Jelajah Sultra: Inovation Of UI/UX Design for Smart Tourism App with AI-Based Travel Assistant to Support SDG 8

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Abstract

The Jelajah Sultra application is a conceptual digital innovation designed to promote sustainable tourism in Southeast Sulawesi by incorporating an AI-powered smart travel assistant and optimal UI/UX design principles. This initiative addresses the growing demand for user-friendly and efficient digital platforms in the tourism sector, particularly in response to increasing tourist numbers in Indonesia. The primary aim of this study is to develop a UI/UX design concept for a tourism application that supports sustainable tourism practices, enhances local economic growth, and empowers communities by improving market accessibility. Utilizing the Design Thinking method, this research involves the stages of empathizing, defining user needs, ideating, prototyping, and testing to create a user-centric design for Jelajah Sultra. The design incorporates features such as AI-powered chatbot assistance, interactive maps, and streamlined navigation to ensure a superior user experience. The usability testing resulted in a high usability score of 94.0, indicating the potential of Jelajah Sultra to facilitate seamless information delivery and effective interaction for users. This research contributes to SDG 8 by fostering local economic growth and supporting responsible tourism practices.

1. Introduction

Indonesia has significant potential in developing ecotourism within tropical forest areas scattered across various islands, offering bright prospects for ecotourism and specialized thematic tourism. Meanwhile, the tourism sector in South East Sulawesi has the potential to be a key driver for regional economic growth, community welfare improvement, and environmental preservation when managed sustainably.

According to data from the Central Statistics Agency, the number of tourists visiting Indonesia in 2023 reached 11 million, a bit lower compare than 13 million in 2022. This growth may reflect sustainable tourism

management, such as environmental carrying capacity and facility readiness. However, sustainable tourism offers South East Sulawesi opportunities to improve its management of tourist attractions while paying attention to environmental carrying capacity and visitor comfort.

With the advancement of technology, numerous digital platforms have emerged that provide continuously evolving information accessible via the internet. One example is mobile applications. While many tourism applications have been designed to showcase and promote the natural and cultural beauty of regions, they have yet to significantly impact the number of local and international tourists. One of the reasons is the lack of engaging, user-friendly, and straightforward application interfaces (Anugerah et al., 2024).

The User Interface (UI) refers to elements connecting users to the system, such as buttons, menus, and layouts, while User Experience (UX) refers to the overall user interaction with the interface, including how well it meets user needs and expectations (Ardiansah Putra, 2024).

Apart from a user-friendly interface, efficiency and access to quick and accurate information are now essential needs for society. The Smart Travel Assistant is an AI-based technology designed to assist travelers in planning, managing, and enjoying their trips more easily and efficiently. This technology is often implemented in applications or chatbots capable of understanding user needs, providing recommendations, and offering solutions in real-time.

By applying innovative, user-oriented UI/UX designs, the "Jelajah Sultra" platform is expected to bridge the information gap between tourists and local service providers while supporting sustainability goals aligned with SDG 8, which promotes decent work and economic growth. This project aims to raise tourist awareness about environmentally and socially responsible destinations and empower the local economy through improved access to the global tourism market.

1.1 Literatur Review

1.1.1 UI/UX Design for Smart Tourism

Smart tourism applications rely heavily on effective UI/UX design to deliver seamless and enjoyable user experiences. The *Jelajah Sultra* app incorporates key design principles, such as:

- **User-Centered Design (UCD):** Ensuring intuitive navigation and accessibility for diverse user demographics.
- **Responsive Design:** Adaptable layouts for different devices, enhancing usability across smartphones and tablets.
- **Local Cultural Integration:** Visual aesthetics reflecting the cultural heritage of Sultra, including motifs, traditional colors, and interactive maps of local attractions.
  Studies indicate that user-friendly interfaces increase tourist satisfaction and app engagement (Lee et al., 2021).

1.1.2. AI-Based Travel Assistant Features

Artificial Intelligence (AI) in *Jelajah Sultra* provides personalized recommendations, real-time assistance, and itinerary planning. Key features include:

- **Chatbots for Queries:** Providing instant responses to tourists' questions about destinations, accommodations, and events.
- **Predictive Analytics:** Offering tailored recommendations based on user preferences and travel history.

- **Voice Assistance:** Supporting hands-free operation for navigation and travel updates.
  AI integration improves tourist decision-making, reduces planning time, and promotes resource efficiency, as highlighted by Smith et al. (2022).

