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TEMA:

"AUTOMATION NEONATOLOGY AREA FOR THE MANAGEMENT OF MEDICINES, SUPPLIES, MATERIALS AND EQUIPMENT IN SAN VICENTE DE PAUL HOSPITAL"

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Automation Neonatology Area for the Management of Medicines, Supplies, Materials and Equipment in San Vicente de Paul Hospital

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SUMMARY: Automation Area Neonatology for the Management of Medicines, Supplies, Materials and Equipment in San Vicente de Paul Hospital through the Design and Implementing Web Application "SIGEMIME" (Management System of Medicines, Supplies, Materials and Equipment) using tools like PHP 5.4 with PostgreSQL 9.4 as database system, also used as a framework to symfony 1.4 and bootstrap as framework design and also Jquery to optimize programming. The application is able to enter, register, manage, inventory, and manage everything that involves materials, supplies, equipment within the area of infants, it also allows the user to verify reports of inventory and availability, this will help in this unit better manage the processes of entry and exit of all items available for the area. Keywords: Automation, Management, Implementation, Neonatology.

1. INTRODUCTION

In the San Vicente de Paul Hospital in the unit of neonatology, the care of infants is performed by obsolete and outdated processes so that information is quite vulnerable because registration of medicines, supplies, materials and equipment used and occupied are recorded in a role that is susceptible to loss or damage of the information contained therein.

It is also very important to the management of species such as medicines, supplies, materials, and equipment for the correct storage, delivery and output the same. It should also consider drug treatment within this unit, since apart from considering the expiration date must pay attention to the maximum and minimum stock of certain medicines or supplies that are sensitive use.

Is so the SIGEMIME application automates this process within this area, which should not only consider the input and output of the item, but also control who did it, and at what time.

With this we get several things such as: improving care, increase control and flow of drugs, materials and supplies, obtain reports of stocks when required and necessary and so is support for decision-making within this unit.

2. OBJECTIVES

2.1. General

Make an application that enables the automation of process management medicines, supplies, materials and equipment with which has the area of neonatology.

2.2. Specific

• Perform computer analysis of the current situation in the area of neonatology.

• Develop analysis tools and requirements to be used for the management and development of the application.

• Develop a software application that allows control automation medicines, supplies, materials and equipment, using the RUP methodology, PHP and Symfony framework.

• review the operation and perform an impact analysis.

• To help improve care in the area of neonatology, reducing clearance times of drugs, supplies, materials and equipment.

3. RATIONALE

The San Vicente de Paul Hospital and in particular the neonatology unit benefits from automation by developing this web application because it will allow you to improve care and in turn generate achieve control, safety and reduce response times.

Using free software tools is made, and are robust in order to obtain management information quickly and accurately reliable this results in the flow of patient care greatly improve.

Since we are using free software tools based architecture Model View Controller (MVC), we obtain an application that is formed into layers and we can integrate several modules in one application.

In view of this development of this project it provides important benefits such as:

• resources.- savings by optimizing processes

• Savings in costos.- as we can do without paper.

• Assistance for decision-making.

• Have reports instantly, which benefits when it is observed that products are about to expire.

4. SCOPE

This project develops the following modules:

- Drug Module

This module entry and exit management of medicines will be developed by the barcode.

- Input Module

Likewise in this management module inputs it will be developed as: alcohol, gauzes, injections, etc.

- Module Materials

Here you handle what are the materials such as scalpels, bathrobes, test tubes.

- Module Equipment

microscopes, thermal cribs, computers, oxygen machine, etc. Here all teams are there in the area of neonatology like be managed

- Module Security and user management

In this module how to control access and roles that each user will have to be developed each module.

- Audit Module

This module is responsible for an audit to be recorded for a log and any action to control selecting audit sensitive fields.

5. MANAGEMENT SYSTEM MEDICINES, SUPPLIES, MATERIALS AND EQUIPMENT

SIGEMIME (Management System of Medicines, Supplies, Materials and Equipment), allows automation of records, orders, orders, requests and loans, all that is available in the neonatology unit also allows for reports of stocks, and also equipment and materials are available for loan at any time.

5.1. Architecture

Next we will detail the perspective of application architecture defining it in multiple views, thus showing the main characteristics.

