

“Management system and Access to the Catering service of the San Vicente de Paúl Hospital in Ibarra”

Miguel ORQUERA¹, María CASA²

¹Faculty of Engineering. In Applied sciences, Univ. Técnica del Norte, Av. 17 de Julio 5-21, Ibarra, Imbabura
Systems Engineering Career, Técnica del Norte University, Av. 17 de Julio 5-21, Ibarra, Imbabura

Imorquera@utn.edu.ec, mabelec_10@yahoo.es

Summary. *The Catering of the Hospital San Vicente de Paul is the service of institutional feeding that provides a certain amount of food to the administrative staff. The Computer System of Control of Catering allows you to have a control of employees through their shifts and restricts access to only once per meal (Breakfast, lunch and dinner), through the issuance of tickets. It allows for the parameters of all the elements necessary of the control of the catering service. It displays statistical information by month, day of the week, food, dining room, department, and area. For taking management decisions.*

Keywords

Catering, web application

1. Introduction

There are currently no adequate control at the time of organizing time for the supply of personnel working at the Hospital San Vicente de Paul of Ibarra. Why cannot be adequately distribute the amount of food to serve to the staff, or if a staff member is repeating not the breakfast, lunch or dinner according to the shift in which this is working; added to this is the need to make projections and the respective schedules on the information of the staff at the time of leaving for lunch and an adequate emission of some sort of proof to support it. Within this project developed for the

Hospital of San Vicente of Paul Ibarra there are modules: controls and parameterize the times of the issuance of food vouchers, generates a code to format established for each ticket to be issued, it generates the format for the printing of the ticket and emits reports according to filters that were entered by the user to help achieve these goals, which are aligned to the policies of the institution by the state. The project allows you to control and access of the issuance of tickets, it generates a code according to established format for each ticket to be issued, generate the format for the printing of the ticket and emits reports according to filters were entered by the user and user management. It is so that the institution will have a computer tool of latest technology to facilitate these tasks on the control and access to the service of Catering Hospital San Vicente de Paul de Ibarra. Will also be a tool for staff assigned in the handling of personal information for better control of the hours in which they make use of their food service.

2. Materials and Methods.

In this project it focuses on the development and implementation of computer application institutional to solve the problems of management and access to the service of Catering Hospital San Vicente de Paul de Ibarra.

2.1. Materials.

The tools used are the following:

Tabla 1: Development Tools

Tool	Description
PostgresSQL	Database Manager used for the management and use of the system
SQL Server Express	Database Manager that uses the Human Resource System HSVP
Apache HTTP	Server web where it is hosted the application
Visual Studio 2010	Engine of development of the connector between the biometric clock, the printer and the system of human resources
NetBeans 8.0	Engine for development in the web application

Source: Own

2.2. Methodology

The project is based on the methodology RUP. It will include the detail for the start up phases and Development and additionally delineating the later phases of construction and transition to give an overall view of the entire process.

DESCRIPTION OF THE PROBLEM

At the Hospital San Vicente de Paul are working 751 civil servants, the space where they receive food only has the capacity of 48 people. Due to the fact that there is currently no adequate control for the personnel working at the Hospital San Vicente de Paul Ibarra at the time of issue some type of proof with the appropriate time according to their shift so that they can make use of the

food service that provides the hospital in addition the need to make projections and the respective schedules on the information of the staff at the time of leaving for lunch and an adequate emission of some sort of proof to support it. It has been necessary to perform a module integrated into the biometric system to support the hospital staff to issue a ticket of power with which will be controlled the time of departure and the use of the food service that is provided in the hospital. It will also be a tool for staff assigned in the handling of personal information for better control of the hours in which they make use of your food service, in addition it will help with the analysis of statistical data in a graphic and understandable way to perform its duties in a very agile way reducing the time of the tables elaborations, shows, and projections over the handled data and you can take over a better control of the leaving hour and a better planning when you give turns for lunch time

OBJECTIVES

GENERAL OBJETIVE

Create a management system and access to the service of Catering Hospital San Vicente de Paul Ibarra, using the information it gathers the biometric control existing in the institution and through the use of programming tools of free software.

