

## Web page of tourist attractions, history, culture and traditions of Acatlán de Osorio, Puebla, with location in google maps using augmented reality

## Página web de atractivos turísticos, historia, cultura y tradiciones de Acatlán de Osorio, Puebla, con localización en Google maps utilizando realidad aumentada

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DOI: 10.35429/JCS.2022.15.6.1.5

Received: January 10, 2022; Accepted June 30, 2022

### Abstract

The present work consists of informing the result of an investigation which consisted of developing a web page of the areas considered as tourist attractions, as well as containing the history, culture and traditions of the municipality of Acatlán de Osorio; on said page this information was captured to make the municipality known to tourists who seek to visit places enriched with culture such as said municipality, the web page will show the tourist place that is of the client's preference, as well as the geographic location of the place, a visualization in augmented reality, with an audio description of the place, which will attract more attention, encouraging the client to visit said place, this is a way to help improve the economy of the municipality. The results reflected in this document show that the tourist places of this municipality can already be consulted in an easy and attractive way for the client.

### Website, Tourism, Augmented reality

### Resumen

El presente trabajo consiste en informar el resultado de una investigación la cual consistió en de desarrollar una página web de las zonas consideradas como atractivos turísticos, así mismo contiene la historia, cultura y tradiciones del municipio de Acatlán de Osorio; en dicha página se plasmó esta información para dar a conocer el municipio a los turistas que buscan visitar lugares enriquecidos de cultura como lo es dicho municipio, la página web mostrara el lugar turístico que sea de la preferencia del cliente, así mismo la ubicación geografía del lugar, una visualización en realidad aumentada, con un audio de la descripción del lugar, lo cual le llamará más la atención propiciando que el cliente visite dicho lugar, esta es una forma de ayudar a mejorar la economía del municipio. Los resultados plasmados en este documento evidencian que ya se pueden consultar los lugares turísticos de este municipio de una manera fácil y llamativa para el cliente.

### Página web, Turismo, Realidad aumentada

**Citation:** ROJAS-NANDO, Julio Cesar, NIETO-ROSALES, Ana Laura, FUENTES-CORTES, Miguel and GONZALEZ-SERRET, Mónica. Web page of tourist attractions, history, culture and traditions of Acatlán de Osorio, Puebla, with location in google maps using augmented reality. Journal Computational Simulation. 2022. 6-15:1-5.

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**Introduction**

This web page is dedicated to show relevant information of the municipality of Acatlan de Osorio, as well as allows the site administrator to upload, delete and edit the information of the different tourist sites that exist in the municipality, this way it is easier to use the website, likewise the administrator has the privilege of adding more administrators or capturistas.

The role of capturer will only have the privilege of uploading tourist sites, unlike the administrator who can perform the three basic actions.

The main objective of this project is to increase the economy of the municipality by encouraging more tourists to be interested and visit the place, achieving a higher consumption by them.

*Analysis*

A web page was developed that could help in the publicity of the municipality of Acatlán de Osorio, which has a lot of culture and tradition, helping to increase the economy of this area. In this section we will investigate the most important concepts used at the time of developing the system.

*Survey of requirements*

For the elaboration of the project, the cascade methodology was used, in which the first step is the requirements gathering of the system.

For the design of this system, requirements were determined on the programmer's side and on the client's side.

This helped our system to function correctly and fulfill the essential functions required.

## Program side requirements:

- Computer hardware is required.
- Internet access.
- Windows 10 operating system.

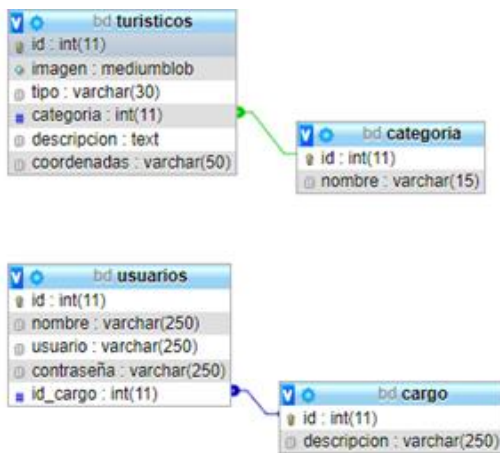
- Domain name.
  - Hosting.
  - Apache Web Server.
  - Web site design (Languages: html, php, css).
  - Database management system: MySQL.
  - Spark studio.
  - Zappar Platform.
- Client-side requirements:
- Computer equipment is required.
  - Internet access.
  - Access to a browser of choice: Google Chrome, Microsoft Edge.
  - A cell phone with camera and internet.

*Use case modelling*

As a first step we will identify the users that will interact with our system. Once the potential users have been identified, the diagram will be drawn and the function that each user will perform and the relationship between them will be described, using the use case diagram.

*Database design*

The database was designed and implemented using MySQL, using 4 tables as shown in Figure 1, one of them stores the main data of the tourist sites, it is also related to the category table which determines which category each tourist site belongs to in order to show it on the web page, two more tables were used, one of them stores the personal data of the users and the second one determines what type of privilege each one of them has.



**Figure 1** Database with 4 tables  
Source: Own elaboration

*Programming*

The tools used were: MySQL database management system, Apache Web Server, PHP, CSS and HTML languages.

With the help of these tools the administrator interface was designed and programmed which consists of:

- Having access to a table where the users that can manipulate the website are shown, likewise has the privilege to register new users as desired, these can be capturers or administrators.
- You have the option to upload tourist sites to the website when required, you can also edit and delete these sites.

