

# Detailed Proposal for Web Application Inventory Control System (WAICS)

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# Web Application Inventory Control System (WAICS)

## Introduction

In today's fast-paced business environment, efficient and effective inventory management is crucial. The proposed Web Application Inventory Control System (WAICS) is envisioned as a comprehensive solution to address the complexities and challenges of modern inventory management. Its purpose is to streamline and automate the processes of tracking, managing, and analyzing inventory across multiple channels and locations. The system's design focuses on enhancing efficiency, accuracy, and decision-making in inventory management through advanced technological integration.

## 1 Purpose and Functionality

The primary purpose of WAICS is to offer businesses a unified platform for inventory management that is both scalable and adaptable to diverse operational needs. The high-level functional requirements include:

- Real-time inventory tracking and visualization.
- Automated stock level alerts and reorder notifications.
- Integration with sales and purchase order systems.
- Detailed reporting and analytics for inventory performance.
- Multi-platform accessibility including web and mobile interfaces.

## 2 Data Component

### 2.1 Data Storage

The core of WAICS will be its centralized database where diverse inventory-related data will be stored. This will include:

- Product details (name, SKU, descriptions).
- Stock levels (quantities available, locations).
- Supplier and manufacturer information.
- Purchase and sales order history.

- Pricing and cost data.

## 2.2 Data Sources

Data will be sourced from multiple channels:

- Manual uploads (e.g., spreadsheets).
- Direct entry through user interfaces.
- Integration with external systems like ERP, CRM, and e-commerce platforms through APIs.

## 2.3 Data Access via API

Access to the database will be managed through a well-defined API. This RESTful API will ensure secure and efficient communication between the database and various client applications. It will support essential operations such as:

- CREATE
- READ
- UPDATE
- DELETE (CRUD)

Enabling complete inventory management functionality.

## 2.4 Data Usage

The stored data will be utilized in various ways, including:

- Generating inventory reports.
- Analyzing stock movement and turnover.
- Automating reorder processes.
- Providing insights for demand forecasting.

# 3 System Interface

## 3.1 Multi-Platform Support

The system will be designed to support multiple applications, catering to different user needs. These applications will interact with the central database via the API, ensuring a unified data

source despite varied access points. WAICS will feature interfaces tailored for different platforms:

- Web applications for desktop access.
- Native mobile apps for iOS and Android.
- Console applications for administrative tasks.
- Platform-specific native applications for optimized performance.

## 4 User Roles and Access Control

WAICS will feature a multi-tiered access control system to ensure users only access data and functionalities relevant to their roles. This system will support roles like administrators, managers, and field staff, each with customized access and permissions.

## 5 Real-Time Inventory Tracking

A key feature will be real-time inventory tracking, enabling businesses to have up-to-the-minute information about their stock levels, reducing overstocking or stockouts, and improving overall inventory turnover.

## 6 Literature Survey

To ensure the project's success, a comprehensive survey of existing literature on inventory management systems, API integration, and multi-platform application development will be conducted. This includes academic journals, industry reports, and case studies of existing systems. Key focus areas will be on the latest trends in inventory management technology, best practices in database design, and advancements in API security.

## 7 Comparison with Similar Software

A comparative analysis will be conducted with similar systems like SAP Inventory Management, Oracle NetSuite, and Zoho Inventory. This analysis will focus on identifying strengths and weaknesses in these systems to inform the development of WAICS. The goal is to incorporate best-in-class features while introducing unique functionalities that address gaps in existing systems.

## 8 Project Plan

The project will be executed in phases:

- 1) Requirement Analysis and Planning: Detailed requirements gathering and project scope definition.
- 2) System Design: Architectural design of the database and API, and interface design for various platforms.
- 3) Development: Coding, API integration, and application development.
- 4) Testing: Rigorous testing for functionality, performance, and security.
- 5) Deployment and Training: System deployment and user training.
- 6) Maintenance and Upgrades: Ongoing support and system enhancements.

## 9 Input, Processing, and Output

### 9.1 Input

- Manual data entries by users.
- Data from external systems via API.
- Bulk data uploads.

### 9.2 Processing

- Data validation and storage in the database.
- Data analysis for trends and insights.
- Automated triggers for stock alerts and reorders.

### 9.3 Output

- Real-time inventory reports and dashboards.
- Alerts and notifications.
- Analytical insights for inventory optimization.

## Conclusion

WAICS is set to be a transformative solution in inventory management, leveraging the latest in technology to offer a flexible, reliable, and efficient system. Through its comprehensive data management, robust API, and versatile interfaces, WAICS will provide unparalleled control and insights into inventory processes. This proposal outlines a clear vision and roadmap for the system's development, ensuring its alignment with the evolving needs of modern businesses.