



Career: IT Multiplatform Software Development

Project: Industrial Inventory Control System

Subject: Application Design

Work: Software Requirements Specification

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Table of Contents

1. Introduction	2
1.1 Purpose	2
1.2 Project Scope	2
1.3 Personnel Involved	2
1.4 Definitions, acronyms and abbreviations	3
1.5 References	3
1.6 Summary	4
2. General Description	4
2.1 Product Perspective	4
2.2 Use Case Diagram	5
2.3 User characteristics	5
2.4 Restrictions	6
2.5 Assumptions and dependencies	6
3. Specific Requirements	7
Functional Requirements	7
Non-functional requirements	10
3.1 Common requirements of interfaces	12
3.1.1 User interfaces	12
3.1.2 Hardware interfaces	12
3.1.3 Software interfaces	12
3.1.4 Communication interfaces	12
3.2 Functional requirements	12
3.3 Non-functional requirements	14

1. Introduction

This document contains a Software Requirements Specification (SRS) for an Industrial warehouse system focus on a factory that makes laptop. The document has been structured based on the guidelines given by the IEEE 830 standard.

1.1 Purpose

The purpose of this document is to define the functional and non-functional specifications for the development of an Industrial Inventory Control System. The system is designed to optimize and digitalize the management of processes related to the reception, storage, and dispatch of materials in a warehouse dedicated to the assembly and distribution of laptops. This system will be used by the personnel responsible for inventory management, enabling accurate tracking, categorization, and reporting of materials to ensure operational efficiency.

1.2 Project Scope

This Software Requirements Specification focuses on the development of an inventory control system for a warehouse in a laptop manufacturing factory. The primary goal is to streamline the management of materials through automated categorization, allocation to appropriate storage locations, and real-time tracking using RFID (IoT).

1.3 Personnel Involved

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Role	Designer, Data analyst
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Name	Dominguez Galvez Antonio Azael
Role	Programmer
Professional Category	TSU-DSM
Responsibility	system coding
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Name	Moreno Ramirez Josue Elihu
Role	Documenter, Programmer
Professional Category	TSU-DSM
Responsibility	Project documentation and system coding
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1.4 Definitions, acronyms and abbreviations

Name	Description
User	Person who will use the system to manage equipment maintenance.
SRS	Software Requirements Specification

1.5 References

Title	Reference
Standard IEEE 830 - 1998	IEEE

1.6 Summary

This document consists of multiple sections. The first section will introduce the project and provide a more general overview of the system's resource specifications.

The second section will provide an overview of the product, where you will learn about the system, with the purpose of learning about the main functions it seeks to satisfy.

It will also contain a section where the specific and non-specific requirements of the system are defined in detail.

2. General Description

2.1 Product Perspective

The Industrial Inventory Control System is designed to enhance the management and tracking of materials within a warehouse dedicated to the assembly and storage of laptops. This system focuses on improving inventory accuracy, efficiency, and traceability by digitalizing and automating processes such as material reception, categorization, storage, and dispatch. The system integrates a centralized database containing detailed information about each material, including its description, supplier, quantity storage location etc. It enables the automated categorization of materials based on predefined criteria and assigns them to specific warehouse areas, ensuring optimized storage utilization and organization. By centralizing and automating inventory processes, this system aims to improve operational efficiency, reduce errors, and provide the tools necessary for effective inventory management in a highly dynamic manufacturing environment.

2.2 User characteristics

User type	Programmer
Training	Working
Activities	Programming, database management, and related technologies, such as RFID (IoT).

User type	Client
Training	Owner
Activities	System control and management. Use the system to oversee material reception, storage, and dispatch.

2.3 Restrictions

- Languages and technologies in use: HTML, CSS, PHP, SQL, React Native for mobile application development
- Will feature both web and mobile interfaces to allow flexibility for users
- The server must efficiently store and manage all inventory-related data, such as material information, warehouse assignments, and RFID tracking.

2.5 Assumptions and dependencies

- The equipment on which the system is run must be suitable for using 100% of its functionalities.

3. Specific Requirements

Functional Requirements

Requirement Identification:	FR 01
Requirement Name	Material Registration
Characteristics	The system will allow the registration of materials upon receipt.
Requirement Description	The administrator can register new materials, including details like quantity, description, supplier, date of receipt, batch number, and serial number.
Priority	High

Requirement Identification:	FR 02
Requirement Name	Material Categorization
Characteristics	The system will categorize materials based on their type.
Requirement Description	Automatically assign a category to the materials upon registration and allocate them to a warehouse with the corresponding category.
Priority	High

Requirement Identification:	FR 03
Requirement Name	Material Entry Report
Characteristics	The system will generate detailed reports of material entries.
Requirement Description	Generates an automatic report for each material entry, including specific data such as quantity, description and assigned category.
Priority	High

Requirement Identification:	FR 04
Requirement Name	Material Movement Management
Characteristics	The system will allow the management of material transfers between warehouses or processes.
Requirement Description	Enables users to register material movements, specifying origin, destination, and quantities, and generates movement reports.
Priority	High

