













Web platform for registering tourist spots in San Martín Texmelucan

Plataforma web para el registro de lugares turísticos de San Martín Texmelucan

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Abstract

The tourism industry is one of the main sources of income in many regions around the world. In this context, San Martín Texmelucan, a city located in the state of Puebla, Mexico, is emerging as a tourist destination, offering a wide variety of places and attractions to visit. However, many of these tourist spots are unknown to visitors, which limits their ability to attract tourists and generate income for the region. Therefore, the creation of a web platform for registering the tourist spots of San Martín Texmelucan is proposed. The main objective of this platform would be to provide detailed and accurate information about the tourist destinations, including images that allow tourists to explore the places in depth and enjoy an interactive and immersive experience.

Web platform for registering tourist spots in San Martín Texmelucan.		
Objectives	Methodology	Conclusión
 Create a database of tourist attractions in San Martín Texmelucan, including detailed information about each site, such as its location, history, attractions, and available services.  Develop an augmented reality application that allows tourists to explore the tourist attractions of San Martín Texmelucan interactively, displaying useful and relevant information about each site.	The methodology includes the following phases: Requirements analysis Information analysis and gathering Information architecture design User interface design Platform development Testing and adjustments Implementation Evaluation	 Develop a web platform that enables the registration and promotion of tourist attractions in San Martín Texmelucan using augmented reality technology, aiming to enhance the tourist experience and boost tourism in the region.

Resumen

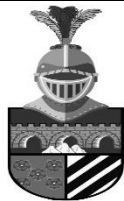
La industria del turismo es una de las principales fuentes de ingresos en muchas regiones del mundo. En este contexto, San Martín Texmelucan, una ciudad ubicada en el estado de Puebla, México, se presenta como un destino turístico emergente, ofreciendo una amplia variedad de lugares y atracciones para visitar. Sin embargo, muchos de estos lugares turísticos son desconocidos para los visitantes, lo que limita su capacidad para atraer turistas y generar ingresos para la región. Por ello, se propone la creación de una plataforma web para el registro de los lugares turísticos de San Martín Texmelucan. El objetivo principal de esta plataforma sería proporcionar información detallada y precisa sobre los destinos turísticos, incluyendo imágenes que permitan a los turistas conocer a fondo los lugares y disfrutar de una experiencia interactiva e inmersiva.

Plataforma web para el registro de lugares turísticos de San Martín Texmelucan		
Objetivos	Methodology	Conclusión
 Crear una base de datos de lugares turísticos de San Martín Texmelucan, que incluya información detallada sobre cada sitio, como su ubicación, historia, atractivos y servicios disponibles.  Desarrollar una aplicación de realidad aumentada que permita a los turistas explorar los lugares turísticos de San Martín Texmelucan de manera interactiva, mostrando información útil y relevante sobre cada sitio.	La metodología incluye las siguientes fases: Análisis de requisitos Análisis y recopilación de información Diseño de la arquitectura de información Diseño de la interfaz de usuario Desarrollo de la plataforma Pruebas y ajustes <u>Implementación</u> Evaluación	 Desarrollar una plataforma web permite el registro y promoción de los lugares turísticos de San Martín Texmelucan mediante el uso de tecnología de realidad aumentada, con el fin de mejorar la experiencia del turista y fomentar el turismo en la región.

Places, Platform, Tourist, Web

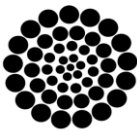
Lugares, Plataforma, Turísticos, Web

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Introduction

The tourism industry is one of the main sources of income in many regions of the world. In this regard, San Martín Texmelucan, a city located in the state of Puebla, Mexico, is an emerging tourist destination that offers a wide variety of tourist sites and attractions to visit.

However, many of these tourist sites are unknown to visitors, which limits their ability to attract tourists and generate income for the region. For this reason, it is proposed to introduce a web platform that allows the registration of tourist sites in San Martín Texmelucan using augmented reality technology.

The main objective of this web platform would be to provide detailed and accurate information about tourist sites, including images and videos in augmented reality, which would allow tourists to get to know the places in depth and have an interactive and interactive experience.

This initiative seeks to promote tourism in San Martín Texmelucan and provide a useful and attractive tool for tourists, as well as for entrepreneurs and companies related to the tourism sector in the region.

In order to develop this project, a review of the following projects was carried out: Azuma (1997) conducted one of the first comprehensive reviews on augmented reality, defining it as a technology that integrates virtual elements into the physical world in real time. This pioneering study laid the theoretical and methodological foundations for further research in the area, highlighting its potential applications in various fields, such as tourism and education.

Buhalis and Law (2008) explored the progress of information technology in tourism over 20 years, with an emphasis on the impact of the Internet on eTourism research and management. This work highlights how digital tools have transformed the way travellers plan and experience their trips. Al-Samarraie and Wills (2019) investigated the adoption of augmented reality technologies in tourism, analysing their benefits, challenges and future opportunities.

