing administrative data manually, including pilgrim registration, Umrah package management, payment transactions, and report generation. These manual processes may lead to delays, data entry errors, and less effective services for pilgrims. This study aims to design and develop a computerized and integrated Hajj and Umrah Information System for CV. Cendana Travel Banda Aceh to improve operational effectiveness, efficiency, and service quality. The research employed a structured system development approach consisting of system requirements analysis, system design, system implementation, and system testing to ensure that all functionalities met user requirements. The developed system includes modules for managing pilgrim and non-pilgrim data, Umrah package information, departure schedules, payment transactions, receipt generation, and administrative reporting. The implementation results demonstrate that the proposed information system significantly improves the administrative processes at CV. Cendana Travel Banda Aceh by enabling faster, more accurate, and well-organized data management. Data recording and retrieval become more efficient than the previous manual system. In addition, the system minimizes errors in data entry and financial transactions, enhances administrative accuracy, and supports greater transparency in managing pilgrims' payments. System testing also confirmed that all major functions operated successfully and met the intended user requirements. Therefore, the implementation of the Hajj and Umrah Information System is expected to improve the quality of services provided to pilgrims while supporting more professional and efficient administrative management at CV. Cendana Travel Banda Aceh.

1. Introduction

Haji and Umrah are among the most significant religious pilgrimages for Muslims worldwide. Indonesia, as the country with the largest Muslim population, experiences a continuous increase in the number of pilgrims each year. This growing demand requires Haji and Umrah travel agencies to provide fast, reliable, and high-quality services supported by effective administrative management. One of the travel agencies operating in this sector is CV. Cendana Travel, located in Banda Aceh.

In its daily operations, CV. Cendana Travel is responsible for managing various administrative activities, including pilgrim registration, document management, Umrah package administration, pilgrimage schedule management, payment transactions, financial reporting, and customer service. However, most of these activities are still performed manually using paper-based records. Such conventional practices often result in data redundancy, data loss, delays in information retrieval, and inefficient administrative processes. Furthermore, important information regarding departure schedules, government regulations, and pilgrimage guidance (manasik) is not always communicated to pilgrims in a timely manner, which may reduce customer satisfaction and trust.

Manual financial and administrative management also limits transparency and increases the possibility of recording errors. As the number of registered pilgrims continues to increase, the administrative workload becomes more complex, making the existing system increasingly ineffective. Without technological improvements, these challenges may negatively affect service quality and hinder the organization's operational performance and competitiveness.

The rapid advancement of information technology has encouraged organizations to adopt integrated information systems to improve operational efficiency, data accuracy, and service quality [1], [2], [3]. A web-based information system enables centralized management of pilgrim data, Umrah packages, departure schedules, payment transactions, and administrative reports in real time. In addition, it allows pilgrims to access important information and monitor their registration status more conveniently without visiting the travel agency office.

Several previous studies have shown that implementing web-based information systems can improve administrative efficiency, reduce human errors, enhance data security, and support better organizational decision-making [4], [5], [6], [7]. However, studies focusing on integrated information systems for Hajj and Umrah travel agencies, particularly at the organizational level of local travel agencies in Indonesia, remain limited. Therefore, this study addresses this gap by designing and developing a web-based Haji and Umrah Information System tailored to the operational requirements of CV. Cendana Travel Banda Aceh.

The objective of this research is to design, implement, and evaluate a web-based Hajj and Umrah Information System that supports integrated administrative management at CV. Cendana Travel Banda Aceh. The proposed system is expected to improve administrative efficiency, increase the accuracy of data management, enhance financial transparency, and provide better services for pilgrims. Ultimately, the implementation of this system is expected to strengthen the competitiveness of CV. Cendana Travel while improving the overall quality of Hajj and Umrah services in Banda Aceh.

2. Research Methods

2.1 Research Design

This study employed the Research and Development (R&D) method using the System Development Life Cycle (SDLC) with the Waterfall model. This approach was selected because it provides a systematic framework for developing an integrated Hajj and Umrah Information System through sequential phases, including requirements analysis, system design, implementation, testing, and evaluation. The research was conducted at CV. Cendana Travel Banda Aceh, Indonesia, from October to December 2025. During the requirements analysis phase, data were collected through observations, interviews with administrative staff and management, and documentation of existing business processes. The collected information was used to identify system requirements and functional specifications.