SPECIFIC OBJETIVES

1. Define the requirements of software and integration system to the biometric reader of the solutions settled.
2. Perform the architectural design, data, interface, and detailed solution.
3. Build the solution in a computer language.
4. Perform unit testing, modular and

system of the Software created.
5. Deploy the application built on the technology platform of the Hospital San Vicente de Paul.

RATIONALE

There are currently no adequate control at the time of organizing time for the supply of personnel working in the hospital. Why cannot be adequately distribute the amount of food to serve the staff or if an official or civil servant is repeating or not the breakfast, lunch or dinner according to the shift in which this is working. With the approval and support of Ing. Leader of the Unit of ICT's of the area of Computer Science of this institution, to perform the management system and access to the service of Catering for the personnel that work in this institution, the same that will provide support for a better functioning in that area, and a good attention to the officials and staff member. With the development and integration of the system it seeks to control the process of issuing tickets of feeding through this software tool. With the result of the implementation of this tool and additionally with the staffing reports to facilitate statistical graphs to allow a better control of the time for feeding the staff in this way it will increase the efficiency in the organization of the time of feeding in different shifts and it will also help to the proper planning for the acquisition of the inputs for the preparation of the menu to serve.

PLAN FOR THE DEVELOPMENT OF SOFTWARE

GENERAL VIEW OF THE PROJECT

San Vicente de Paul Hospital being an entity of a public nature has as mission to govern, manage, monitor and control with quality, human, financial, material

and technological resources, to optimize patient care and the services that offers for the benefit of users, within the framework of ethics and transparency. As part of the benefit it provides to users, it is deemed necessary, in the dining area of the San Vicente de Paul Hospital of canton Ibarra, the implementation of a management system and access to the service of Catering. Based on a plan to automate the process encouraged by the Information Technology Unit of the San Vicente de Paul Hospital and the reengineering of processes carried out into the dining area are determined the creation of the Management System and access to the service of Catering, for the proper management of this service. On the basis of the information gathered from the various meetings with the stakeholders they identified the main activities, which are detailed below by separating the part that interacts with users (front-end) and the part where it resolves the requests of users (back-end):

FRONT-END:

It is the part of the software that interacts with it and users.

To Check and parameterize times: It controls and parameterize the times of the issuance of food vouchers.

B. Generate a code: it generates a code to format established for each ticket to be issued.

C. Generate a Format: it generates the format for the printing of the ticket.

D. Reports: Result of the combination of search criteria.

E. User Management: it creates and manages users.

BACK-END:

It is the part that processes the input from the front-end.

ROLES AND RESPONSIBILITIES

a. Reports: Result of the combination of search criteria.

Table 2: Roles and Responsibilities

ORGANIZATION OF THE PROJECT PARTICIPANTS IN THE PROJECT

For the moment it is not included the staff to appoint responsible for the project, Committee control and monitoring, other participants that are deemed appropriate to provide the requirements and validate the system.

The rest of the staff of the project considering the start up phases, preparation and two iterations of the construction phase, will consist of the following jobs and associated personnel:

1. Project leader: With an experience in development methodologies, CASE tools and notations, in particular the UML notation and the development process RUP.
2. Systems Analyst: The profile set is: Computer Science Engineer with knowledge of UML, one of them at least with experience in related systems to the project line.
3. Analysts - Programmers: with expertise in the development environment of the project, so that the prototypes can be as closely as possible to the final product. This work has been entrusted to Maria Belen Casa Defaz.
4. Software Engineer: The profile set is: an Engineer in Computer Science that will participate by performing management tasks on requirements, configuration management, documentation and data design. Responsible for the functional testing of the system, will be the work of Tester.

PROJECT	RESPONSIBILITY
Project Manager	The project manager assigns the resources, manages the priorities, coordinates the interactions with customers and users, and maintains the project team focused on the objectives. The project manager also provides a set of practices that ensure the integrity and quality of project artifacts. In addition, the project manager will be responsible for overseeing the establishment of the architecture of the system. Risk Management. Project planning and control.
Systems Analyst	Scan, specification and validation of requirements, interacting with the client and users through interviews. Elaboration of the model for the Analysis and Design. Collaboration in the development of the functional tests and the data model.
Programmer	Construction of prototypes. Collaboration in the development of the functional tests, data model

	and in the validations with the user.
Software Engineer	Management requirements, configuration and change management, preparation of the data model, preparation of the functional tests, preparation of the documentation. Develop models for implementation and deployment.

