ANALYSIS, DESIGN, IMPLEMENTATION AND IMPLEMENTATION OF WEB APPLICATION FOR STOCK CONTROL OF FABRICS AND PRODUCTION ORDER OF PINTO S.A. COMPANIES

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1. PROJECT SUMMARY.

The project is to develop a system for stock control management fabrics and production orders for "Businesses Pinto SA" textile sector, with roles in the countries of Ecuador, Colombia and Peru.

Using the software development methodology based on "agile methodology" Extreme Programming (XP or eXtreme Programming). The system or Web application is developed CATEX name meaning "Textile Automation and Control."

This management company is divided into:

1) Management of coding for raw materials and finished product.

2) Managing stock control of raw materials into cloth factory.

3) Stock control management of fabrics in garment factories.

4) Management of the production of the finished garment shops.

5) Management of production orders.

6) Integration Management, administration and reporting.

1.1. Encoding management of raw materials and finished product.

The coding of the raw materials of the finished product as already defined by the company in the cost department, he moved this concept and the system code definitions, and then see the types of raw materials and finished products are handled in the efforts of the project.

Raw Material:

- Cotton.
- Hilo.
- Raw Fabric.
- Fabric finished (manufactured or dyed).
- Fabric Plana (purchase).

Finished product:

- Clothing.

1.2. Stock control management of raw materials into cloth factory.

The main function of the cloth factory SA Company Pinto located in the town of Otavalo is in charge of the production process from cotton that is going to make yarn, fabric raw and dyed into fabric, which was subsequently distributed to.

Different garment factories to manufacture clothing items. This management is responsible for controlling the stock of inventory in the warehouses of the following raw materials: cotton, yarn, fabric raw and finished fabric.

1.3. Stock control management of fabrics in garment factories.

The workshops manages inventory control of stock holds "Finished Fabric" and "purchased fabric."

The Business sweatshops Pinto SA 3 countries are present in Ecuador, Colombia and Peru located in the cities of Otavalo, Quito, Medellin, and Lima.

It should be noted that the handling of fabric stock at any similar clothing workshop is for this reason the system is developed with the flexibility to implement growth future workshops.

1.4. Production management in garment sweatshops (finished product).

The production management of garments it is done in sweatshops, also sent cuts fabric for garment known internally as maquiladora sweatshops satellites or third parties.

The most important document in this effort is the "Production Sheet," which has 2 functions, first reduce the stock of fabric shops hold the weight assigned to the garment to be made up, and the second

function is to record information processes in the manufacture of garments which are: Court Garments made, faulty garments, garments, not made, packaged garments, garments shipments 1st, 2nd garments shipped.

1.5. Management of production orders.

The management of production orders is made in the departments of Design and Finished Goods Warehouse Companies Pinto SA administrative offices located in Quito.

The process begins with the collection box of items of a collection, and some of this information is generated by the production order.

Collection.

Collections are a set of clothes that make the design department depending on seasons and market trends, so that means that a collection contains several pictures of clothes collection, Sample Collection Traditional May 2011.

Collection box.

The collection box is a template which contains all the information in the article of clothing for their production, for example: the code of the item, description, collection, image, date created, date of production, sizes, colors, type fabric, accessories, supplies, export tariff item, cost, price and more.

Production Order.

The production order is usually generated by each collection, but also can lead to complete an order previously generated, and there are also production orders that are made periodically basic pieces that are always produced in the company such as neck shirt model "Basic Polo."

To create the requested information is taken of colors and sizes of each of the tables collection of items of a collection, and builds an array of clothing by size and color, which gives them a quantity of garments produced and the workshop that is designated for that.

1.6. Administration Management Integration, and reporting.

Administrative Management involves the creation and assignment of roles to users named in the application, so that each user has access to only the displays of work necessary depending on the work are established. The administration of periods of work for each area or winery to be handled in the system, this keeps the control of the dates on which transactions are carried out for all users.

Integration Management, this is to share information about the clothing and colors, as well as transactions with other business systems.