The application is developed under the model MVC model view controller and client server n-tier architecture**.**
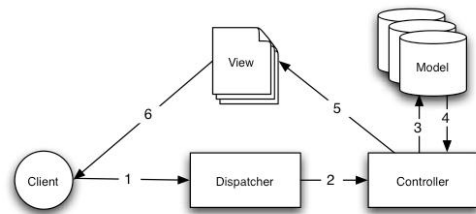
6. Framework Symfony

Symfony is a framework developed in PHP 5.3, and is based on the architecture Model - View - Controller (MVC), which separates the business logic, the logic of the server and the presentation of the web application.
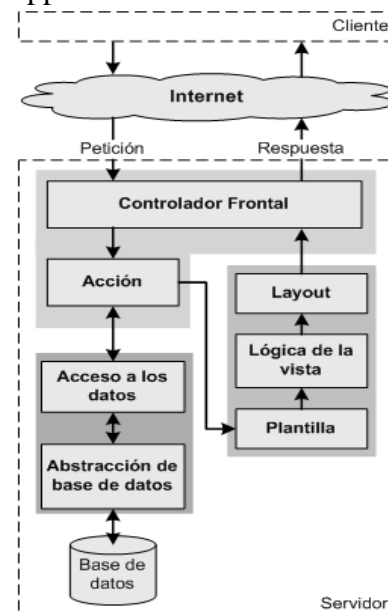
7. DEVELOPMENT PROJECT

7.1. PHASE HOME

7.1.1. Business Vision

The purpose of this work is to define the detailed requirements of management system drugs, supplies, materials and equipment neonatology (SIGEMIME).

The system will automate the process of entry and exit of medicines and supplies and also the lending process and allocation of materials and equipment that is done daily in the area of neonatology at San Vicente de Paul Hospital (HSVP).

Within this control users who are involved in the management of medicines, supplies, materials and equipment will be handled. It will also be very important to the proper handling of medicines and supplies at high risk of expiration. While the software will perform in some medicines and supplies, the maximum and minimum margin that should have to be careful to avoid running out of stock or with leftovers.

7.2. Processing Step

In this phase the requirements are analyzed and a prototype architecture including the most important and critical parts of the system develops. Analysis / design of the main use cases by specifying a description, the basic flow of events, preconditions and postconditions as well | as its realization preliminary model Analysis / Design, also allow a general review of the artifacts made to this point and adjusted, if necessary, to

ensure the fulfillment of the objectives.
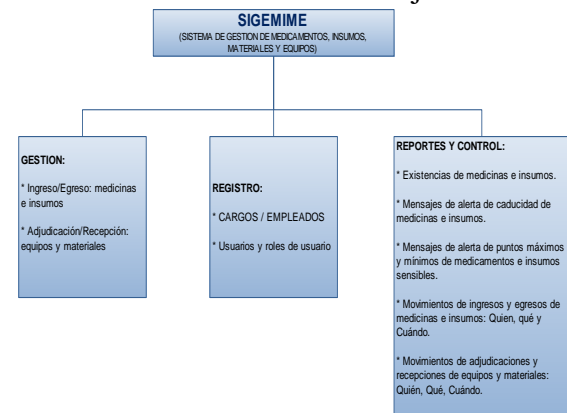
Next we will detail the use case diagram, in order to show the functions of the application from the point of view of their interactions with the outside, ie it will be used to structure the behavioral aspects of a model.

In this phase the requirements are analyzed and a prototype architecture including the most important and critical parts of the system develops. Analysis / design of the main use cases by specifying a description, the basic flow of events, preconditions and postconditions as well | as its realization preliminary model Analysis / Design, also allow a general review of the artifacts made to this point and adjusted, if necessary, to ensure the fulfillment of the objectives. Review and acceptance of prototype system architecture marks the end of this phase.
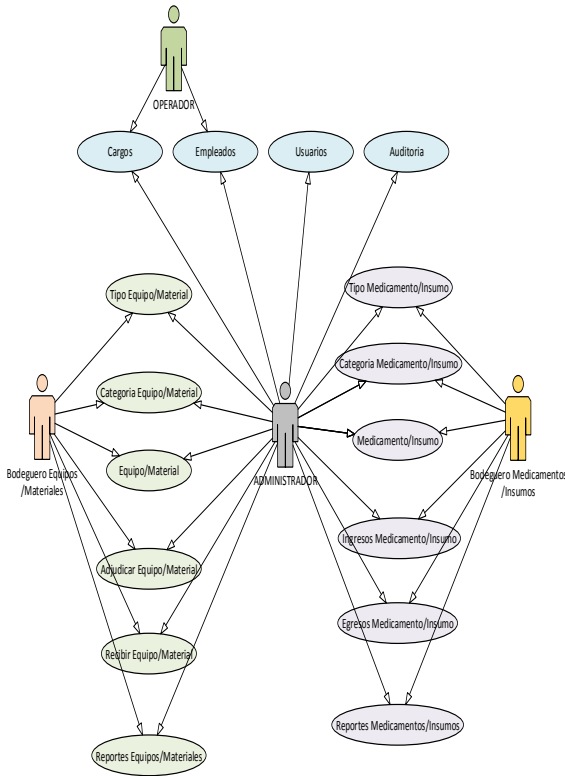
7.3. CONSTRUCTION PHASE

Activity diagrams is made for
uses each case developed in the phase
Elaboration.

