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## **SCIENTIFIC ARTICLE**

**THEME:**

**AUTOMATION PROCESS OF CUSTOMER SERVICE AND  
COLLALETAR MANAGEMENT FOR THE ENTERPRISE  
“VASQUIN” LTD. CO., BY OPEN SOURCE TOOLS**

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# **AUTOMATION PROCESS OF CUSTOMER SERVICE AND COLLALETAR MANAGEMENT FOR “VASQUIN” LTD. COMPANY, BY OPEN SOURCE TOOLS**

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**ABSTRACT:** Development and implementation of "Automation process of customer service and collaletar management for the enterprise “Vasquin” Ltd. Co, by open source tools with the application "Process, Control and Register System of record customer information for Vasquin. Ltd. Company", this system has been developed for the entry product to technical support department, whether by service or warranties; besides make market rates for the technical department and the respective monitoring by incidences register of customers, using tools such as PHP 5.4 and MySQL 5.5.

## **1. INTRODUCTION**

Vasquin Ltd Co., is an enterprise that does not have an automated process module of customer service in issuing market rates, personalized customer monitoring and mainly in the area of the Technical Department in a fast and efficient service, so all these processes are taken by individual Excel files on each computer, notes in notebooks, work orders, thus generating loss of time and money. Furthermore due to the lack of an automated collateral registry in the Technical

Department where participates the company, customers, suppliers it is not possible to get quick reports statements related with the guarantees, that is why it is essential developing a system to automate and streamline these processes.

## **2. OBJECTIVES**

### **2.1 General**

To optimize the process of data entry into the customer service in the sales area and primarily in the Technical Department of the enterprise Vasquin Ltd. Co., regarding technical maintenance services, product warranties, product returns and as well as to streamline the information through queries and reports.

### **2.2. Specific**

- To evaluate existing processes in customer service and in the area of after sales and technical Department of the company in order to determine what should be automated and specify the input and output data.
- To design an organized process for data entry by RUP methodology.

- To define the necessary tools using free distribution technologies available for the project development.
- To implement the customer service system with friendly user interface for a streamlined and effective process.

### **3. JUSTIFICATION**

The proposed work is of great importance and will serve to streamline customer service processes, an increase the level of productivity of the Technical Department staff, access and processing of information will be instant and effective cost in terms of time invested in the process.

The realization of this project bases its importance in the automation of customer service in Vasquin Ltd. Co., in order to modernize the way how are captured the inputs and outputs of products and services in the technical department, and queries and guarantees reports in the same one, also to automate the sales area in terms of market rates.

The registration of the service information, customer service and guarantees in the technical department within this company it is important because it allows an order and keep up with all the necessary data to get reports and statements of customers and suppliers regarding a product under warranty, and conducted in an orderly and proper

guarantees integration among the different departments of the company.

VASQUIN LTD. CO. will be the direct benefit with the implementation of this processing system, control and register of customer service information, since in itself a clear and orderly information registration will be carried out, which makes it very useful to achieve an efficient management register and customer monitoring, detail and issuing of pro forma invoices, entry and exit of products for maintenance and guarantees in the Technical Department; it also will increase the number of customers who will be favored with better service.

It is important to note that not only the company will be benefited, also indirectly its employees as to streamline the processes by the system developed, it will create a better organizational climate, job satisfaction being more productive.

