OBOT: AN INTELLIGENT AI TOUR GUIDE FOR INTERACTIVE AND PERSONALIZED TRAVEL EXPERIENCES IN PERLIS

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Abstract

This project presents OBOT, a responsive web-based AI tour guide designed to enhance the tourism experience in Perlis, Malaysia. OBOT aims to address limitations associated with traditional tour guides, such as high costs, limited availability, and language barriers, particularly in underrepresented destinations like Perlis. The system integrates artificial intelligence, natural language processing, and voice interaction to deliver personalized travel assistance and real-time recommendations based on user preferences such as budget, travel origin, and interests. Features include itinerary generation, multilingual support, cultural insights, and emergency contact access. Developed using agile methodology and tested through functionality and usability assessments, OBOT has demonstrated promising results in improving user engagement, planning efficiency, and travel satisfaction. By supporting sustainable tourism and promoting cultural appreciation, OBOT aligns with the objectives of Visit Perlis Year 2024-2025 and contributes to digital transformation within the local tourism sector.

Keywords: *Artificial Intelligence, Digital Tourism, Personalized Itinerary, Voice Interaction, Perlis, Sustainable Tourism*

1. Introduction

The OBOT project aims to enhance the tourism experience in Perlis by developing an AI-powered, web-based tour guide that provides interactive and personalized travel assistance. The objectives of this study are, to identify and analyze components of AI-powered tour guide platforms, to design and develop a responsive application that delivers AI-driven features, and to evaluate the application through functionality and usability testing. The scope of OBOT focuses on offering multilingual, culturally relevant, and 24/7 assistance for major tourist attractions in Perlis such as Gua Kelam and Kota Kayang Museum. This system addresses the high cost and limited availability of physical tour guides, particularly in underdeveloped tourism regions like Perlis (Omma, 2024; Kul et al., 2024). By incorporating technologies such as natural language processing and voice interaction, OBOT supports the Visit Perlis 2024-2025 campaign and promotes sustainable tourism practices through innovative digital transformation (Zeng et al., 2020; Bernama, 2022).

2. Methodology

This project adopts the Agile methodology, which allows for iterative development and flexibility ideal for AI-based systems with evolving requirements. The process consists of five key phases: requirement analysis, design, development, testing, and documentation. In the **requirement analysis phase**, research was conducted to identify key tourism challenges in Perlis and define essential features such as itinerary generation, voice/text interaction, and multilingual support. The **design phase** included use case diagrams, activity diagrams, and UI mockups to structure system flow and functionality. During the **development phase**, the OBOT system was built using HTML, CSS, PHP, JavaScript, Bootstrap, and MySQL, with AI features integrated via OpenAI's API. **Functionality and usability testing** were conducted to evaluate system performance and user experience. Feedback was

used for refinement. The final **documentation phase** summarized the entire development process, demonstrating OBOT's role in enhancing tourism through intelligent digital solutions.

3. Results and Findings

OBOT was tested through functionality and usability assessments involving 33 users. The majority found the system useful, easy to navigate, and responsive. Over 90% of respondents agreed that OBOT helped them plan travel activities and increased their interest in visiting Perlis. Users highlighted the value of personalized itineraries, which were generated based on preferences such as travel origin, budget, and trip dates. The chatbot's multilingual support and cultural relevance were especially beneficial for international users, addressing language and accessibility barriers. Overall, the findings confirm that OBOT enhances the travel planning experience, supports user engagement, and aligns with the goals of Visit Perlis 2024-2025 by promoting local tourism through intelligent digital solutions.

4. Novelty of Research / Product / Project

OBOT introduces a unique AI-driven solution tailored specifically for Perlis, a less-promoted tourism destination in Malaysia. Unlike traditional tour guides or static websites, OBOT offers real-time, personalized travel assistance through voice and text interactions. Its ability to generate itineraries based on user preferences such as budget, origin, and trip duration adds a level of customization not commonly found in local tourism platforms. The integration of OpenAI's natural language processing allows for multilingual and culturally relevant responses, enhancing accessibility for international users. This project also promotes sustainable tourism by reducing reliance on physical guides and printed materials. Overall, OBOT's localized, intelligent approach represents a novel contribution to Malaysia's digital tourism landscape.

5. Conclusion or Future Work

OBOT successfully enhances the tourism experience in Perlis through AI-powered, personalized guidance. Future work includes add text-based input option, improving real-time data integration, and adding mobile app support. These enhancements aim to make OBOT more scalable, user-friendly, and impactful for both local and international tourists.

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