2.2 Research Site and Respondent Characteristics

The research was conducted at CV. Cendana Travel Banda Aceh, located in Kuta Alam District, Banda Aceh City, Aceh, Indonesia. The research subjects consisted of users directly involved in the system's operations, namely:

- a. Administrators (Admin)
- b. Staff / Officers
- c. Prospective Pilgrims / Pilgrims
- d. Management / Director

Respondents were selected using a purposive sampling technique, specifically targeting users with experience in the Hajj and Umrah service administration process who could provide relevant information regarding the system's requirements.

2.3 Data Collection

Research data were collected through several techniques, namely:

- a. Observation, by directly observing the ongoing Hajj and Umrah service processes.
- b. Interviews, conducted with the owner, administrators, and staff to obtain the system requirements.
- c. Documentation, involving the collection of administrative documents, registration forms, pilgrim data, departure schedules, and payment records.
- d. Literature Study, by reviewing scientific journals, books, and references related to Hajj and Umrah service information systems.

2.4 Research Flow

The research stages were conducted as follows:

- a. Problem Identification.
- b. System Requirements Analysis.
- c. System Design (Flowmap, Use Case, ERD, Database, and User Interface).
- d. System Implementation using a programming language and database.
- e. System Testing using the Black Box Testing method.
- f. Evaluation of the implementation results.
- g. Preparation of the research report.
- h. These stages were carried out sequentially in accordance with the SDLC Waterfall model.

2.5 System Development

The system development was carried out through several stages, namely:

- a. Analysis of the current system.
- b. Design of the proposed system.
- c. Design of the Entity Relationship Diagram (ERD).
- d. Database design.
- e. User Interface (UI) design.
- f. System implementation.
- g. System testing.
- h. These stages aim to produce an information system that meets the operational requirements of CV. Cendana Travel Banda Aceh.

2.6 Data Validity and Reliability

The validity of the system was tested using Black Box Testing to ensure that each system function operates according to user requirement specifications. Testing was conducted on all main modules, including login, pilgrim data management, registration, payment, departure schedules, manasik (pilgrimage rituals), and report generation. The system's reliability was evaluated through operational testing involving users (administrators and staff) to ensure that the system runs consistently without encountering errors during operation.

2.7 Data Analysis

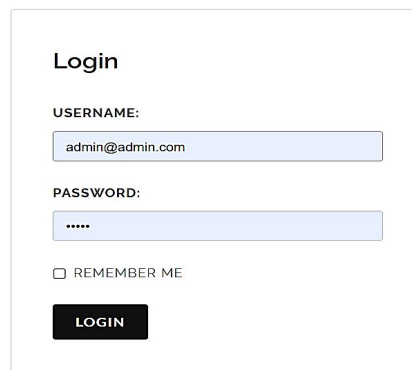
Data obtained from observation, interviews, and documentation were analyzed descriptively to identify system requirements. Subsequently, the system implementation results were analyzed based on the success of each application function through Black Box testing results, as well as user evaluations regarding the system's ease of use and its alignment with the Hajj and Umrah service business processes.

3. Result and Discussion

This research resulted in a web-based Hajj and Umrah Service Information System developed to support administrative management at CV. Cendana Travel Banda Aceh. The developed system integrates the processes of pilgrim data management, registration, payment, departure schedules, Umrah packages, and report generation into a single centralized database. Prior to the development of this system, the administrative processes were still conducted manually using logbooks and Microsoft Excel, which frequently led to service delays, data entry errors, and difficulties in generating reports.

The system implementation resulted in several main modules, namely:

- a. User authentication module (login)



The login page features a white background with a light gray border. At the top, the word "Login" is displayed in bold black text. Below it, the "USERNAME:" label is followed by a text input field containing "admin@admin.com". The "PASSWORD:" label is followed by a password input field with masked characters "*****". A "REMEMBER ME" checkbox is located below the password field. At the bottom, there is a black "LOGIN" button.