### **4. SCOPE**

The project will include the following modules:

#### **Company Management including**

- Employee entry
- User login
- Reports

### Product Management Including

- Category Management
- Product Management
- Parameter Input
- Serial Movements

### Sales and Market Rate Management including

- Customer Management
- Customers Support
- Management of market rates

### Suppliers Management including

- Suppliers entry
- Courier Management
- Guides Shipments Management
- Providers' Guarantees

### Technical Support Management including

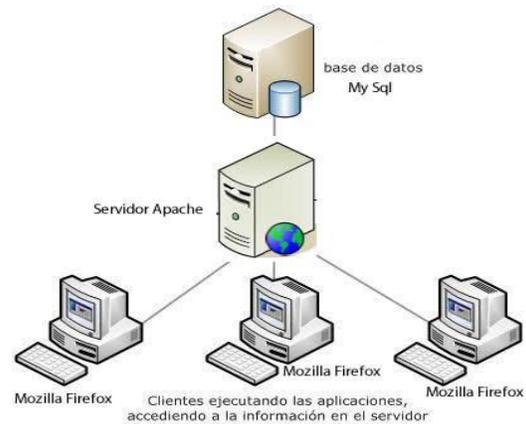
- Log entry for services
- Log Processing
- Outflows Management

## 5. ARCHITECTURE

It opts for a client-server architecture which allows interfacing with multiple clients; it promotes server authentication and it is the simplest way to control the system.

The server will be connected to a database which will contain the information to be displayed and handled by users. The application will run on an Apache server so this server will receive requests from customers under a typical client-server

structure.



### 5.1. Logic System Architecture

It will use a web design pattern; it is MVC (Model View Controller).



The model is in charge of data management and makes queries to the data source either a database or a data file. Only the driver can interact with the model and through a function that will return or take data but it cannot change the model performance.

The view presents the information on the screen, it is the web design. It can only communicate with the controller and display the data sent by it, so it can display on the web. The controller is in charge of sending

queries to the model and receiving data, process the result if it is necessary and send the response to the view to display on-screen.

## **6. DEVELOPMENT PROJECT**

This Software Development Plan is a version to be included in the proposal made in response to thesis development project to be implemented in the enterprise Vasquin Ltd. Co. This document provides an overview of the approach related with the proposed development.

The project has been offered by Carlos Manuel Solano Morán based on Rational Unified Process methodology where it only proceeds to fulfill the first three stages marked by the methodology, being in the third phase for just two iterations. It is important to highlight it because it will use the RUP terminology in this document. It will include the detail for Home and Preparation phases and additionally it will outline the Construction and Transition to give an overview of the entire process.

### **6.1 Purpose**

The purpose of the Software Development Plan is to provide the necessary information to control the project. It describes the software development approach.

The users of the Software Development Plan are:

- The project manager uses it to set the list of items and resource requirements, and for monitoring.
- The development team members use it to understand what to do, when to do it and what other activities depend on it.

### **6.2. Inception phase**

This document defines the vision of the project from a customer perspective, identifying the needs and characteristics of the project. It constitutes a base according to the system requirements.

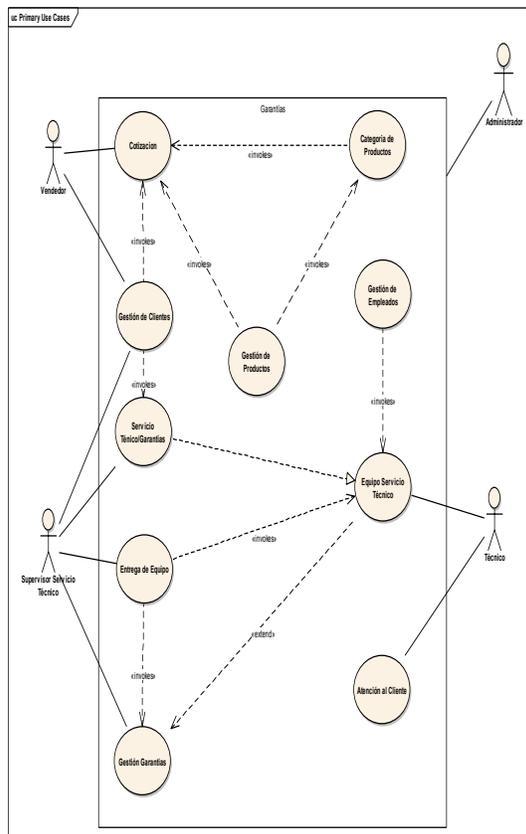
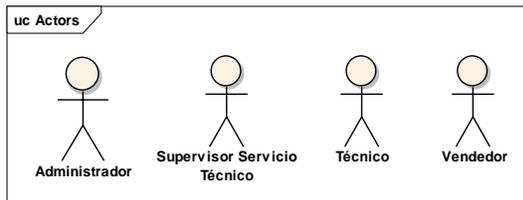
Within the needs to adequately satisfy the customer needs with quality products and good prices, they must also be focused on quick and timely service by an automated system to give immediate response to their needs.