1.1.3. Supporting SDG 8

The app aligns with SDG 8 by:

- **Creating Decent Work:** Promoting local artisans, small businesses, and eco-tourism ventures.
- **Sustainable Economic Growth:** Encouraging domestic and international tourism in Sultra.
- **Capacity Building:** Offering digital training programs for local stakeholders, empowering them to utilize the platform effectively.
  Research by UNWTO (2023) emphasizes that digital innovation in tourism contributes to sustainable development by boosting local economies.

1.2 Problem Formulation

1. How can digital technology based on UI/UX applications be utilized to more effectively and attractively promote South East Sulawesi 's tourism destinations?
2. How can tourism applications support the improvement of the local economy by involving small and medium enterprises (SMEs) and local communities around tourism destinations?
3. How can this digital platform contribute to sustainable tourism and the achievement of SDG goals, particularly SDG 8?
4. How can smart travel assistant can be the solutions of this SDG's?

1.3 Research Objectives and Benefits

1. To provide a more effective means of promoting tourism that can reach potential tourists from various backgrounds, both national and international.
2. To provide opportunities for local SMEs to market their products, which can positively impact local economic growth.
3. To create new job opportunities in the tourism and related service sectors as the number of tourists increases.
4. To provide easy access to information about tourist destinations, facilities, and available activities, so tourists can plan their trips more effectively and responsibly

2. Research Methods

The research method applied in this study is the Design Thinking Method. Design Thinking is an approach used to develop strategic innovation in design, focusing on a deep understanding of users through the empathy process (Soedewi et al., 2024). The following are the stages in the research process, which are shown in the diagram below.

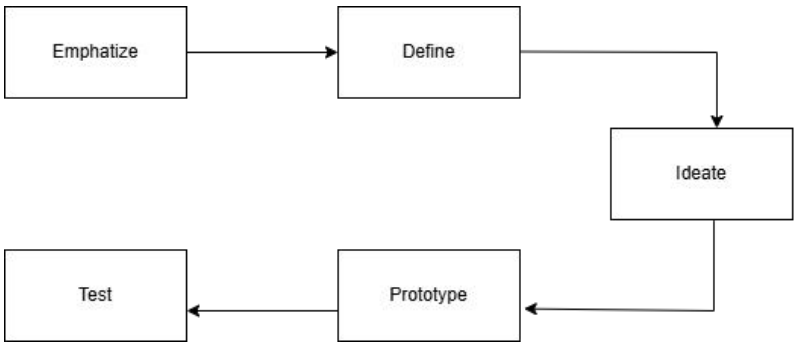

Fig 1. Research Method

2.1 Emphatize

The first stage in this method is empathy, which involves observation and interviews with users. Observations are made to understand how users interact with their environment and identify existing needs (Soedewi et al., 2024). The data collection techniques used in this research include:

- Questionnaires, distributed online through Google Forms.
- Observation, involving direct observation.
- Literature review, collecting information from electronic documents, books, and relevant scientific journals (Ariska & Nurlela, 2024).

2.2 Define

The define process is a crucial stage in Design Thinking that comes after gathering insights from the empathy stage. At this stage, researchers analyze data collected from observations and interviews to identify the root causes of the problems faced by users. This process involves synthesizing information to clearly articulate the primary challenges, goals, and needs of the users. By framing these problems accurately, researchers can ensure that subsequent stages focus on addressing the real issues rather than symptoms or assumptions. Defining the problem also provides a clear direction for brainstorming solutions, setting the foundation for innovative and user-centered outcomes (Soedewi et al., 2024).

2.3 Ideate

The ideate stage in Design Thinking is where creativity takes center stage. Researchers are encouraged to generate a wide array of ideas that could potentially solve the defined problems. This phase is marked by brainstorming sessions aimed at fostering innovation, encouraging out-of-the-box thinking, and breaking away from conventional solutions. Participants are urged not to judge or discard ideas prematurely, as even seemingly impractical or ambitious concepts can spark new insights or lead to breakthroughs. The purpose of this stage is to explore a diverse range of possibilities, laying the groundwork for selecting the most feasible and impactful solutions to prototype and test (Ardiansyah & Rosyani, 2023).

2.4 Prototype

Prototyping is the stage where abstract ideas are transformed into tangible representations. A prototype serves as a physical or visual model of the proposed solution, allowing researchers and stakeholders to visualize and interact with it. The goal is to create a simplified version of the solution that captures its essential features and functionalities.

