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DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS TROUBLE TICKETING SYSTEM

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Abstract: Even before today, trouble ticketing has been one of the most fundamental concepts that are used by different types of companies around the world. From the manual varieties that exist, such as simple strips of feedback paper; automated and interactive ones are beginning to emerge, which all aim to hasten the processing time of the acquired inputs. This way, the customers are able to receive a response for their query in a short span of time.

The aim of this study is to further enhance the capabilities of trouble ticketing through the construction of such a system that is more integrated with the functions within the chosen company such as job tracking and simple scheduling. The study also aims to improve the passage and processing of data from start to finish in terms of duration and convenience through the establishment of a virtual portal that is not only accessible to the customers, but also to everyone who is involved in data processing.

The proponents have decided to conduct this study using the Department of Public Works and Highways (DPWH) as their test bed. The DPWH is a government department that takes responsibility for all the national roads within the country. The group believes that by having an improved trouble ticketing system, they will be able to serve the country better and faster.

Keywords: Trouble Ticketing System; Online Help Desk; Information System; Web Application

1. INTRODUCTION

Indeed, the Philippines is considered a third-world country as compared to other nations around the world, despite its rich heritage. However, this is not something to entirely be disappointed about, as being third-world also denotes that it is a developing country. As such, there still lingers a certain level of hope that eventually, the country may be alleviated from its current condition.

The Philippine government still continues to exert time, money, and effort in



making sure that its goal to improve the country's standing be eventually fulfilled. Despite the on-going issues on various forms of corruption, it still continues to thrive, together with the citizens of the Philippines, in order to create a better future for the upcoming generations. One of these departments that already showed signs of improvement is the Department of Public Works and Highways (DPWH).

The objective of this study is to automate DPWH's system of addressing public complaints and queries in such a way that the department's management capabilities would be increased. By this, the system should provide ease in submission of inputs by the country's citizens and all those concerned, improve management capabilities when it comes of handling and responding to trouble tickets, lessen the amount of time wasted in the manual processing of complaints submitted by the uses and provide practical ways for both DPWH and the citizens to engage in information exchange.

The scope of the study greatly involves the citizens of the Philippines as they are the ones who would be submitting complaints. The proposed system is a web application that is both accessible to both primary and secondary users and will also be embedded via IFrame on DPWH's Facebook page. Restrictions will be applied so that only certain users have access to certain pages.

2. METHODOLOGY

The System Development Life Cycle (SDLC) has three primary objectives. First is to ensure that the system being developed is that of high quality. Second, strong management is able to control the entire project. Third is to maximize the productivity of the system staff. SDLC must be an example of a system that is created with the use of certain tools and techniques. It is a layer approach to analysis, design, installation support and production support. It needs to have a distinction from the "what: (Bender RBT Inc, 2003).

The SLDC is composed of several phases. First is System Initiation. The business case and proposed solution is thoroughly examined if they are appropriately defined and that it addresses an organizational need.

Second is System Requirements Analysis of which it captures the needs of the business in further detail. The project manager leads the team into working with customers to define what the current system does and what the new system must do.

Third is System Design. It builds upon the work done in the System Requirements Analysis phase and it results to the translation of functional requirements to the complete

solution. The solution includes the technical architecture, standards, specifications and strategies.

Fourth is System Construction. Various tests and modules can be seen in this phase. The Project team builds this including any other utility function needed by the system.

Fifth is System Acceptance. Validation efforts and shifts are present in this phase. Team members are responsible for developing the application further and it confirms that the system meets its intended expectations. Lastly is system implementation. The system is deployed to its users for use (Orozco, 2003).

3. RESULTS AND DISCUSSION

The proposed system (WIND) aimed to address the problem that DPWH experienced which is delay with response dissemination. Several modules were created in order to address this. Office assignments, ticket creation, view tickets, ticket referral, project creation, task assignment are to name a few. The group also added value-added features as discussed below.



Fig. 1 Log In screen of WIND (Proposed Trouble Ticketing System for DPWH)

The system will have the following features as presented in Fig 1.

A. Session Tracking

Session Tracking is a feature created for security purposes. It tracks a user's session as he uses the system. If he is idle for more than 30 minutes, his session immediately expires and is required to log-in again.