Source: Own

PROJECT TIMETABLE

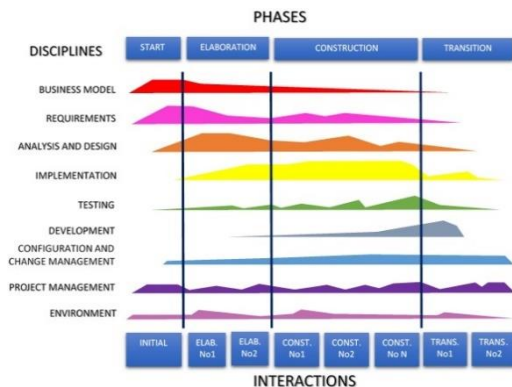


Illustration 1: Project timetable
Source: Own

VISION

BUSINESS OPPORTUNITY

This system will allow the institution automate the management and access to the service of catering, which will be a quick and easy access to the data, thanks to graphical interfaces and friendly. In addition, the accessed data are always up to date, which is a very important factor in order to obtain the information in real time and to be able to carry a centralized control of the hours

in which they make use of your food service. The system also allows you to access their profits through the Web, quickly and easily, without the need for intermediaries.

DEFINITION OF THE PROBLEM

Table 3: Definition of the problem

The problem of	The San Vicente de Paúl hospital of Canton Ibarra, does not have a system that perform efficiently management processes and access to food service. Working 751 civil servants, the space where they receive food only has the capacity of 48 people. Currently, there is not a proper control for the personnel working at the San Vicente de Paul Hospital in Ibarra at the time of emit some sort of proof to the time your turn so that they can make use of the food service. In addition there is a need for projections and the respective schedules on the information of the staff at the time of leaving for lunch and an adequate emission of some sort of proof to support it.
It is affecting	That affects to users who are involved with the management processes and access to the service of Catering.
The impact of this is	There are many officials who cannot make use of the food

	service that provides the hospital. The inefficiencies of process distract their staff from the true role of make productive use of the information
A successful solution should	Perform a module integrated into the biometric system to support the hospital staff to issue a ticket of power with which will be controlled the time of departure and the use of the food service that is provided in the hospital. It will also be a tool for staff assigned in the handling of personal information for better control of the hours in which they make use of your food service.

- ✓ Unique Identifier (ID)
 - ✓ Description
 - ✓ Impact List
 - ✓ List of Indicators
 - ✓ Magnitude of the Risk
 - ✓ Mitigation Strategy
- Contingency Plan if it is the case

The points local mentioned above will be studied for each of the identified risks in this preliminary stage of analysis; however it should be noted that before the emergence of a new risk, this document will be updated with the respective identification and description of the same.

RISKS

CHANGE OF ADVISER TECHNICIAN (R 01)

Magnitude of risk or "Ranking": Catastrophic.

Description: Change the Technical Adviser (Ing. Juan Carlos Weapons) in any phase of the project by any kind of reason.

Impacts: Delay in the Schedule of activities of the project, change in scope of the project.

Mitigation Strategy: To mitigate the impact that brings this foreign exchange risk of Technical Consultant, has planned to have the advice internal of the teacher as researcher of plant, Lic Ramiro Pomasqui who is well-versed on the scope of the project and you can advise us while allocates new adviser. Contingency Plan It looks for a new consultant technical expert on the subject in the shortest possible time.

Source: Own

PRODUCT PERSPECTIVE

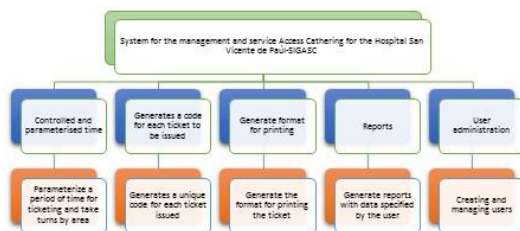


Illustration 1: Overview of the product
Source: Own

LIST OF RISKS

GENERAL SERVICE

This document contains a listing of the risks that they might be found during the development and execution of the project, which may identify the following features:

CHANGE OF ADVISER METHODOLOGICAL (R 02)

Magnitude of risk or "Ranking": Critical
Description: The change of Adviser Methodological (Ing. Hans Lopez and Dr. Ines Garzón Forero) in any phase of the project.