Management Reporting, this part is very important as it is to be drawn into the system results in the creation of reports should take account of different types do much for people as well as operational reports for department heads and managers.

2. DEVELOPMENT CONTEXT.

The proposed fabric stock control and production orders for "Businesses Pinto SA", with the application CATEX (Textile Automation and Control) has been developed in the context of development of the thesis for obtaining the title of Systems Engineering North Technical University (NTU) in the Engineering Faculty of Applied Sciences (FICA).

The implementation of the project was completely done on the premises of the Companies Pinto SA with all the support, knowledge and consent of the managers and headquarters, especially the Production Manager Carlos Mancheno, the sales manager Carla Pinto, Chief Engineer Production Manager Jenny Aguirre and Chief Engineer Systems Manager Alejandro Soto.

For the gathering of information and structuring issues were the key pieces Engineer Production Manager Jenny Aguirre, the manager of the factory management fabrics Mr. Paul Proaño Otavalo, and inventory accounting charge fabrics Quito workshop Mr. Edgar Vasquez, as well as all the users own processes.

2.1. Project.

The Stock Control Project and Fabric Production Orders with your application CATEX (Textile Automation and Control) is as explained above is used to Ecuador, Colombia and Peru, mainly in Quito, Otavalo, Medellin, and Lima, note that All these sites are on an Intranet.

For this reason we evaluated the best option that suits the conditions and that is also open to project future growth, and remained under the system via the Web, and for this alone it can be accessed from a controlled network by the company and not to expose to the internet so much information it publishes and takes advantage of the scheme intranet network.

The physical structure of the servants of the project is shown in the figure below:
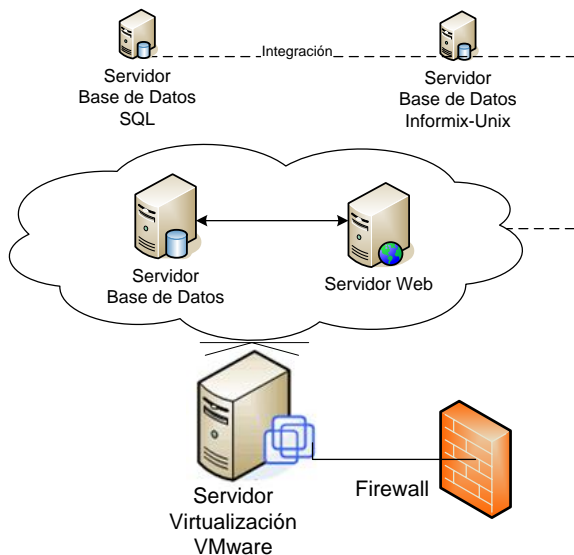

Figure 1 Physical structure of the project servers.
Ref: Property of the author

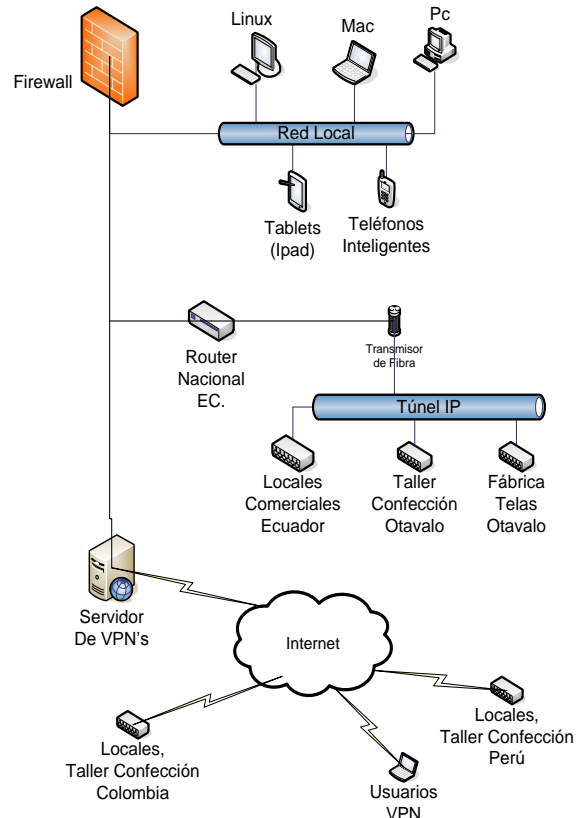The physical structure of project clients shown in the figure below:

