NovaFlect

Smart Retail Inventory Management System

Version 1.0

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Document History

Version	When	Who	What
1.0	20/09/23	Syed, Ruth, Rayta,Riya,Khwaish	Added problem description, objective, current system, user and interactions, constraints
2.0	23/09/23	John, Rayta, Ruth	Edits to format and content,Added project schedule and glossary, update current systems

Table of Contents

1.0 Problem description / expression of need

Problem Description

Retail businesses, regardless of their size, face the ongoing challenge of effectively managing their inventory.The traditional manual inventory management processes are time-consuming, error-prone, and often result in overstocking or understocking of products. This inefficiency can lead to increased operational costs, lost sales opportunities, and dissatisfied customers. To address these issues, there is a pressing need for a smart retail inventory management system that leverages technology to automate inventory tracking, predict demand, and optimize stock levels.

To organize and track the inventory of a retail clothing organization to improve the customer experience.

Needs

- **Stock Management:** To effectively track the quantity of items in stock. Stock Management is needed to avoid Overstocking and also to meet the customer demand of a product.
- **Preventing Stockouts and Overstocking:** Stockouts cause the customer to be dissatisfied with the organization and Overstocking cause a loss to the organization because of markdowns
- **Loss Prevention:** Management system helps track any theft or damage that happen in the processes of supply chain and storage
- **Supplier Management:** To have better communication with the supplier about what needs to be restocked. The process of stock management and ordering becomes more efficient.
- **Customer Satisfaction:** The system ensures that a customer ordered product is delivered in a timely manner and ensures that the ordered product is in Stock to be delivered.
- **Financial Reporting:** The system helps track the profit and loss and also determine the taxes of a fiscal year.

2.0 Project Objectives

Automate Inventory Tracking: Develop a system that utilizes smart technology to automate the tracking of inventory items. This should include real-time updates on the inventory in stores and in the warehouse as items are sold, stocked and returned.

Optimize Stock Levels: Develop a system that utilizes demand prediction and historical data to optimize stock levels by preventing overstocking and understocking. Ensure that the system should create new reorder quantities that have to get manager approval before being sent to suppliers.

Real-time Visibility: Develop a system that provides store managers, inventory clerks, and other authorized users

with real-time visibility into the inventory levels and item locations. This includes easy access to stock status, sales trends, and product information.

User Interface: Design a user-friendly interface that caters to the needs of different users, including store managers, store clerks. Ensure ease of use and accessibility. Have admin access for store managers who can manually adjust the inventory.

Security and Data Integrity: Implement robust security measures to protect sensitive inventory data and ensure data integrity. This can be done by assigning roles for the users.

Alerts and Notifications: Implement an alerting system that notifies users when inventory levels are critically low or when there are anomalies, such as discrepancies between physical counts and system records.

3.0 Current System(s)

With the current system everyone in the organization has admin level access. Excel is used to manage inventory. The inventory is manually updated by the store clerks. Clerks and managers have to stay after closing hours to check and update the inventory. The current system doesn't have automatic reordering, the manager has to call some suppliers and use the online restocking system of other suppliers to place orders.

4.0 Intended users and their interaction with the system

Intended Users

Users include Store Managers, Clerks, System Administrators, and the Finance department.

Interactions with the system

Store Managers:

- Access to a central dashboard showing current inventory levels, sales patterns, and stock replenishment advice.
- The ability to produce data on sales success overall, popular items, and inventory turnover.
- Control system settings and user permissions.
- View inventory trends and make informed decisions regarding purchasing and restocking quantities.
- Generate purchase orders directly within the system to replenish stock based on demand and sales patterns.
- Control access to Store inventory, Managerial view, and focus on Purchasing and Inventory
- Get notifications when items are running low on stock or are out of stock to enable timely restocking orders.
- Update and keep up-to-date records of all arriving and outgoing clothing goods, including information on brand, size, color, and style.
- Assigns and manages a SKU (Stock Keeping Unit) number to each item for simple tracking and identification.

Clerks:

- Use the system to check real-time inventory availability while assisting customers on the shop floor.
- Process sales transactions, update inventory levels, and initiate restocking requests for sold items.

Finance Department:

- Utilize inventory data to monitor costs, analyze profitability, and manage budget allocation for inventory purchases.

System Administrators:

- Oversee system maintenance, updates, and security to ensure the integrity and smooth functioning of the Smart Retail Inventory Management System.

5.0 Known interaction with other systems within or outside the client organization

Customer Service and Feedback: Interactions with customer support and feedback are critical in the smart retail inventory management system. The system provides real-time inventory information, allowing customer service to respond quickly to enquiries about product availability and projected delivery timeframes. By delivering accurate and timely information, this improves customer satisfaction and fosters a great customer experience.

Client Feedback and Returns Processing: Client feedback and returns processing are another important interaction inside the smart retail inventory management system. The system enables the collection of vital consumer input, which aids in product innovation and overall service enhancement. Furthermore, in the event of a return, the system efficiently processes the request, adjusting inventory levels as needed and providing smooth operations in managing product returns and swaps.

Supplier System: The smart retail inventory management system communicates with the supplier system in real time. When inventory levels reach predefined thresholds, the retail system can automatically generate purchase orders and transmit them to the suppliers.

Payment System Integration: The smart retail inventory management system integrates seamlessly with the payment system to track and manage product sales accurately. The system changes the inventory status, marking the appropriate product as sold, upon successful payment confirmation via multiple ways such as debit, credit, cash, Apple Pay, or Square Pay. This real-time synchronization enables precise order monitoring and improves inventory data correctness, contributing to efficient order processing and financial transparency.

6.0 Known constraints to development

Budget and Scalability: One of the main constraints would be the budget. In order to have a successful retail company a big budget is needed as developing a smart retail system would be costly.The system should also be designed to accommodate future growth and changing business needs. Scalability constraints can arise if the initial architecture does not allow for easy expansion.

Support and Maintenance: Another known constraint is the need of ongoing support, updates, and maintenance post-implementation. Planning for long-term sustainability is essential. Constraints can arise if there are limited resources available for system upkeep, leading to downtime or inefficiencies.

Staff Training and Adoption: Retail employees need to be trained on how to use the new system effectively. Resistance to change or difficulties in adapting to new technology can be constraints in the adoption process. The user interface of the system must be intuitive and user-friendly, as it will be used by a wide range of employees, some with varying levels of tech-savviness.

7.0 Project Schedule

- Request for Proposal (RFP) received by the developer team - **Sept. 26, 2023**
- Software Requirement Specification (SRS) version 1.0 received by the client team - **Oct. 24, 2023**
- Client Feedback on SRS 1.0 received by the developer team - **Oct. 31, 2023**
- Project Demo + Requirements Negotiations - **Nov. 14, 2023**
- Final Project Demo - **Nov. 22, 2023**
- Software Requirement Specification (SRS) version 2.0 - **Nov. 28, 2023**

8.0 Project team

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9.0 Glossary of terms

Fiscal year : A 12-month accounting period that a business uses for financial and tax reporting purposes.

Inventory : A complete list of items such as property, goods in stock, or the contents of a building.

Overstocking : Supply with more of something than is necessary or required.

Retail business : The business sector in which goods are sold individually or in small quantities to consumers.

Stockout : A situation in which an item is out of stock.