This early representation helps researchers identify strengths, weaknesses, and areas for improvement before investing significant resources in development. In the context of this study, the researchers created a visual mockup of the application to demonstrate how the solution might function in real-world scenarios. Prototyping is an iterative process, meaning that prototypes are refined based on feedback and testing outcomes (Ardiansyah & Rosyani, 2023).

2.5 Test

The testing stage involves evaluating the prototype created during the previous phase to gather feedback and insights from users. This process is essential for understanding how well the solution meets user needs, identifying usability issues, and uncovering areas for refinement. Testing typically involves a small group of participants—research indicates that testing with five individuals can reveal the majority of usability problems, as larger groups often produce diminishing returns. In this study, researchers conducted usability testing with five participants to observe their interactions with the prototype and collect qualitative and quantitative data on user experience. The feedback obtained during this phase informs further iterations of the prototype, ensuring the final solution is as effective and user-friendly as possible (Ilham et al., 2021).

3. Result and Discussion

3.1 Emphatize Results

Data collection was conducted by distributing online questionnaires and conducting face-to-face interviews with potential strategic users. The online questionnaire was distributed using Google Forms, containing questions relevant to waste issues in the users' environment.

Table 1. List General Question

No. | Questions
P1 | What is your top priority when planning a trip to a tourist destination?
P2 | How often do you travel for tourism per year?
P3 | What are the most frequent issues you face when planning a trip?
P4 | How important is information about local culture to you when traveling?
P5 | What activities do you prefer when traveling?
P6 | Have you ever used an application or app to plan your trip?
P7 | How would you rate the ease of access to tourism information currently?
P8 | What makes you trust a tourism destination?
P9 | How much does the environment and sustainability influence your travel decisions?
P10 | Where do you usually get information about tourist destinations?

3.2 Define Results

3.2.1 User Needs Analysis

Based on the answer of the quesioner, the author got some analysis the needs of the user.

a) Provide a user-friendly UI/UX design for the website that is easy for all demographics to use.
b) Provide review and rating features for tourism destinations.
c) Provide recommendation features based on social media trends.
d) Collaborative smart travel assistant with chat bot for an efficient and fast information

3.2.2 User Persona

A persona is a summary of user information obtained through research such as interviews and surveys, which helps developers understand user behavior and characteristics in relation to the issues at hand, ensuring that the designed solutions are more relevant and effective (Kristin Angelina, 2022).

Fig 2. User Persona 1

Fig 3. User Persona 2

3.3 Ideate Results

3.3.1 App Naming and Visualization

The logo and name, Jelajah Sultra, encapsulate the essence of exploration and regional pride. The vibrant orange and blue color palette symbolizes the warmth of South East Sulawesi's sunsets and the serenity of its coastal waters, resonating with its stunning natural landscapes. The circular design evokes a sense of unity and journey, while the sailboat and airplane represent the region's tourism and connectivity. The name "Jelajah Sultra" is derived from two Indonesian words: *Jelajah*, meaning adventure or exploration, and *Sultra*, an abbreviation for South East Sulawesi. Together, they highlight the app's mission to guide users in discovering the beauty and cultural richness of the region while promoting sustainable tourism.

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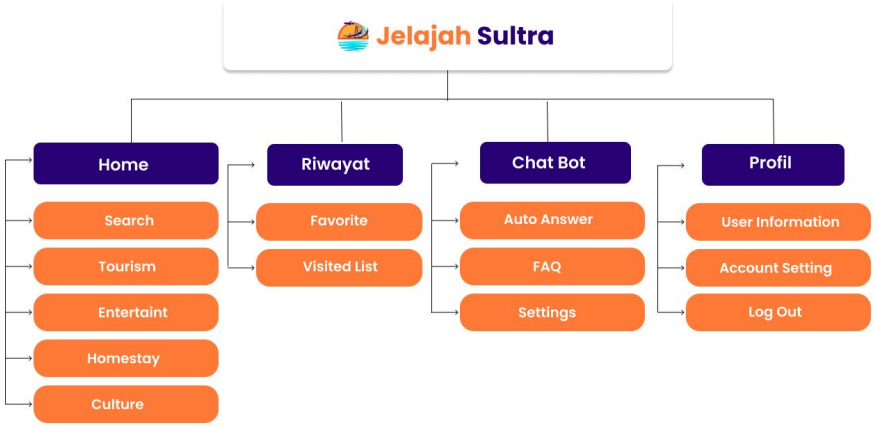
Fig 4. Name and App Logo

3.3.2 Site Map

A sitemap for the website is a visual representation that shows the navigation/structure of all the content in the website design. This stage details the content loaded onto the website to make it easier for users to navigate. The primary purpose of a sitemap is to simplify navigation and improve user experience by providing a clear hierarchy of pages and their relationships. This stage focuses on detailing all the content elements, functionalities, and user paths within the website to enhance accessibility and usability.