Figure 2 Physical Structure of Members of the project.
Ref: Property of the author's thesis

Already taken the decision to make a Web application, you should evaluate programming languages, database and tools to be used according to circumstances and needs of the project.

The programming language was chosen JSP base, combined with AJAX libraries, JAVA SCRIPT, and the Hypertext Markup Language HTML, JSP was chosen platform for its versatility, performance and follow a standard as there is some small developments in this language the company.

The database engine was chosen Informix Dynamic Server version 10, first because of its potential, by experience in the tool

through licensing and other business you have with the product.

The design tools, programming and modeling are the following:

HERRAMIENTA	OBJETIVO	LICENCIA
Sybase Power Designer 12.5	Modeling Data Base.	Version evaluation 60 days.
Informix Dynamic Server 10.	Database Engine of data.	License Enterprise.
Dreamweaver CS3	Design Web Pages.	License Enterprise.
Netbeans 6.9.	Programming JSP,Ajax, Java Scrpit.	Open Source.
GlassFish 3.0.1	Web Server.	Open Source.

Table 1 Software tools used in the project.

Considering the XP methodology shows the Project Management section shows the temporal development planning of the project in its initial phase as the evolution that followed during the different iterations.

At each stage (early stage and iterations) shows the stories that were initially planned for the development phase of the project and those that were made. It also indicates the various incidents that occurred in each iteration.

Then include a day of activity extracted from different development team to help you see how time is allocated in each iteration.

In the Implementation section are contained different sections on application development.

One of the key points is that of the database, which describes the data model at the end of application development (as were many and required a restructuring of the code of the different stories given the established relationship of the base data with the application code) also takes place in an explanation of the role of different parts of the application.

Also shown are the different user interface prototypes were developed with the approval of the client, not shown here captures the final application, as some prototypes to be changed slightly.

As Attached is the application source code, design and a comprehensive database to support and complement this stage of the project.

Finally, in section tests can be found Word documents functional testing of the application.

In these documents, which are separated by each user story, you specify the mode of application usage and possible error conditions that may occur and warning

messages / error / confirmation that the application should issue in these cases.

3. DEVELOPMENT METHODOLOGIES. AGILE XP.

Extreme Programming by Kent Beck comes designed as software creation process different from the conventional. In Beck's words: "XP is a lightweight methodology, efficient, low risk, flexible, predictable and fun to develop software."

3.1. XP Objectives.

XP objectives are simple: customer satisfaction. This methodology is to give the customer the software they need and when you need it. We must therefore respond very quickly to customer needs, even when changes are at the end of the programming cycle.

The second objective is to maximize teamwork. Both project managers, customers and developers are part of the team and are involved in software development.

3.2. Bases of XP.

Extreme programming is based on simplicity, communication and continuous recycling of code, some no more than apply a pure logic. What they seek is ultimately reduced costs.

3.3. XP values.

One of the things that we developers have to be very clear is that in the development

life cycle of a software project changes will appear,

change the requirements, business rules, personnel, technology, everything will change. So the problem is not the change itself, since this will happen, but the inability to cope with these changes.

As in any human activity other values need to develop our work and get the initial proposals.

These four values are:

- Communication.
- Simplicity.
- Feedback.
- Courage.

3.4. Variables XP.

XP defines four variables for software projects:

- Cost.
- Time.
- Quality.
- Scope.

3.5. Essential features of XP.

Roles.

Developer: Produce the system code.

Client: Write User Stories (HU) and functional tests to validate their implementation and the priority assigned to the HU and decide which will be implemented in each iteration.