This approach leads to the business strategy focused on the customer, and establish requirements and processes based on information systems in the area of sales (contacts, documents-market rates, records, tasks) and in the attention area in the Technical Support (receipts, expenses, monitoring, guarantees).

### 6.3 Development Phase

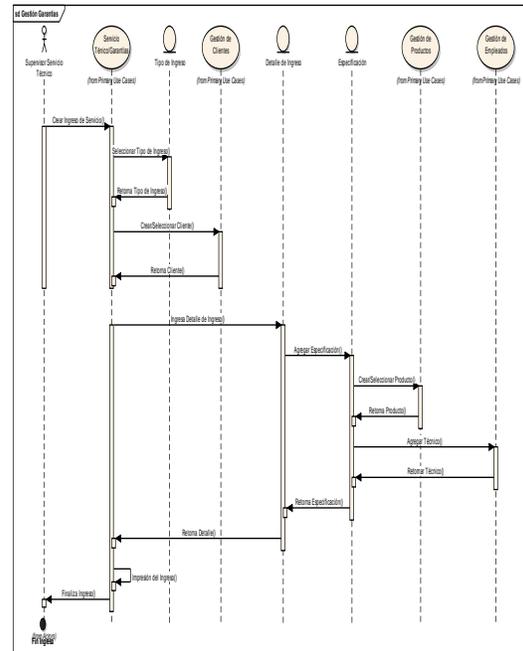
The development phase is responsible for providing the technical solution of the project. At this stage the main objective is to develop the requirements in terms of design and identify use cases for defining the initial system architecture to develop.

A diagram of the main actors who interact with the developed system is presented. They will have access to the different modules through user roles.



### 6.4 Construction Phase

In this phase all use cases are completed, as well as analysis and design, polishing the Analysis / Design Model. Activity diagrams for use cases outlined in the development phase are made.



### 6.5 Transition Phase

#### 6.5.1 Implementation of the application

In the implementation of the application the installation and configuration of the following tools are required.

- Installing and configuring Apache Web server PHP 2.4 included 5.4.
- Installation and configuration of MySQL 5.5 database.

#### 6.5.2 Use Cases

- Test case: create new employee.

- Test case: create new user.
- Test case: create a new product category.
- Test case: create new product.
- Test case: create new customer.
- Test case: generate market rates.
- Test case: create new provider.
- Test case: managing receipts.
- Test case: managing guarantees.
- Test case: managing exits.

## 7. CONCLUSIONS

- The software is implemented in the enterprise Vasquin Ltd. Co., performing all the necessary tests, thus optimizing time, human resources and financial resources.
- The paperwork generated in the development process is very important for obtaining product which serves for future maintenance of the software.
- The software developed is highly useful in automating processes in the Department of Technical Service and Sales Department (market trades) in Vasquin Ltd. Co.

## 8. RECOMMENDATIONS

- In the implementation of software development it is recommended to use open source tools, depending on the requirements demanded by the software.
- It is recommended before starting any software project, to carry out a plan of requirements for normal development of the application.
- It is recommended to keep all software development processes in order for the normal performance for the proposed objectives.
- The development of a software project it is recommended to use the MVC design pattern, which helps in an orderly implementation of the application.
- It is recommended to train to all actors who take part in the use of the developed system.

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