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THEME:

**“IMPLEMENTATION OF A SYSTEM FOR THE AUTOMATION OF
COLLECTION PROCESSES AT THE CENTRAL BOARD OF ACEQUIA
ROSAUCO ZAPALLO POGYO REGION, THROUGH THE FRAMEWORKS
BOOTSFACES AND PRIMEFACES AT THE JEE PLATFORM”**

AUTHOR:

MARTHA LIDIA VALENZUELA CHANCOSA

DIRECTOR:

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“IMPLEMENTATION OF A SYSTEM FOR THE AUTOMATION OF COLLECTION PROCESSES AT THE JUNTA CENTRAL DE REGADÍO ACEQUIA ROSAUCO ZAPALLO POGYO, THROUGH THE FRAMEWORKS BOOTSFACES AND PRIMEFACES AT THE JEE PLATFORM”.

Author: Martha Lidia Valenzuela Chancosa
Technical University of North, Av. 17 de Julio, Ibarra, Imbabura
mlvalenzuelac@utn.edu.ec

Summary-*The need to improve customer service and reduce costs in the use of paper have led to the automation of its economic processes in the Irrigation Boards. Background: Currently, these community organizations carry out their processes manually, which makes it difficult to respond quickly to customer requests and requests. Objective: To implement a web system for the automation of collection processes in the Junta General Acequia Rosauco Zapallo Pogyo, to facilitate the work performance of its members. Method: The XP methodology was used in all four phases. The main planning phase was to collect information from actors involved in economic processes. This allowed identifying the actions to be followed in problems that arise during the process development. Results: The results of the implementation of the web system, confirm the improvements in response times and satisfaction of the end users, the same ones that have demonstrated the 95% acceptance in the use of this platform, and has reduced the 40% of technological illiteracy in the elderly of rural communities in the city of Ibarra. Conclusions: The collection system implemented at the Junta General Acequia Rosauco Zapallo Pogyo produces benefits in response times; reduce costs in the use of paper and communication of the three sub joints that integrate it, in order to develop a single transparent and concise economic report.*

Key Words: *Irrigation, Web System, Primefaces, Bootsfaces, Irrigation Boards, JEE.*

Abstract: *The need to improve customer service and reduce costs in the use of paper has led to the automation of its economic processes in the Irrigation Boards. Background: Currently, these community organizations carry out their processes manually, which makes it difficult to respond quickly to customer requests and requests. Objective: To implement a web system for the automation of collection processes in the Acequia Rosauco Zapallo Pogyo General Meeting, to facilitate the work performance of its members. Method: The XP methodology was used in all four phases. The main planning phase was to collect information from*

actors involved in economic processes. This allowed identifying the actions to be followed in problems that arise during the process development. Results: The results of the implementation of the web system, confirm the improvements in response times and satisfaction of the end users, the same ones that have demonstrated the 95% acceptance in the use of this platform, and has reduced the 40% of technological illiteracy in the elderly of rural communities in the city of Ibarra. Conclusions: The collection system implemented at the Junta General Acequia Rosauco Zapallo Pogyo produces benefits in response times, reduce costs in the use of paper and communication of the three sub joints that integrate it, in order to develop a single transparent and concise economic report.

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I. INTRODUCTION

The use of JSF frameworks have gained momentum in recent times, since they facilitate and optimize time in software development, including BootsFaces, a framework Front-End developed in 2013, is responsive because it contains JQuery, Bootstrap and Ajax that fuses easily with PrimeFaces achieving striking and interactive interfaces with the end user, the combination of tags of these frameworks meet the needs of certain programmers, since it does not present any interference between them and the design environment is almost similar to PrimeFaces .

Once seen its advantages of these frameworks and their favorable fusion has proceeded to develop the web system under this modality, first has been considered the geographical location of the subjuncts that integrate it, and has developed an adaptable application since they do not have computers or sites with internet.