Impacts: Delay in the schedule, change of methodology

Mitigation Strategy: In case of submission of the case of a change of methodological adviser, it is planned to have the advice internal teacher plant, Ing. Miguel Orquera de, who, thanks to his academic training he could provide excellent counsel or in his absence the one who assigns the faculty as responsible.

Contingency Plan: While is assigned the new Consultant methodological could count with methodological advisory assistance of Ms. Marta Helena Martinez.

LOSS OF DOCUMENTATION AND DEPLOYMENT (R 03)

Magnitude of Risk: Medium
Description: The physical damage and/or loss of the hard disk, repository on which you are saving all the relevant information with the preliminary draft
Impacts: Delay in the Schedule, loss of work

Mitigation Strategy: backup recovery saved in email and/or that is currently in the repository of google called businessCase

<http://businesscase.googlecode.com/svn/trunk/arivadeneira/>

Contingency Plan: Copy of saved on another computer and emailed every time you perform an important step forward.

STEADY GROWTH IN THE SCOPE OF THE PROJECT (R 04)

Magnitude of Risk: Catastrophic
Description: not having a clear definition and exactly about what you want to do with this project, which can lead to growth of the scope of the project and the expectations of the stakeholder.
Impacts: Delay in the Schedule, loss of performed work, possible cancellation of the project

Mitigation Strategy: It is prior a record signing act where the specification of the scope of the project is, besides where you specify the closure of the

objectives.

Contingency Plan: Division of the project in phases

Delivery times (R 05)

Magnitude of Risk: Critical
Description: The non-compliance with deliveries in the dates set out in the schedule of work by the responsible of the project both in the period of seminary and on graduation, because the activities are too many and in some cases dependent on each other.
Impacts: Delay in the Schedule, possible cancellation of the project
Mitigation Strategy: Project Management

Contingency Plan: advancement of deliveries in any stage of development in a week to avoid setbacks and have the closed documents before the closing dates for delivery.

COMPLEXITY OF THE TOPICS OF THE PROJECT (R 06)

Magnitude of Risk: Critical
Description: The address an issue in a principle unknown (mathematical modeling), which brings with it a long period of learning. On the other hand the thematic core of the project have been central theme of Doctorates (mathematical modeling)

Impacts: Delay in the Schedule
Mitigation Strategy: Before a demonstration very clear risk search accompaniment of an expert in modeling or expert in the business according to the critical case presented, delimit the scope of the project

Contingency Plan: Request accompaniment of one of the stakeholder.

2. Conclusions

1. In conclusion we can say that both the general objective of the specific objectives have been achieved considering external constraints and scope raised, this is due to the fact that the system follow SC is a system that allows for the identification of a person through his fingerprint, which applies a

method of biometric recognition implemented in programming code.

2. With the help of the ICT staff's hospital he managed to make the lifting, the requirements of the system integration to the biometric reader of the settled solutions.
3. The architectural design, data, interface, and detailed solution through the ICT staff's of the hospital and with the help of my advisor.
4. It was built the solution in language computer, integrating multiple technologies.
5. With the help of the ICT staff's hospital, is made the unit tests, modular and System Software created.
6. The implementation of this tool allowed a better control of the time for feeding the staff in this way it increases efficiency in the organization of the time for feeding the different shifts to help proper planning for the acquisition of the inputs for the preparation of the menu to serve.

3. Recommendations

1. Increased emphasis should be placed on the development of systems for the identification of better quality and this would be achieved with the support of institutions or technology since by bringing optimize and reduce times, could be applied in various areas in need and that are little or nothing served as the professional systems for comparison of fingerprints have a high cost of acquisition and do not present any major information and access to sources codes to engage or customize applications.

2. The choice of a biometric device depends largely on the type of application that you want to implement and the organization or institution that you want to deployment.

3. It is recommended to support research of this type of technologies recently arrived in the country in such a way as to encourage the students' research.