According to the authors, these technologies enhance the tourist experience by providing interactive and enriched information in real time, which has driven their integration in global tourism destinations. Li et al. (2021) conducted a review on tourism platforms, highlighting their evolution and future trends.

This study identifies how these platforms have enhanced the interaction between tourists and service providers, promoting personalised, data-driven experiences. Zhang et al. (2019) reviewed research related to user experience in tourism, highlighting the importance of understanding travellers' needs and preferences to design more effective services. The authors argue that a user-centred approach can increase satisfaction and loyalty in the tourism sector.

The National Institute of Statistics and Geography (INEGI, 2020) provided essential data on Mexico's national accounts, which include key tourism-related statistics. This source is fundamental to understand the economic impact of the tourism sector in the country and its contribution to GDP.

Methodology

1. Analysis of the current situation

Before starting the development of the web platform, it is necessary to carry out an analysis of the current situation of tourism in San Martín Texmelucan, identifying the main tourist attractions of the region, the strengths and weaknesses of the current tourist offer, and the opportunities and threats of the environment.

2. Research on available technologies

It is important to investigate the technologies available for the development of the web platform, especially those related to augmented reality, geolocation and user interface.

3. Definition of requirements.

The functional and non-functional requirements of the web platform should be defined, including the functionality of the augmented reality application, the database of tourist sites, the web interface, security and privacy measures, and other relevant aspects.

4. Architecture design.

The architecture of the web platform must be designed, defining the components and modules necessary for the operation of the augmented reality application and the web interface, and establishing the interactions between them.

5. Development of prototypes.

Prototypes of the augmented reality application and web interface can be developed to evaluate their functionality and usability, and to make adjustments and improvements if necessary.

6. Implementation and testing.

Once the requirements have been defined, the architecture designed and the prototypes developed, the web platform can be implemented and tested to ensure that it meets the defined requirements and functions correctly.

7. Evaluation of results.

Finally, an evaluation of the results obtained should be carried out, including the usability of the web platform, user satisfaction, impact on local tourism, and other relevant aspects. Based on this evaluation, adjustments and improvements can be made to the web platform to optimise its functioning and improve its results.

Results

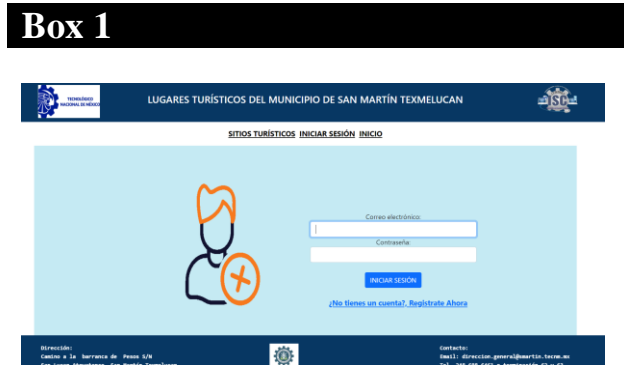


Figure 1
Shows the login for users, where they must enter their email address and password in order to log in

Source: Own elaboration

In the event that access to the system is not available, users may register, but they will be able to access the system until the administrator user validates them and gives them access.

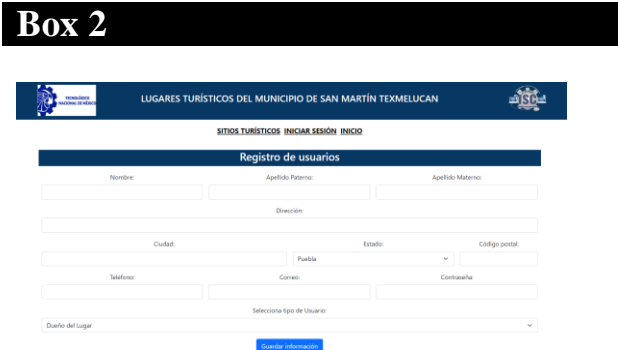


Figure 2
User registration

Source: Own elaboration

When you start as an administrator user, you will be able to access the following options shown in figure 3, and depending on the type of user, the menu options displayed will be as follows.



Figure 3
Menu of options

Source: Own elaboration

The personal information option will allow you to load the information of the user who has been authenticated, so that you can later modify your information, only those data that could be subject to change.

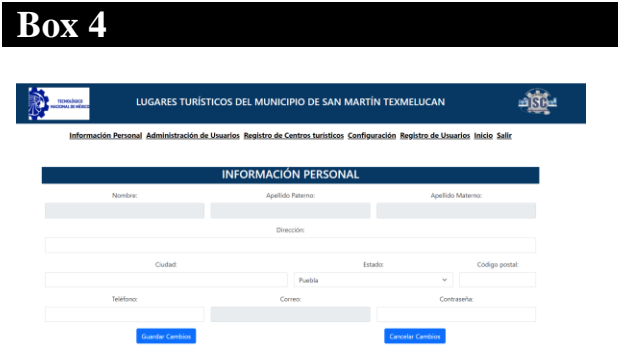


Figure 4
User's personal information

Source: Own elaboration

With the user administration option, you will see all registered users and a table where you can give access to users, and/or delete them.