Gambar 1. *Sitemap* App

3.4 Prototype Results

3.4.1 High Fidelity (Hi-Fi) Prototype

In this stage, the idea is implemented into a prototype designed to save costs and effort, in a scale resembling the original product. This digital prototype is used as a reference by developers when building the application, validating the idea and functionality before further development (Ansori et al., 2023).

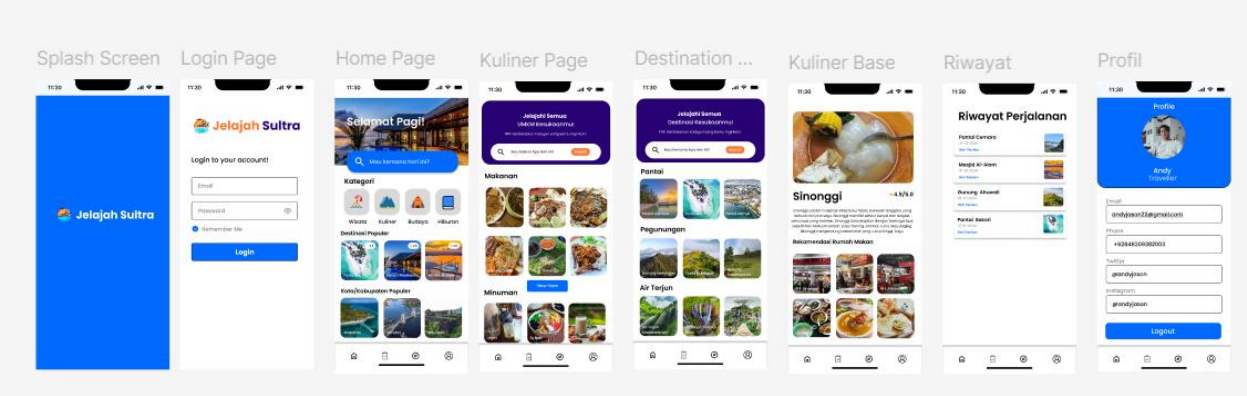


Fig 5. Aplication Page

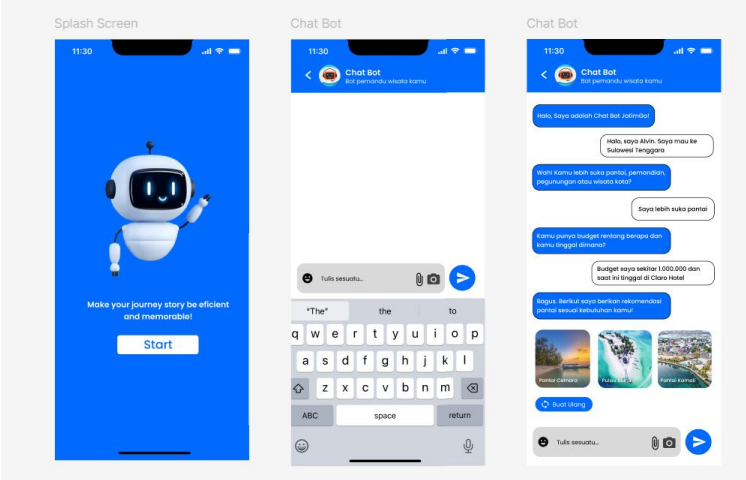


Fig 6. Chat Bot Page

3.5 Test Results

System Usability Scale (SUS) is an evaluation method used to measure the usability of a system, product, or service. In this process, users provide responses using a Likert scale with five answer choices, where each statement is rated on a five-point scale from 1 to 5. On this scale, a score of 1 indicates strong disagreement, while a score of 5 indicates strong agreement. The overall SUS score is calculated by summing the values of all questions and multiplying by 2.5. The final score ranges from 0 to 100, where a higher score indicates better usability of the system or product.