Fig. 1 Login Page

- b. Pilgrim data management module

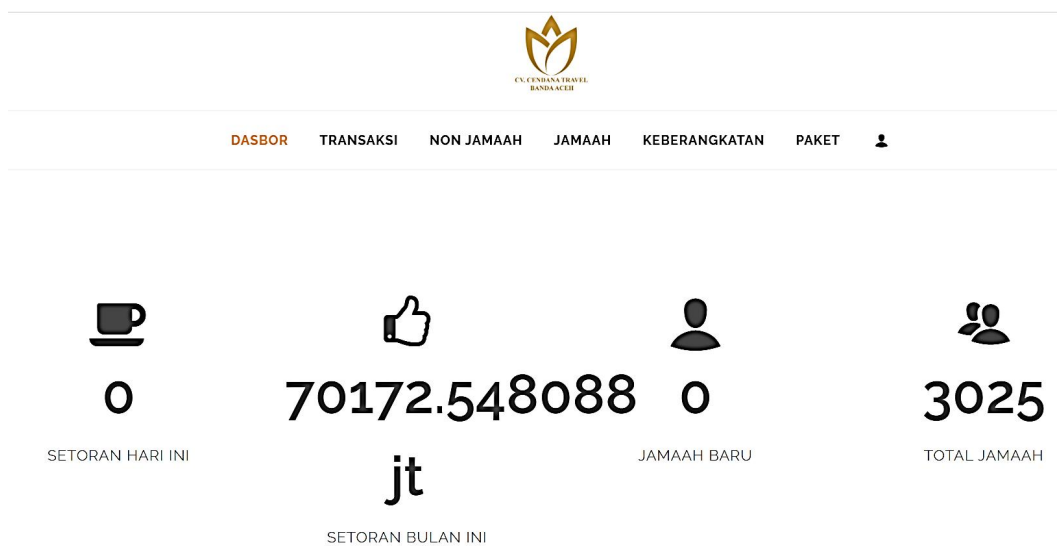


Fig. 2 Dashboard Menu

c. Payment Transaction Module

DASBOR
TRANSAKSI
NON JAMAAH
JAMAAH
KEBERANGKATAN
PAKET

Edit Transaksi

NAMA JAMAAH:

NOMOR MEMBER:

SETOR UNTUK:

TANGGAL SETOR:

SETOR KE:

NILAI SETORAN:

KETERANGAN (JIKA ADA):

SIMPAN

Fig. 3 Payment Transaction Page

d. Payment Transaction Module



KWITANSI PEMBAYARAN
#10633
17/12/2025

CV. CENDANA TRAVEL BANDA ACEH
Beurawe di kecamatan Kuta Alam, Kota Banda Aceh, Aceh,
Indonesia, Pos 23371
<https://cendana.com>

Anita

Nama Paket	Uraian	Keterangan	Jumlah
Dhuyufurrahman III Regular	Biaya Paket	-	2,000,000
Administrasi			
administrator			

Fig. 4 Payment Transaction Module

e. Departure Schedule Management Module



DASBOR
TRANSAKSI
NON JAMAAH
JAMAAH
KEBERANGKATAN
PAKET

SHOW : 10 Semua Submit

No.	No. Member	Nama	Alamat	No. Tlp/HP	Status
1.	ASQ-0007	Indah	Jl. T. Abbas, Ir. Balee Lheok no16	082370900823	Alumni Edit
2.	ASQ-1217	nurmala	Dusun Kuta Trieng, Kel. Geudong Geudong, Kec. Kota Juang, Kab. Bireuen	082370900823	Alumni Edit
3.	ASQ-0009	ainul yakin	Jl. T. Muda Rayeuk III No. 3, Kel. Pineung, Kec. Syiah Kuala, Kota Banda Aceh	085277740852	Alumni Edit

Fig. 5 Transaction Receipt Page

f. Umrah Package Management Module



DASBOR	TRANSAKSI	NON JAMAAH	JAMAAH	KEBERANGKATAN	PAKET	
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SHOW : 10 ▾ Semua ▾ Semua ▾ Submit

cari nama... +

No.	No. Member	Nama	Paket	Keberangkatan	Dokumen	Daftar	Total Setoran	
1.	ASQ-0436	Andika permana	Thayyibah Hidayah Baitullah	Agustus 2021	Belum Lengkap	17/07/2018	9,420,000	
2.	ASQ-0437	cut putrina	Thayyibah Hidayah Baitullah	Agustus 2021	Belum Lengkap	17/07/2018	16,284,000	