Test Manager: Helps the client to write functional tests, runs tests and disseminates results is also responsible for the support tools for testing.

Tracker (Tracker): Also known as "Metric Man" notes without disturbing and maintains historical data.

Consultant: This is an external member of the team with specific knowledge of a subject required for the project. Guide the team to solve a specific problem.

Manager (Big Boss): This is the link between customers and developers, helping the team to work effectively creating the right conditions.

Their work is essential for coordination.

Essential artifacts.

- User Stories.
- Engineering Task Force.
- Acceptance Testing.
- Processes.
- Development Cycle.
- Life Cycle (Stages)
- Exploration
- Planning.
- Iterations.
- Production.
- Maintenance.
- Death Project.

3.6. Methodological conclusions XP.

- Light.
- Near to development.
- Based on UserStories (User Stories).
- Strong customer communication.
- The source code belongs to everyone.

- Programming in pairs.
- Tests based on functionality.
- Only minimal organization.
- Poor in terms of documentation.

4. AUTHOR'S DATA.

JOSÉ ANTONIO QUIÑA MERA.

PERSONAL DATA

Professional Qualification: Graduate Systems Engineering (Applicant to the title of Systems Engineer.)
Age: 31 years old.
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Driving Licence: Type B
Place of residence: Ibarra, Customs, Street Piman 2-39.
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Phone: Address: (06) 2580-123 (Ibarra, Ecuador).
Mobile: 099208083 (Claro).

TRAINING

2008: Graduated from the Technical University North (Ibarra - Ecuador).
Graduated from the Faculty of Applied Science Engineering at the Technical University of the North.

1997-2003: North Technical University (Ibarra - Ecuador).
Student of the School of Engineering in Computer Systems Engineering, Faculty of Applied Science (UTN).

1997: National College Bachelor "Teodoro Gomez de la Torre" in the specialty Theory (Ibarra - Ecuador).

EXPERIENCIA

2006-2011: Manager ERP. Microsoft Dynamics Great Plains 8.0.
PINTO S.A. COMPANY (Quito-Ecuador).
Http://www.pinto.com.ec 04-2595059

2006-2011: Database Administrator SQL Server 2000 ERP. Microsoft Dynamics Great Plains 8.0.
PINTO S.A. COMPANY (Quito, Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Manager Business Intelligence (BI) Cognos 7.
PINTO S.A. COMPANY (Quito, Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Manager SQL Server Analysis Services, OLAP - data warehouse - ETL tools - BI Business Intelligence (BI), SQL 2000 and SQL Server 2005 knowledge.
PINTO COMPANY S.A (Quito-Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Project Manager, establish and develop the System of Control of Raw Materials and Production Orders "CATEX" (JSP-Informix v10).
PINTO COMPANY S.A (Quito-Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Optimization of Stored Procedures for reporting sales of domestic and international retail stores (Informix v9.4).
PINTO COMPANY S.A (Quito-Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Program Development Patches Microsoft Dynamic Great Plains ERP v8.0.
PINTO COMPANY S.A (Quito-Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Assistant Managing Principal Database v9.4 with Informix Dynamic Server replication POS bases of national and international retail stores.
PINTO COMPANY S.A (Quito-Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Managing VMware Server Virtualization on IBM servers.
PINTO COMPANY S.A (Quito-Ecuador)
Http://www.pinto.com.ec 04-2595059

2006-2011: Operating Systems Support Windows 9x, Windows Server, Linux and Mac OSX.
PINTO COMPANY S.A (Quito-Ecuador)
Http://www.pinto.com.ec 04-2595059

2004-2005: Development and participation in the customization modules Sales, Purchase, Accounts Receivable, Accounts Payable, Accounting, Fixed Assets and Banking MyBussiness ERP (VB6 with Informix), as a developer, implementer and project manager, for Puerto Nuevo Millennium Consortium (NSCLC), Enrique San Lucas Head Systems.
COMPANY E-technolgy (Guayaquil, Ecuador)
042610947 http://www.e-technology.com.ec