Table 2. SUS Result Table

No.	Respondent	Skor										Total
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
1.	Respondent 1	5	2	5	1	4	1	4	1	5	1	92.5
2.	Respondent 2	5	1	4	1	5	2	5	1	4	2	90
3.	Respondent 3	5	1	5	1	5	1	5	1	4	1	97.5
4.	Respondent 4	5	2	4	1	5	1	5	2	5	1	92.5
5.	Respondent 5	5	1	5	1	4	1	5	1	5	1	97.5
Hasil Akhir												94.0

Based on the analysis using the System Usability Scale (SUS), the average overall score is 94.0. This score falls within a high range, indicating that the Jelajah Sultra application has excellent usability.

4. Conclusions

4.1 Conclusions

The Jelajah Sultra UI/UX-based application has been successfully developed as a digital innovation specifically designed to support sustainable tourism in South East Sulawesi. By applying optimal UI/UX principles, this application improves easy access to tourist destination information and provides an intuitive and comfortable user experience. Based on measurements using the System Usability Scale (SUS) with a final score of 94.0, it is proven that Jelajah Sultra has a high usability level, allowing users to easily access information and interact efficiently. This shows that Jelajah Sultra can contribute to increasing the local economy in line with SDG 8 goals.

4.2 Suggestions

Jelajah Sultra should consider adding interactive features such as integrating interactive maps to support direct navigation, allowing users to have a more optimal experience. In addition, involving the local community in managing destination information and collaborating with local tourism stakeholders will strengthen the sustainability values promoted by this application. Developing a desktop version or website is also expected to improve user comfort, especially for tourists accessing information while at tourist sites.

5. References

Ansori, S., Hendradi, P., & Nugroho, S. (2023). Penerapan Metode Design Thinking Dalam Perancangan Ui/Ux Aplikasi Mobile Sipropmawa. *Journal Of Information System Research (Josh)*, *4*(4), 1072–1081. Https://Doi.Org/10.47065/Josh.V4i4.3648

Anugerah, L., Anggardika, W., Albar, M. A., & Afwani, R. (2024). Perancangan Ui/Ux Pada Aplikasi Wisata Lombok Menggunakan Metode User Centered Design (Ui/Ux Design On Wisata Lombok Application Using User-Centered Design Method). Http://Jtika.If.Unram.Ac.Id/Index.Php/Jtika/

Ardiansyah, M. F., & Rosyani, P. (2023). Perancangan Ui/Ux Aplikasi Pengolahan Limbah Anorganik Menggunakan Metode Design Thinking. Https://Journal.Mediapublikasi.Id/Index.Php/Logic

Ardiansah Putra, Y. (2024). Penerapan Design Thinking Dalam Perancangan Ui/Ux Website Edupariwisata Program Smart Fisheries Vilage. *5*(2), 265–275.

Ariska, D., & Nurlela, S. (2022). Analisis Dan Perancangan Ui/Ux Aplikasi Lazada Menggunakan Metode Design Thinking. In *Jurnal Infortech* (Vol. 4, Issue 2). Http://Ejournal.Bsi.Ac.Id/Ejurnal/Index.Php/Infortech86

Ilham, H., Wijayanto, B., & Rahayu, S. P. (2021). Analysis And Design Of User Interface/User Experience With The Design Thinking Method In The Academic Information System Of Jenderal Soedirman University. *Jurnal Teknik Informatika (Jutif)*, *2*(1), 17–26. Https://Doi.Org/10.20884/1.Jutif.2021.2.1.30

Lee, J., Kim, Y., & Han, S. (2021). Impact of UI/UX design on user satisfaction in tourism apps. Journal of Travel & Tourism Marketing, 38(3), 223–238.

Noor, A. A., & Pratiwi, D. R. (2016). Konsep Pengembangan Pariwisata Berkelanjutan Di Kampung Buyut Cipageran (Kabuci) Kota Cimahi.

UNWTO. (2023). Digital transformation in tourism: Driving sustainable development. Retrieved from https://www.unwto.org

Singgalen, Y. A. (2023). Implementasi Metode Simple Multi Attribute Rating Technique (Smart) Dalam Pemilihan Zona Prioritas Dan Alternatif Berbasis Data Klasifikasi Indeks Vegetasi. *Building Of Informatics, Technology And Science (Bits)*, *5*(2). Https://Doi.Org/10.47065/Bits.V5i2.4085

Smith, A., Brown, R., & Johnson, K. (2022). AI and its role in enhancing tourism experiences. Tourism Management, 93, 104-112.

Soedewi, S., Mustikawan, A., & Swasty, W. (2023). Penerapan Metode Design Thinking Pada Perancangan Website Umkm Kirihuci.