At this stage the analysis and design of all
culminates use cases, refining the Model
Analysis and Design.

The milestone marks the completion of this
phase is version 1.0 of the product, with a
partial operational capacity has been
considered critical, ready to be delivered to
users to perform beta testing.
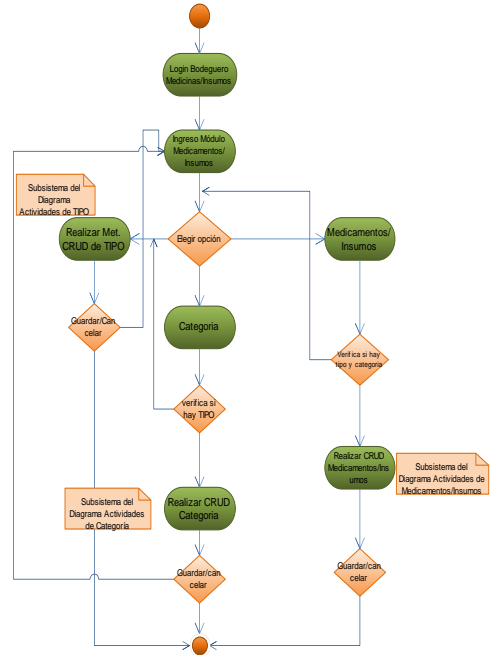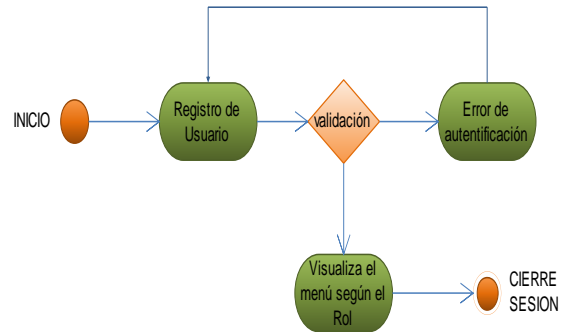
7.4. TRANSITION PHASE

Here the final version for publication and
accommodation will be prepared on a
server, ensuring implementation properly,
including user training.

The milestone that marks the end of this
phase includes the delivery of all project
documentation and other material support to
the user.

The aim at this stage is to deploy the
possible scenarios or possible operational
environments of the necessary system tests
in order to verify the correct operation,

deployment, load data and transactions necessary that the application must support.

7.4.1. Functional testing

Componente		Registrar Usuario		Requisito		REF01	
Autor		César Antonio Valenzuela Delgado		Revisado por		Ing. Xavier Rea	
O R D	FECHA	Razón de desarrollo o cambio		RUTA		PROYE CTO SIGEM IME	V E R
1	04/11/2014	Versión inicial del proyecto	S	C:/www/		Acceso usuari o	1 . 0
2	07/11/2014	Creación tablas en la BDD	S	C:/www/		BD_ne onatol ogia	1 . 0
3	09/11/2014	Definición de roles en la estructura de la BDD	S	C:/www/		BD_ne onatol ogia	1 . 0
4	11/11/2014	Pruebas funcionales	S	http://192.168. 10.100/neonat ologia/web/ind ex.php/ingreso /new		SIGEM IME	1 . 0

7.4.2. Testing Interface

Objective:	Good navigability between the test objects that can be displayed good functionality of it. The different components of the forms buttons, icons, filters should be standardized according to requirements form
Test Description::	Verify interfaces according to the action or request is made, and that the deployment of the required information is achieved.
Techniques:	The users who manage the running application processes and requests that send commands to the system to check the operation.
Completenes s criteria	a trial period in which the errors presented are not classified as critical errors to the application is established.
Special consideratio ns	Must establish the communication mechanism between those handling the system and developers to errors that arise, have a suitable solution.

7.4.3. System tests.

Objective:	Perform navigation and operation through the system through transactions from the interface to the BDD and vice versa processing and retrieving the required information.
Technique:	Execute each use case basic flow or function using correct and incorrect data to verify that the following: 1. The correct results occur when valid data is used. 2. Error messages or warning messages appear when a wrong or invalid data is entered. 3. Each business rule is properly applied.
Completeness criteria:	1. All tests have been performed raised 2. Any defects identified have been taken into account.
Special considerations:	Consider aspects that impact the implementation and execution of application tests.

8. CONCLUSIONS:

- The correct and clear initial collection of requirements, it is very important to produce a final product that meets the needs and expectations detected in the area.

- The tools used for application development.

- When using a framework like symfony some advantages is achieved as organization, productivity, performance and others.

9. RECOMMENDATIONS

- As in the wide world of software development there are several frameworks, the recommendation of the most suitable framework choice for any application will depend on an initial analysis of the system and the need to develop will have to meet will be taken into account.

- It is recommended to document all development d any project as this will achieve a better product considering that memory is fragile.

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