B. Auto Close Feature for Resolve Tickets

If a resolved complaint ticket has not been updated for a period of 3 days, it will automatically be closed by the system and will read "closed by the system administrator." The PID Personnel could still open the ticket if it is necessary.



C. Connectivity with Facebook

The system also allows the user to connect his system account with his Facebook ID. This makes it easier for him to acquire needed information without the need to log-in to the web application. This feature is optional for any user and they could still log-in the system using their original login name.



Fig. 2 Wind can connect using Facebook

D. Email Integration

This feature allows the user to receive information via email. It could be about account verification or an account support complaint that was sent to the System Administrator. Email is treated as an output channel.

E. SMS Feature

This feature allows the user to send in complaints through his phone by texting to a specific number. The system then receives the text messages and similar to a regular complaint, each message could be processed.

F. Related FAQs for Inquires

This module can be seen in the “create ticket” menu. As the user types a keyword in the subject of an inquiry, a list of questions will appear below. The user can then click on questions if he thinks it is the same concern that he is going to raise. A pop up will appear with the answer to the question selected.

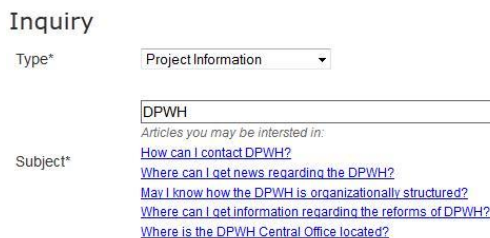


Fig. 2 Related FAQ shown

G. Sorting and Filtering

This module can be seen in the “view tickets” menu. A drop down is shown in the upper left corner which indicates all the different status of a ticket. The user can then choose to view tickets based on their current status. There is also a view all option where he could view all the tickets he created. This module is also open for the PID personnel user. Since it is evident that there would be dozens of tickets that would be submitted, it would easier for him to look for a ticket with the sorting option.

H. Ticket Action Updates

Every complaint ticket is tracked with a given status. Certain actions could be done for the status change. For instance, marking a ticket as incomplete will trigger the “incomplete” status. Tickets can also be assigned and passed or referred to the person who could address the complaints. Sending replies and remarks to the tickets is also possible.

I. Graphing Features

Certain users will have this feature which would allow them to generate graphs regarding the submitted tickets as well as projects.

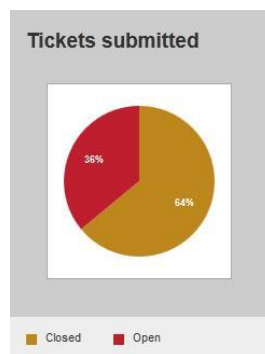


Fig. 2 Wind generated graph example

4. CONCLUSIONS

The proposed trouble ticketing system (WIND) is a very beneficial and useful tool that meets the needs of its intended users namely the Public Information Division department of DPWH, implementing offices and the Filipino public. It was able to reach



its aim of providing a means for DPWH to respond to complaints at the same time being able to track, sort and organize, and prioritize complaints and queries. With the modules and features in place, the group hopes that it will serve its purpose and mark a pavement for new developments in the long run.

The proposed system indeed has several notable modules that were able to address the need of its intended users. The value added features in the system such as tickets action update, email integration, SMS feature, related FAQ for inquiries, sorting and filtering proved to be beneficial and was able to incur more benefits. Despite these modules and feature, the group was still able to see future opportunities and improvements that could be done with the current proposed system.

Wind on Mobile – Having a mobile application of the system can be both beneficial and efficient for users don't necessarily have to log-in to the system in order to process complainants and handle referrals.

Compatibility with mobile browsers – The web application's layout could be made compatible with mobile browsers in terms of size and presence of positioning elements.

Other social network integration – other social networks could be integrated apart from Facebook

Facebook API – other functionalities of the Facebook API could be utilized

SMS Feature Management –SMS feature could be improved further in such a way that a message management system could be integrated

GPS capabilities –The system could integrate GPS capabilities while stil enforcing the area jurisdiction of roads of DPWH

Integration with MMDA – The system could be improved in such a way that tickets could also be answered by MMDA. Other data such as those concerning traffic density can also be included in the system

5. ACKNOWLEDGEMENTS

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