II. PROBLEM

The new law of water of waters that is in force in Ecuador mentions that, every ditch that has a single basin and a same route must form a single Central Board for its total validity before any request that it makes before SENAGUA, for such reason has led to the integration of the 3 subjuncts, this with many disagreements because they are located in different locations and share common activities and interests, and difficult to communicate to follow up the economic activities that are carried out in each of them. As it shares the same quarterly economic report issued by the General Meeting.

III. JUSTIFICATION

With the implementation of the system it is expected that users avoid the clutter in economic records and data loss in accounting books, On the other hand, emphasize the uncoverage of attendance at meetings, works and charges of irrigated water the purpose that is economically prosperous and its accounting statement is clear and concise before the consumers and the general assembly.

There has also been a quick investigation of the framework Bootsfaces for the handling of adaptability of the application, since you do not need to import libraries such as: Bootstrap, JQuery and Ajax, which is why it is built into the Bootsfaces jar resulting in an interface interactive interface provided by Primefaces.

IV. GENERAL OBJECTIVE

Develop and implement a system that automates the collection processes in the Junta General de Regadío Acequia Rosauco Zapallo Pogyo.

V. SCOPE

The board of directors of the sub-council and the General Board of Directors (Treasurer, Secretary, and Consumer) may register economic activities, attendance records, expenses, consultations and reports according to the needs of the Secretary, its principal partners and subjuncts.

Activity partners (Secretary)

- Registration of assistance Mingas.
- Register of attendance meetings.
- Create meetings.
- Create mingas.
- Registration sanctions.
- Record expenses.
- Record contributions partners.
- Generate listings.

Activity modules or Subjuntas (TREASURER)

- Collection of non-assisted Mingas.
- Collection of non-assisted meetings.
- Recovery of penalties
- Payment of expenses.
- Collection contributions partners
- Quarterly economic report

Consultations (Consumers)

- Debt queries

Application Modules.

The application is composed by the following modules.

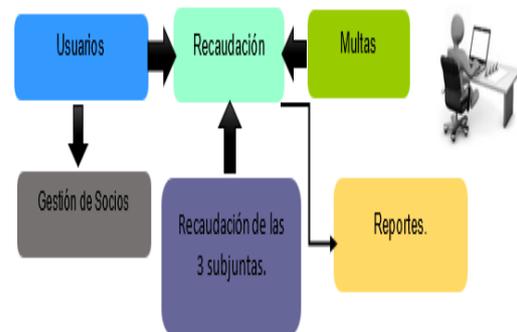


Figure 1: Block diagram of the application.

Source: Own

Module collection.

Fundraising, I know you will find linked to users since all actions occurring in the same need to be specified by the actor who performs it, register all the payments and costs of economic activities which make the partner and the subjunta.

Fines

Shall be exclusively governed by fines violated registration as: late to meetings, mingas's work and sanctions involved the inappropriate consumption of water. These actions will be recorded by the Secretary.

Users.

This module will be to keep a full record of personal information of the members of the Junta General as:

- ✓ Full names.
- ✓ Identity card.
- ✓ Address.
- ✓ Phone.
- ✓ Name of the institution
- ✓ Number of hours of the shift of water.

Account with 4 roles available to the application such as: Treasurer, Secretary, Manager and consumer.

Reports.

Reports module will show the result of queries that the user makes, also will allow viewing the economic report of each subjunta.

THE APPLICATION ARCHITECTURE

The elaboration of the thesis project is developed under the JEE platform, which achieves a rich and robust application.

Model : This layer is home database, PostgreSQL, the same as through the ORM (Eclipse Link) will be used in this project will be achieved connect and generate the ENTITIES in the JPA project, in such a way that communicates with the program database. The ManagerDAO handles the communication to the BDD, the ManagerEJB handles all the application business logic.

Controller: JSF uses well formed Beans and allows us to connect the interface with the applicative logic.