Fig. 6 Non-Pilgrim User Page

g. Reporting Module



DASBOR	TRANSAKSI	NON JAMAAH	JAMAAH	KEBERANGKATAN	PAKET	
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+

Nama Keberangkatan	Nama Paket	Rencana Berangkat	Keberangkatan	Durasi	Jumlah Jamaah			
Agustus 2021	Thayyibah Hidayah Baitullah	01/08/2021	31/08/2021	9 hari	8	Pulang	Lihat Manifest	Edit
Campuran	Thayyibah 12 Hari	20/10/2018	20/10/2018	12 hari	128	Pulang	Lihat Manifest	Edit
Dhuyufurrahman II	Dhuyufurrahman-2	04/09/2024	04/09/2024	10 hari	49	Pulang	Lihat Manifest	Edit
Syaban Ramadhan 2024	VIP	05/03/2024	05/03/2024	12 hari	31	Pulang	Lihat Manifest	Edit
Itikaf Ramadhan	Itikaf Ramadhan Lailatur Qadr	08/04/2023	08/04/2023	15 hari	11	Pulang	Lihat Manifest	Edit

Fig. 7 Pilgrim Management Page

Table 1. Black Box Testing Results

Module	Function	Result
Login	User Authentication	Successful
Pilgrim Data	Add, Edit, Delete Pilgrim Data	Successful
Registration	Pilgrim Registration	Successful
Payment	Transaction Entry	Successful
Departure	Manage Departure Schedule	Successful
Umrah Package	Manage Umrah Packages	Successful
Reports	Generate and Print Reports	Successful

The research results indicate that the implementation of the Hajj and Umrah Service Information System successfully increases administrative management effectiveness compared to the previously used manual system. Integrating all data into a single centralized database reduces data duplication, accelerates the information retrieval process, and improves report generation accuracy. These findings demonstrate that administrative digitalization exerts a positive impact on the company's operational efficiency. In terms of data management, the system enables administrators to access pilgrim information, payments, and departure schedules in real-time. This condition supports information systems theory, which posits that data integration enhances information quality regarding speed, accuracy, and completeness [8], [9], [10].

Furthermore, the research results show that the system supports a more transparent payment transaction process. Payment status can be monitored at any time, thereby facilitating management in administrative oversight and decision-making. In addition, report generation, which previously required a relatively long time, can now be performed automatically based on the desired period.

These findings align with previous studies stating that the implementation of web-based information systems can improve administrative process efficiency, reduce data entry errors, and accelerate access to information [11], [12], [13], [14]. Nevertheless, this research offers a distinct contribution (novelty) by integrating the entire Hajj and Umrah service process, from pilgrim data collection, registration, payment, and departure scheduling, to reporting, into a single centralized system, thus supporting the business processes of CV. Cendana Travel Banda Aceh more comprehensively.

Based on the implementation and testing results, it can be concluded that the developed system has met the research objectives, which include improving administrative effectiveness, accelerating services to pilgrims, reducing data entry errors, and providing accurate information as a basis for management decision-making.

4. Conclusions

Based on the design, implementation, and discussion of the Hajj and Umrah Service Information System at CV. Cendana Travel Banda Aceh, the following conclusions can be drawn:

The developed information system successfully assists CV. Cendana Travel Banda Aceh in managing data for pilgrims, non-pilgrims, Umrah packages, departures, and payment transactions, as well as generating receipts and reports in a computerized and integrated manner.

- a. The implementation of this information system improves the work effectiveness and efficiency of the administrative department, as the processes of recording, searching, and processing data become faster, more accurate, and better structured compared to the manual system.
- b. The designed Hajj and Umrah information system minimizes errors in data entry and financial transactions, while enhancing administrative order and transparency in managing pilgrim payments.
- c. System testing results indicate that all main features function in accordance with user requirements and successfully support the improvement of service quality for pilgrims at CV. Cendana Travel Banda Aceh.

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