Requirement Identification:	FR 05
Requirement Name	Material Dispatch Report
Characteristics	The system will allow reporting for material dispatches.
Requirement Description	Automatically generate reports for dispatched materials, detailing quantities, destination, and responsible personnel.
Priority	High

Requirement Identification:	FR 06
Requirement Name	Real-Time Inventory Tracking
Characteristics	The system will allow users to monitor inventory levels in real-time.
Requirement Description	Displays current stock levels for each material and notifies when stock is low or exceeds capacity.
Priority	High

Requirement Identification:	FR 07
Requirement Name	User Role
Characteristics	The system will two roles the administrator and the warehouse operator
Requirement Description	Administrators can register warehouse operator and see all data. The warehouse operator will be able to use the system and do action such as material registration, material categorization and material entry and dispatch
Priority	High

Non-functional requirements

Requirement identification:	NFR 01
Requirement Name:	Security
Characteristics:	The system will guarantee the security of the information.
Requirement Description:	Guarantee the security of the information that circulates in the program, preventing possible intruders from accessing it.
Priority of the Requirement	High

Requirement identification:	NFR 02
Requirement Name:	Scalability
Characteristics:	The system will be scalable.
Requirement Description:	Have the possibility of increasing the size of the program, made to adapt to greater volumes of data and users.
Priority of the	Average

Requirement	
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Requirement identification:	NFR 03
Requirement Name:	Portability
Characteristics:	The system will be portable.
Requirement Description:	That the program can run on different platforms.
Priority of the Requirement	Low

Requirement identification:	NFR 04
Requirement Name:	Efficiency
Characteristics:	The system will be efficient in its use.
Requirement Description:	The program should be efficient, avoiding slowness or unexpected closures that affect the user experience.
Priority of the Requirement	High

Requirement identification:	NFR 05
Requirement Name:	Reliability
Characteristics:	The system will be reliable.
Requirement Description:	The program should not be prone to errors, slowdowns, or sudden crashes, ensuring continuous operation.
Priority of the Requirement	High

Requirement identification:	NFR 06
Requirement Name:	Usability
Characteristics:	The system will be easy to use.
Requirement Description:	The program should be easy to use and understand, maintaining a simple interface so that both the administrator and the client can use it without difficulties.
Priority of the Requirement	High

3.1 Common requirements of interfaces

3.1.1 User interfaces

The user interface will consist of a window. The window will be displayed on the computer the user is using and will feature highly descriptive texts about what is happening in each section of the program, along with usage instructions so that the user can use the program without difficulties.

The mobile version of the system will provide a user-friendly experience on smartphones and tablets, featuring a simplified layout for easy interaction on smaller screens. Touch controls, such as optimized buttons and dropdowns. The interface will be adaptive, adjusting dynamically to different screen sizes and quick navigation will be facilitated by navigation bar.

3.1.2 Hardware interfaces

It will be necessary to have computer equipment in condition with the following characteristics:

- Network adapters
- 1.66GHz or higher processor

- Minimum memory of 256Mb
- Mouse
- Keyboard

And a smartphone in condition with the following characteristics:

- Network adapters (Wi-Fi)
- 1.2GHz or higher processor
- Minimum 256 GB of RAM

.1.3 Software interfaces

- Web application
- Mobile application

3.1.4 Communication interfaces

The servers, users and computers will be able to communicate with each other through standard Internet protocols, in order to communicate between the database and the computing equipment.

3.2 Functional requirements

Inventory Management

- Allows administrators and warehouse operators to register, update, and delete inventory items.
- Ensures tracking of inventory levels, including available stock and stock shortages.

Material Reception and Registration

- Enables warehouse operators to log incoming materials, including details such as supplier, quantity or serial number.
- Automatically categorizes materials based on predefined criteria and assigns them to appropriate storage locations.

Storage and Organization

- Implements an automated categorization system to allocate materials efficiently within the warehouse.

Material Movement Tracking

- Allows users to register material transfers between storage areas or different warehouses.
- Generates reports for material movements, detailing origin, destination, and quantities transferred.

Dispatch and Distribution Management

- Supports the tracking of materials dispatched for production or shipment.
- Generates detailed reports on dispatched materials, including destination, responsible personnel, and inventory updates.

User Role Management

- Defines two main user roles: Administrator and Warehouse Operator.
- Administrators can add and manage users, as well as oversee all warehouse operations.
- Warehouse Operators can perform inventory tasks such as material registration, categorization, and dispatch.

3.3 Non-functional requirements

- Security

Guarantee the security of the information that circulates in the program, preventing possible intruders from accessing it.

- Scalability

Have the possibility of increasing the size of the program carried out.

- Portability

That the program can run on different platforms.

- Efficiency

That the program is efficient in its use, this is described in that the program does not become slow or prone to closures for the user.

- Reliability

That the program is not prone to errors, slowness and sudden closures.

- Usability

That the program is easy to use and understand, maintaining an interface with a simple design so that the administrator and the client can use the program without much difficulty.

Implementation of packages for easy choice of services oriented to the type of event.