View: In the projects of JSF, the WebContent folder is a container for resources for the design of the user interface. The WEB-INF subfolder is fundamental for accommodation additional libraries.

VI. METHODOLOGY

For this thesis project has been used XP (Extreme Programming) methodology, since it proposes a set of best practices and techniques that emphasize positive effects in a software development project.

This methodology is based on communication, simplicity, feedback, respect and courage. And it makes use of user stories, these are the description of key scenarios of the operation of the software, it is carried out between the client and the team representative. From them, the releases are generated that allow defining the iterations necessary to fulfill the objectives.

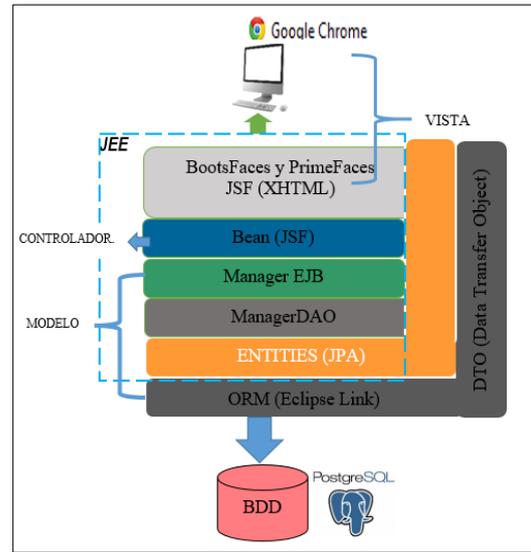


Figure 2: Architecture of the system.

Source: Own

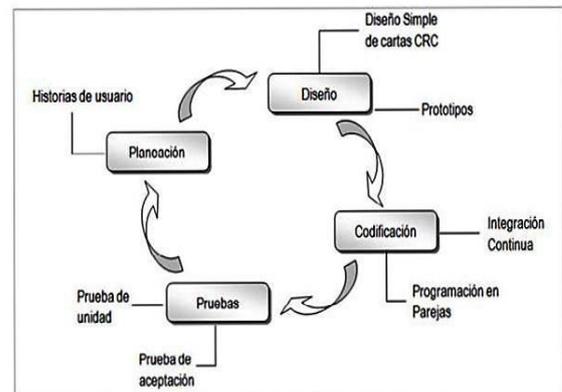


Figure 3: Phases of the XP methodology.

Source: Own

VII. RECOMENDATIONS

- ✓ I recommend scanning techniques and planning that are specific to the XP methodology, since they allowed easily lifting processes.
- ✓ Is recommended to perform user stories and wireframes in the development of software, since these activities allow you to work together with the customer and lead to clearly understand the requirements of the system.
- ✓ It is recommended to use the Framework Bootsfaces, it is important to update the version of JavaServer Faces, because it supports versions since v 2.2. x onwards, each version of Primefaces is also compatible with Bootsfaces.

VIII. CONCLUSIONS

- ✓ The XP methodology has appropriate techniques for lifting processes and that can successfully meet the requirements of the user, therefore for the beginning of development of the system is taken as a guide the phases of the XP methodology, such as exploration and planning, which have helped the development of the first sketches of the system presented to the members of the Central Board, to recognize clearly the functional and non-functional requirements of the system.
- ✓ Using the Framework Bootsfaces responsive type JSF applications, can be implemented which interfaces can be adapted to any device.
- ✓ The use of the Framework Primefaces has managed to adapt with the Framework Bootsfaces to achieve rich user-level applications.
- ✓ The use of the application has been widely accepted by the benefits that provide users, one of them the control of money in transactions that the Treasurer of the Central Board, in such a way that avoids lost leads to charge economic institution.

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About the authors

Author – Martha Lidia Valenzuela Chancosa
Estudiante de la Universidad Técnica del Norte,
Facultad de Ingeniería en Ciencias Aplicadas, de la
Carrera de Ingeniería en Sistemas Computacionales.