MANILA AR.VENTURE: AN AUGMENTED REALITY-BASED TRAVEL GUIDE AND DIRECTORY APPLICATION FOR EXPLORING MANILA CITY

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INTRODUCTION

The study titled ?Manila AR.Venture: An Augmented Reality-based Travel Guide and Directory Application for Exploring Manila City? holds substantial significance in the tourism industry. The objectives of this study are to develop a userfriendly interface, create an accurate augmented reality system that projects information into the real world, and evaluate the effectiveness of Manila ARVenture as a travel guide. The study also delves into a review of previous studies on augmented reality-based travel guides, highlighting their limitations and suggesting areas for improvement. The paper is structured as follows: Chapter 2 provides a literature review on AR technology and its applications in tourism. Chapter 3 provides a design guide for an Android mobile application named ?Manila AR.Venture? with the following features: Outlining Augmented Reality (AR) to provide an enhanced navigation process and experience. 3D landmarks of Manila City that appear upon plane detection showcasing relevant 3D locations. The application serves as a digital gateway for local enterprises, boosting visibility and attracting a wider customer base.

METHOD

The Manila AR.Venture Mobile Application offers a comprehensive travel directory that provides users with detailed information about various landmarks and attractions within Manila City. The AR Manila Map module serves as the primary interface for users to explore Manila through augmented reality. The flowchart system developed based on augmented reality design is as follows: Figure 5 Travel Directory Integration. Integrate A* script to the AR + GPS asset to calculate shortest distance for the user. A* algorithm for finding the shortest path to travel to a landmark destination presented by nodes. This chapter tackles the methodology used in various aspects of the study, including the project design, project development, operation and testing procedure, and evaluation procedure. The system architecture, as shown in Figure 4, illustrates how to seamlessly integrate various software tools and technologies within our mobile application. This feature provides a realistic and interactive representation of Manila City within the user?s physical environment. This section serves as the foundational blueprint that outlines the structure and functionality of the research System Architecture. The project design is based on the ISO 25010 standard, specifically focused on systems and software requirements. The project used the Agile Model as the basis for the whole development process. Users have the capability to manage different layers of the map, enhancing and interactive experience. For the AR application to function correctly, location access and camera permission must be granted by the user. The comprehensive design of the project is encapsulated in the Visual Table of Contents (VTOC), System Architecture, System Flowchart, Frenchman and Software Design. The overall percentage was computed using the formula illustrated below. The evaluation utlized a 4-point Likert Scale, as depicted in Table 5. The application uses advanced plane detection technology to detect flat surfaces in the user's environment. Users can place 3D models on these detected planes and adjust them as necessary. The map is populated with clickable 3D landmark models that are various points of interest around the city. The AR Framework was subject to different testing procedures to check and observe if it contains some viewpoints and errors. The application was also subject to a 4-point Likert scale to rate its performance against the

provided criteria.

RESULTS

The Manila AR Venture obtained the third-highest ranking under "Usability," with driven rating mean of 3.41, which is characterized as "Highly Acceptable" The application reliably detected a suitable plane and anchored the AR map to the surface. Manila AR.Venture fulfilled its stated purpose of making travel easier and reducing time spent in the area. The application displays Augmented Reality (AR) objects for each landmark on the map. The app was designed to enrich the travel experience in the Philippines. The Manila AR Venture was tested to gauge its acceptability as an educational travel tool that might ease their travels. The app's innovative features include efficient route planning powered by the A* algorithm, interactive maps created with Mapbox technology, and the placement of realistic 3D landmarks within the user's view using ARCore. The application only covers a limited number of landmarks in Manila City. The Manila AR scored best in the "Performance Efficiency," with a mean rating of 3.45, which is classified as "Highly Acceptable" The application can only be used in Manila City, Philippines. The application offers a user-friendly interface designed for easy navigation. The pathfinding algorithm calculates the shortest and most efficient path to the chosen destination. The app blends digital information seamlessly with the user's surroundings. It offers interactive maps, step-by-step directions, and detailed information about key landmarks. It also provides detailed information for each landmark destination. It can be downloaded for free from the Apple App Store and the Google Play Store.

DISCUSSION

Manila AR.Venture is an Android mobile application that leverages augmented reality to revolutionize the way tourists explore Manila. The application seamlessly integrates an interactive 3D landmarks that appear upon plane detection, providing users with an immersive and informative experience. The efficient pathfinding algorithm, utilizing the A* search algorithm, ensures that users can discover the shortest routes, optimizing their travel experience. By leveraging the use of smartphones, users gain the ability to embark on a self-guided exploration. The application will be improved by: Adding a feature to view the map in 2D along with a live street view with AR. Integrating with local transportation schedules and updates to provide real-time travel information. Adding an itinerary feature that allows users to create and customize their travel plans based on their interests, time constraints, and budget. Maintaining a coherent design and navigation flow. The application will also add a feature that will allow users to view a map in two-dimensional space.