2005: Development personalization and participation in Modules Sales, Pre-Sales, Purchasing, Accounts Receivable, Accounting ERP MyBussiness (VB6 with Informix), as a developer, implementer and project manager for Consortium Marlet.
COMPANY E-technolgy (Guayaquil, Ecuador)
042610947 http://www.e-technology.com.ec

2004: Module Development Sales, Promotions and Discounts Combos MyBussiness ERP (VB6 with Informix) for Group R & B Importers, Milena Hoyos Owner.
COMPANY E-technolgy (Guayaquil, Ecuador)

042610947 http://www.e-technology.com.ec

2003 - 2004: Development and Design Financial Projection System
Mr. Chairman Advisory Germanic Padilla, Director of Systems Engineer Rene Brown.
NORTHERN REGIONAL ELECTRIC COMPANY SA "EMELNORTE" (Ibarra, Ecuador)
06-2950490 / 06-2955860
www.emelnorte.com

2003 - 2004: Development and System Design Purchase Orders
Mr. Chairman Advisory Germanic Padilla, Director of Systems Engineer Rene Brown.
NORTHERN REGIONAL ELECTRIC COMPANY SA "EMELNORTE" (Ibarra, Ecuador)
06-2950490 / 06-2955860
www.emelnorte.com

2002: TSE-CTI link in the center of transmission of images of the city of Quevedo.
Supreme Electoral Tribunal (Quito - Ecuador)

1997-2003: Graduate Student School of Computer Systems Engineering, Faculty of Applied Science Engineering at the Technical University North. (Ibarra - Ecuador).
UTN - FICA - EISIC (Ibarra - Ecuador)

SEMINARS APPROVED

Convention of Computer Law and Electronic Commerce (2003), University Technology Days, Technical University of North lasting 30 hours. (Ibarra, Ecuador)

First Day Technology University (2003), Technical University of Northern EISIC, FICA, duration 30 hours. (Ibarra, Ecuador)

Computer Compu2002 Convention, Technical University North, duration 30 hours. (Ibarra, Ecuador).

Compu2002 Computer Convention, Complementation Academic, Technical University North, duration 30 hours. (Ibarra, Ecuador).

APPROVED COURSES

Total Programming via BlackBerry (2010), Pinto SA Business representation, given by IT ACADEMY. (Quito-Ecuador).

Advanced Java Course Data Access (2009), representing SA Company Pinto, issued by Grupo Synergy, duration 40 hours (Quito-Ecuador).

Introductory Java Course (2009), representing SA Company Pinto, issued by Grupo Synergy, duration 40 hours (Quito-Ecuador).

Linux Advanced Course (2007), representing SA Company Pinto, issued by Synergy Group (Quito-Ecuador).

Basic Linux Course (2007), representing SA Company Pinto, issued by Synergy Group (Quito-Ecuador).

Course Database Administration Informix Dynamic Server (2005), issued by E-TECHNOLOGY (Guayaquil, Ecuador).
Computer Maintenance Course (2003), Technical University North (Ibarra, Ecuador).

Computer Maintenance Course (2003), Technical University North (Ibarra, Ecuador).

Borland C Course (1999), Technical University North, duration 30 hours, (Ibarra, Ecuador).

COMPUTER TOOLS

Tools for Internet Solutions
Web Services
JSP, JAVA SCRIPT, AJAX, HTML, JAVA
Knowledge ASP, ASP.net, PHP.

Development Tools
Netbeans 6.9
JAVA, JSP
Microsoft Visual Studio.NET
Visual Basic 6.0

Database Tools
Microsoft SQL Server 2000 - 2005
OLAP Analysis Services 2000 and 2005
Informix Dynamic Server v9.4, v10
Oracle.
MySQL.

Operating Systems
Windows 9x.
Windows 2000-2003 Server Enterprise.
GNU / Linux.
Mac OSX.