Recreational Beach Location App Coastal Compass

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Abstract - *This paper will present the development of a Recreational Beach Database Application, providing users with an interactive interface to explore and review beach destinations. The key features include search options, filters for water quality, facilities, and safety, real-time weather updates, and user- generated reviews. Designed for mobile devices, it enhances the process of selecting and planning recreational beach visits, providing real-time alerts and notifications based on user location to ensure a reliable and engaging experience.*

Keywords - *Beach search, Beach database, Geographic details, water quality.*

I. INTRODUCTION

Beaches are one of the most popular places for recreation and tourism, with millions of visitors annually worldwide. Whether it is to have fun, water sports, or family outings, beachgoers usually have challenges in deciding on a destination that suits their needs. The factors that include water quality, safety, available facilities, accessibility, and local weather conditions all contribute to this selection process.

However, such information is not easily accessible in a centralized and reliable format. The Recreational Beach Database Application is built to overcome these challenges through an easy-to-use digital platform that aggregates and presents basic information about beaches. By using a dynamic database of beach- related data, the application allows users to search for and explore various beach locations based on specific criteria such as location, safety ratings, and user reviews. The application also integrates real-time weather updates and environmental conditions that can help users make better decisions about their beach visits.

It includes key features: an interactive map interface, advanced search functionality, and social engagement tools. Leverage modern database management systems and geolocation technologies to enhance the recreational beach experience by offering the user a convenient and engaging way to discover beaches in line with their preferences and needs.

II. LITERATURE REVIEW

E. Ashford, et.al dealt with this research explores using an ROV (Remotely Operated Vehicle) and community science models to aid ghost pot location and recovery efforts in coastal communities. Ghost pots are a form of ghost fishing gear and, commonly refer to crab pots that are lost, discarded, or abandoned. This creates a cycle of marine habitat destruction through the continued entrapment of marine life. Current ghost pot location and recovery methods are expensive and coastal communities often lack access to side scan sonars, recovery permits, trained divers, and GIS datasets. This project addresses these challenges by proposing a new method to solve this growing problem in a more accessible and inexpensive way through marine technology innovation and community science. This research is being conducted over two years as part of a multi-stage pilot project with the support of the Jefferson County Marine Resources Committee.

Kenneth J. Hintz, et.al ability to the collection of environmental light pollution data related to sea turtle nesting sites is a laborious and time consuming effort entailing the use of several pieces of measurement equipment, their transportation and calibration, the manual logging of results in the field, and subsequent transfer of the data to a computer for post-collection analysis.

Serendipitously, the current generation of mobile smart phones (e.g., iPhone® 5) contains the requisite measurement capability, namely location data in aided GPS coordinates, magnetic compass heading, and elevation at the time an image is taken, image parameter data, and the image itself. The Turtle Habitat Environmental Light Measurement App (THELMA) is a mobile phone app whose graphical user interface (GUI) guides an untrained user through the image acquisition process in order to capture 360° of images with pointing guidance.

Diego Mayordomo-Martínez, et.al dealt with the global increase in the proportion of the population with disabilities has caused a greater awareness toward guaranteeing their use of public services. In particular, there is emphasis on the accessibility and inclusivity of tourism resources, to improve the enjoyment and well-being for people with motor disabilities. This paper presents a case study on accessibility to beaches in the Region of Murcia, Spain, which is one of the main tourist areas in the country. First, the most important elements that allow for the accessible use of beaches are analyzed and exposed in detail. Then, an extensive field-work in the area of interest has been carried out and its results are evaluated. Finally, the development of a new mobile app is described.

III. EXISTING SYSTEM

There are numerous existing systems and applications catering to beachgoers and tourists by providing information on beach locations, names of amenities, weather conditions, and safety measures. Such systems vary from mobile applications to government-backed platforms and tourism websites. While each has unique features, most are limited in scope, integration, and user experience. Platforms such as Apple Maps provide only basic location information for beaches.

Users can search for nearby beaches, view user reviews, and get directions. However, these platforms do not specialize in beach-specific data, such as water quality, tides, environmental hazards, or safety features. The search functionality also lacks the depth needed for filtering beaches based on user specific needs such as family-friendliness, accessibility, or specific activities. These apps offer real- time weather, wind, wave, and tide conditions, making them useful for planning activities such as surfing, sailing, or kiteboarding.

However, they concentrate mainly on weather and give no information-about the beach's general facilities, accessibility, or user comments. These are highly niche apps catering to smaller audiences rather than a broad audience. The listings usually include information on local sights and attractions, as well as hotels and motels close by, in addition to beach amenities. While some platforms specialize.

Environmental or safety data (e.g., Blue Flag, BEACON), they infrequently include user-generated reviews or real-time updates of beach conditions, which may make it challenging for users to get a comprehensive view.

Specialized apps such as Surf line are extremely focused on specific activities such as surfing and are not comprehensive enough for general beach visitors who seek broader information like family-friendly features, accessibility, or dining options experience.

IV. PROPOSED SYSTEM

The proposed Recreational Beach Database Application will seek to address the shortcomings of currently existing systems by offering an all-inclusive and user-friendly interface that would encompass real-time environmental data, user-generated content, social engagement tools, and advance filtering capabilities. The system would thus cater to both the casual beach-goer and the avid traveler by offering one-stop solutions for the discovery, exploration, and planning of beach visits in a manner that is relevant and personal to their requirements.

V. METHODOLOGY.
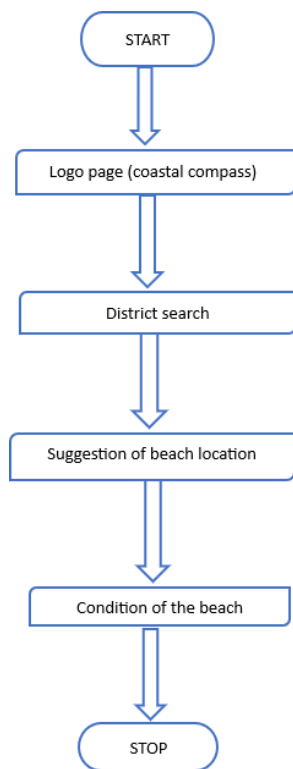
VI. RESULTS AND DISCUSSION

The Recreational Beach Database Application successfully offered the user an interactive and interesting means of accessing beach locations.

The search function and filter options such as water quality, facilities, and safety, real-time weather, and user reviews were effective features that made it user-friendly and increased satisfaction with the application. Scalability of the backend efficiently handled huge beach data. and geographic details, while the integration of alerts and notification based on user location offered timely updates on weather and safety.

TEST CASE 1:

TESTCASE 2:

TESTCASE 3:

TESTCASE 4:

VII. CONCLUSION AND FUTURE WORK

CONCLUSION

The Recreational Beach Database Application is successfully accomplished the task of providing users with a reliable and engaging platform through which they can discover and plan visits to recreational beach locations. The features included, such as real-time weather updates, location-based alerts, and user-generated reviews, allow the application to be seamlessly used by both casual beachgoers and avid travelers. Its scalable backend and interactive map integration ensure a robust and versatile tool that streamlines one's search for suitable beach destinations according to up-to-date weather and ocean conditions.

FUTURE WORK

Future enhancements may include AI- driven recommendations that are based on user behavior and preferences, multilingual support to address a global audience, and partnerships with local businesses that provide exclusive deals and promotions to users. Advanced analytics, machine learning capabilities may be added to provide predictive insights into Further improvements in user planning and decision-making come through weather and beach conditions. The expansion of the database to more detailed ecological and safety data will help keep the app as an indispensable resource for beach lovers.

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