Box 5



Figure 5
User administration

Source: Own elaboration

In the menu for the registration of tourist sites, you can register the information of each one of them, adding them to a category. In addition, you will be able to view all those previously registered.

Box 6

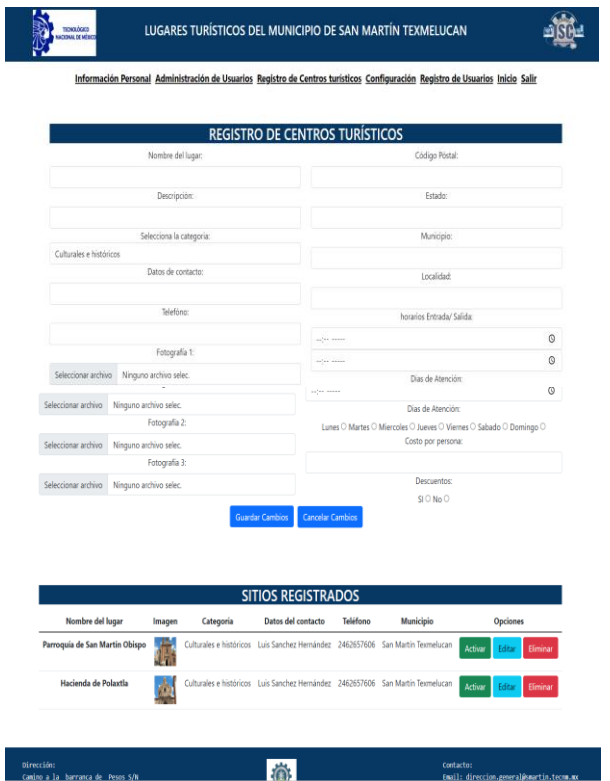


Figure 6
Register of tourist sites

Source: Own elaboration

In the configuration part, you can change the colours of the interface, as well as select two logos, to make it adaptable to different municipalities in the region.

Box 7



Figure 7
Configuration

Source: Own elaboration

And the user registry, where the administrator can register users, and assign the user type.

Box 8



Figure 8
User Registration

Source: Own elaboration

Figure 9 shows the report interface, where you can view the report of users (figure 10), sites and categories (figure 11).

Box 9



Figure 9
Reports menu

Source: Own elaboration

Box 10



Figure 10
User reports

Source: Own elaboration

Box 11



Figure 11
Category report

Source: Own elaboration

In the personal information, the data of the user who is entering the system will be loaded, and only some data can be updated and others not.

Box 12



Figure 12
Personal information

Source: Own elaboration

According to the type of user, you can view the registered sites, or only the information of the site to which you belong.

Box 13



Figure 13
Registered sites

Source: Own elaboration

The customer user will be able to make search filters based on state, municipality and category.

Box 14



Figure 14
Site search

Source: Own elaboration

A list will appear with the previous filter and by clicking on the name of the place, the user will be able to download and install the application to view the site (download option), and once the App is installed, the user will have to point to the qr code.

Box 15



Figure 15
Example site

Source: Own elaboration

By pointing to the qr code, you can view the places in augmented reality, it is worth mentioning that the App is loaded from the administrator user, as well as the qr code of each place, as to date only has some places in augmented reality, and this will be added only if the site approves and requests it otherwise it will not appear, nor the qr code, nor the download link of the App.

Box 16



Figure 16
Example site

Source: Own elaboration

Conclusions

In conclusion, by promoting the tourist sites of San Martin Texmelucan in an innovative and attractive way, it helps to improve the image of the region as a tourist destination, which can increase the visibility and demand for local products and services.

Declarations

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

Authors' contribution

Morales-Zamora, Vianney: Contributed to the development and programming of the platform.

Paredes-Xochihua, Maria Petra: Contributed to the design and development of the database.

Sánchez-Juárez, Iván Rafael: Contributed to the design of the platform's interfaces.

Availability of data and materials

The data obtained for the development of this platform are reserved by the Centro de Investigación en Ciencias Biológicas of the Universidad Autónoma de Tlaxcala.

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No funding was provided for the development of the platform, it was developed with own resources.

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Background

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Basics

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Support

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Differences

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Discussions

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Zhang, Y., Zhao, X., Ma, Z., Wang, Y., & Qi, Y. (2019). [User experience research in tourism field: A review. Journal of Travel Research](#), 58(7), 1163-1180.