Bibliographies References

- Alicia, D. (2014). *Diseño de Software*. Lexington, KYUSA.
- Avella Ibáñez, C. P., & Gómez Estupiñan, J. F. (2011). *Aplicación de Inspecciones y Pruebas de Software*. Santiago de Tunja: Universidad de Boyacá.
- Carlos, F. (2011). *UML: Modelado de Software para profesionales*. Buenos Aires, Argentina: Alfaomega.
- Christian, C. (2012). *PHP programación web avanzada para profesioanles*. Alfaomega.
- Cortez, E. (2013). *Transacciones en PostgreSQL (en línea)*. Obtenido de Transacciones en PostgreSQL (en línea): <http://eacortez.blogspot.com/2013/01/transacciones-en-postgresql.html>
- De la Cruz, J. (2006). *PHP Y MySQL*. Lima: Megabyte.
- Eclipse. (10 de Septiembre de 2009). *Eclipse Graphical Modeling Framework (GMF)*. Obtenido de Eclipse Graphical Modeling Framework (GMF): <http://www.eclipse.org/modeling/gmf>
- Eclipse. (10 de Septiembre de 2009). *Eclipse Modeling Framework Project (EMF)*. Obtenido de Eclipse Modeling Framework Project (EMF): <http://www.eclipse.org/modeling/emf/>
- Eguiluz. (2013). *Introducción a JavaScript (en línea)*. . Obtenido de Introducción a JavaScript (en línea): <http://librosweb.es/javascript/>
- Eloi. (2004). *Curso de Php (en línea): Sesiones PHP*. Obtenido de Curso de Php (en línea): Sesiones PHP: <http://www.programacionweb.net/articulos/articulo/?num=377>
- Firman Maximiliano; NAtale Leonardo. (2010). *Visual Studio: Net Framework 3.5 para profesionales*. Buenos Aires, Argentina: Alfaomega.

- Francisco, S. (2013). *Aprenda SQL Server 2012*. Col. del Valle México: Alfaomega.
- García Rubio Feliz; García Molina Jesús; Pelechano Vicente; Vallecillo Antonio. (2014). *Desarrollo de Software dirigido por modelos: Conceptos Metodos y Herramientas*.
- IBM. (23 de Agosto de 2009). *Rational Unified Process*. Obtenido de Rational Unified Process: <http://www-01.ibm.com/software/co/rational/rup.shtml>
- IBM. (23 de Agosto de 2009). *Rational Unified Process*. Obtenido de Rational Unified Process: <http://www-01.ibm.com/software/co/rational/rup.shtml>
- Lockhart, T. (1996). *Manual de Usuario de PostgreSQL (en línea)*. . Obtenido de Manual de Usuario de PostgreSQL (en línea). : <https://forja.rediris.es/docman/view.php/312/454/>
- Mistry Ross; Mister Starcia. (2012). *Introducing Microsoft SQL Server 2012*. Washington: Microsoft.
- Olson, P. (2013). *Manual de Php (en línea)*. . Obtenido de Manual de Php (en línea). : <http://php.net/manual/es/index.php>
- Patrick, T. (2010). *Programación con Visual Basic 2008*. Santa Fe, Mexico: O'Reilly.
- Prieto, V. (2013). *Planteando un problema de Investigación (en línea)*. Obtenido de Planteando un problema de Investigación (en línea): <http://es.scribd.com/doc/22105793/PLANTEANDO-UN-PROBLEMA-DE-INVESTIGACION>
- Ralfm. (2007). *Introducción a PostgreSQL: Configuración (En línea)*. Obtenido de Introducción a PostgreSQL: Configuración (En línea). : <http://www.linux-es.org/node/660>

About the Authors:



Miguel Orquera was born in the city of Ibarra - Imbabura on 15 July 1957. He completed his higher studies in the College National Polytechnic, obtaining the degree of Civil Engineer with specialization in structures, as well as Diploma in Marketing Management in the Uniandes, Specialist in Project Management in the Uniandes and Master in Computer Science and Informatics at the National Polytechnic School. In the Faculty of Engineering in Applied Sciences.



María Belén Casa was born in the city of Ibarra - Imbabura on 10 August 1986, made his primary studies in the School "La Salle", their National secondary school "Ibarra", in the specialty of physico-mathematical. her upper studies conducted at the Technical University of the North, Faculty of Engineering in Applied Sciences, School of Engineering in Computer Systems.