Low cost web portals for municipal councils

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Abstract

This Project is focused on the development of a web platform for municipal governments and which principal characteristics are: to enforce the law of openness and access to public information in every State, to facilitate the use for the current municipal government and to reduce the platform´s costs of implementation and operation. Responsive technology and free license software will be used to reduce costs and a prototypes methodology will be also used, and at the same time, it will be implemented in several municipal governments from where important data will be obtained to create a more stable prototype until the platforms is able to be implemented in most of the municipalities, carrying out most of the requirements of a portal with this characteristics.

E-government, internet, web portal, transparency, responsive web

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Introduction

Information Technology (IT) has become indispensable in the management of information in recent years, covering more and more fields of society, through the productive sector, education and now in the government, in 2014 was Amended article 6 in section A of section V of the constitution that states: "Obligated subjects must preserve their documents in updated administrative files and publish through electronic means available, complete and updated information on the exercise of public resources "[1].

One of the most important tools that IT has offered is the possibility of improving and modernizing public management through its use for the presentation of services and the strengthening of relations with citizens, companies and other institutions. Called e-government.

In Mexico, the implementation of e-government projects has required both the construction and acquisition of: physical infrastructure and the creation and modification of structures, institutions and organizations. This has been achieved at the higher levels of government (Federal and State) but in the lower levels of government (Municipal), the implementation of IT has become a difficult road, mainly due to the lack of infrastructure, budget, knowledge and trained staff. In a survey conducted by the magazine "Digital Policy" [2] in its ranking of Municipal Electronic Government portals it was published that: in 2010 there are two thousand 454 municipalities in the country (INEGI 2005) of which only one thousand 104 municipalities have Web portal equivalent to 45% of municipalities.

Having said that more than half of municipal governments are not complying with the law, the most frequent causes are ignorance of IT, infrastructure and budget, so it was decided to carry out a project under the alternative open source LAMP [3] (Linux, Apache MySQL and PHP) technologies that will help in reducing project costs.

Methodology

As a first step was made the requirements survey which focused on the general needs of municipal councils in relation to Web Portals, the requirements were made in medium and small municipalities as they are most predisposed not to have a Municipal portal

With the lifting of requirements, the first prototype was made which was divided into 2 phases: the Front End phase, which is the visible part for the general public, was developed with HTML5 and responsive technology "this technology allows systems Adapt to any resolution and therefore be functional from any device with this are obtained portals compatible with mobile devices which means that the portal has a greater audience and acceptance as multi-devices.

With respect to the Back-End, it is the part that is only visible to the portal administrator (s), this module was developed with a user-centered web design which generate quality, satisfaction and trust for the user. The design of the Back-End is based on repeating the same design patterns for each module, which allows a quick and easy learning by the portal administrators that in many small and medium municipalities are usually people with unawareness of IT so this technique allows a quick learning since all sections are modified and administered in the same way.

The last phase is the implementation and piloting (April 2015) the Prototype was installed in the city of Tehuacán, the second most important city of Puebla, significant data was collected which allowed us to improve and have a more stable, usable and safe platform For other municipalities.

Figure 1 Municipal Web Portal of Tehuacán, mobile view

As can be seen in Figure 2, the design of the prototype can easily be adjusted to the institutional image of the city council in turn thanks to the fact that it is designed in layers, the image shows the modified portal for Ajalpan city council which at this moment (March 2016) is in the implementation phase.

Figure 2 Portal of Tehuacán in cellular view to the left and portal of Ajalpan to the right

With the information gathered in these 2 prototypes we managed to reach a new phase, the improvement of the Front-End and Back-End, the project was done with the paradigm Oriented Programming Object in N-layers, which allows us to divide the Work in several modular layers, according to Santiago Domingo this style of programming, will facilitate the reuse of layers, allow a better standardization, create an architecture easier to understand and implement, maintenance costs tend to be lower and in the dynamics of The business this style of programming provides that the system is scalable [4].

Results

The prototype has been implemented in two municipalities which has allowed us to obtain information for a continuous improvement of the project. As a government portal, we detected a greater number of attempts at cyber-attacks, which created protocols to improve security in the implementation phase and in the use of the portal by city hall staff. Also implemented a library known as PDO which is an object-oriented extension to access databases in PHP that as mentioned in the language reference page "prepared statements do not need to be in quotes, the controller automatically handles do it.

If an application uses exclusively prepared statements, the developer can be sure that no SQL injections will occur "(php.net) [5] Regarding the Responsive Design, we realized that the municipalities upload a lot of multimedia material which is indispensable to become responsive when displayed in the Front End and thus allow the correct visualization in devices of lower resolution.

Regarding the content management, we did not consider the high volume of information that could be uploaded and the various varieties in which the municipalities want the information to be deployed, grouped or classified, so we decided to develop a new Back-End Adaptable to the content, this project is mentioned in other publications, so we will only mention that the new content manager is able to adapt or configure depending on the content.

Conclusions

It generated an impact on municipal e-government in the 2 municipalities and is expected to do so in other municipalities that do not have a web portal, or in the municipalities themselves but with future administrations, this gives us the possibility to improve and modernize the management Public through IT, perfecting with this the relationship between citizen and municipality.

At the local and regional level, agreements were reached with the government for the implementation of the system, which is the starting point for talking to more cities in different states and knowing a project that is working and could be implemented at a very low cost, With this we hope to improve the digital governance of municipalities in different cities of the country.

References

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