The captures interface was designed and programmed, which consists of the following:

- This user, unlike the administrator, can only upload tourist sites to the web site.
- The user interface was designed and programmed which consists of the following:
- The user will be able to enter the website and will have the option to choose the category of his liking, among the categories are: (hotels, restaurants, workshops, recreational places and spas), by selecting the category will be shown all the sites registered in that category, you can view their geographical location and a photograph.

- You will be able to scan a QR code which will show you the place with augmented reality, a description of the place in audio and the location.

*Implementation*

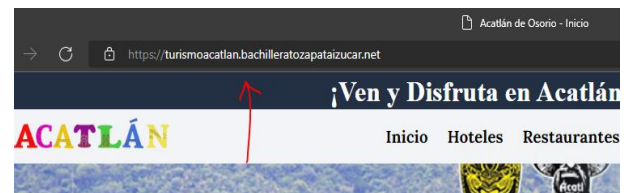
The web page was launched, the corresponding tests were carried out to avoid any type of error, once the corresponding tests were carried out, the page was hosted in the hosting so that any user can visit it without any problem.

**Methodology to be developed**

The development methodology was the cascade method, a linear methodology that requires the completion of previous activities in order to continue with the following ones, i.e. all predecessor activities must be completed before the next step can be carried out.

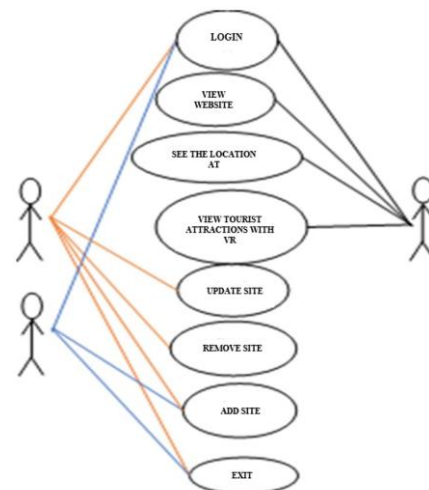
**Results**

Figure 2 shows the implementation of the tourism page where we can appreciate the home interface of the web page.



**Figure 2** Implementation of the page in the domain  
Source: Own elaboration

We can see in Figure 3, the main use case that was built in order to design the database.



**Figure 3** Main use case  
Source: Own elaboration

The following figure shows the sequence diagram that identifies the web page.

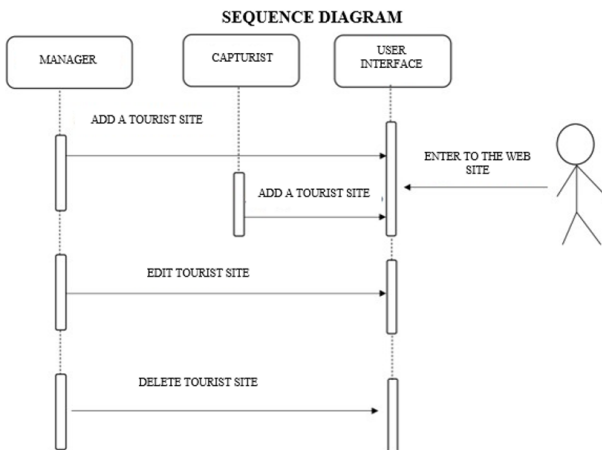


Figure 4 Sequence diagram  
Source: Own elaboration

### Home screen

The home screen shows the categories that can be visited by the user.



Figure 5 Home screen  
Source: Own elaboration

Figures 6 and 7 show interfaces of the workshops category, in this section you can visualize in detail the information about the handicraft workshops, which is an activity that characterizes the municipality of Acatlán.



Figure 6 Workshops category  
Source: Own elaboration

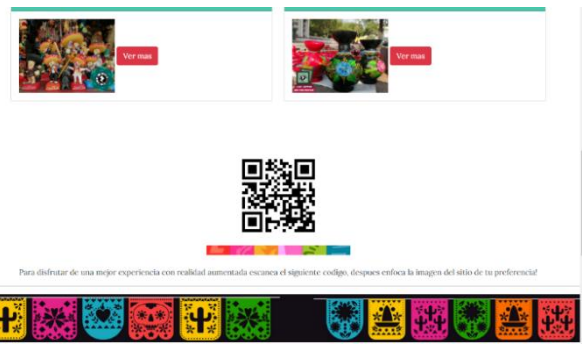


Figure 7 Workshops  
Source: Own elaboration

This section shows an image of the tourist site and its geographic location.



Figure 8 Geographical location of the tourist site  
Source: Own elaboration

When focusing on the image of the tourist site, an augmented reality image is displayed along with an audio description of the site and its geographic location.



Figure 9 Augmented reality image  
Source: Own elaboration

## Acknowledgements

This project is the result of a research and technological development work, which was subsidized by the Instituto Tecnológico Superior de Acatlán de Osorio, the work is linked to the municipal government of that municipality.

## Conclusions

This project is considered a great contribution to society and especially of great help to the municipality of Acatlan de Osorio Puebla, since it contributes to the use of technologies for the increase of tourism in the municipality, improving the economy of its inhabitants, the main objective of this project was to let tourists know the richness of Acatlan de Osorio and encourage them to visit the emblematic sites of Mexico.

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