

Stock Management System

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ABSTRACT

This work is aimed at developing a hardware based system named Stock Management System for managing the stock system of any organization. The Stock Management System (SMS) refers to the system and processes to manage the stock of organization with the involvement of Technology system. This system can be used to store the details of the stock, stock maintenance, update the stock based on the sales details, and generate sales and stock report daily or weekly based. This project is categorize individual aspects for the sales and stock management system. In this system we are solving different problem affecting to direct sales management and purchase management. Stock Management System is important to ensure quality control in businesses that handle transactions resolving around consumer goods. Without proper stock control, a large retail store may run out of stock on an important item. A good stock management system will alert the wholesaler when it is time to record. Stock Management System is also on important means of automatically tracking large shipment. An automated Stock Management System helps to minimize the errors while recording the stock.

Keywords: Consumer Goods, Stock Management System, Purchase, Record, Sales.

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I. INTRODUCTION

Stock management is the supervision of non-capitalized assets or inventory and stock items. As a component of supply chain management, inventory management supervises the flow of goods from manufacturers to warehouses and from these facilities to point of sale. A key function of inventory

management is to keep a detailed record of each new or returned product as it enters or leaves a warehouse or point of sale. Organizations from small to large businesses can make use of inventory management to track their flow of goods. There are numerous inventory management techniques, and using the right one can lead to providing the correct goods at the correct amount, place and time.

Inventory control is a separate area of inventory management that is concerned with minimizing the total cost of inventory, while maximizing the ability to provide customers with products in a timely manner. In some countries, the two terms are used synonymously compared to larger organizations with more physical space, in smaller companies, the goods may go directly to the stock area instead of a receiving location. If the business is a wholesale distributor, the goods may be finished products, rather than raw materials or components. Unfinished goods are then pulled from the stock areas and moved to production facilities where they are made into finished goods. The finished goods may be returned to stock areas where they are held prior to shipment, or they may be shipped directly to customers.

Inventory management uses a variety of data to keep track of the goods as they move through the process, including lot numbers, serial numbers, cost of goods, quantity of goods and the dates when they move through the process. Inventory management software systems generally began as simple spreadsheets that track the quantities of goods in a warehouse but have become more complex since. Inventory management software can now go several layers deep and integrate with accounting and enterprise resource planning (ERP) systems. The systems keep track of goods in inventory, sometimes across several warehouse locations. Inventory management software can also be used to calculate costs -- often in multiple currencies -- so accounting systems always have an accurate assessment of the value of the goods.

II. Related Work

Products are considered as the business resources for the organization. This includes managing the product with appropriate way to review any time as per the requirement. Therefore it is important to have a computer based SMS which has the ability to generate reports, maintain the balance of the stock,

details about the purchase and sales in the organization. Before developing this application we came up with Two Inventory Management System existing in the market, which helps to give the knowledge for the development of our project. These application software are only used by the large organization but so we came up with the application which can be used by the small company for the management of their stock in the production houses. After analyzing the other inventory management system we decided to include some of common and key features that should be included in every inventory management system. So we decided to include those things that help the small organization in a way or other.

A) RFID Stock Management.

RFID technology has revolutionised stock control and inventory management. RFID for stock management provides fast, easy, improved accuracy, stock reliability, increased sales and increased customer satisfaction. RFID stock management also gives the user real time and detailed information on inventory levels, as well as detailed information of your stock (quantity, models, color, size). Since all items is tracked, RFID tags can eliminate stocking issues and improve security in your retail store.

The simultaneous scanning of products with an RFID reader also drastically lowers the time spent on inventories which brings a rise in productivity and less manual work for your staff. With RFID stock management your staff can then concentrate on sales and customer service, instead of stock taking. By using a handheld RFID reader, one person can do stock taking by scanning multiple items in only a few minutes. This means that stock takes can be done on a daily basis.

RIOT Insight has developed a simple, complete, inventory management solution, based on RFID technology as its engine to perform laborious inventory management tasks. With our state-of-the-

art RDIF solutions your inventory is always in sync, so you can easily track your entire sales process with real-time updates. Keep all your customer and supplier data in one place complete with purchase histories, inventory check-in, inventory counts, salesfloor replenishment and product locator.

B) RFID INVENTORY SYSTEM

RIOT Insight offers state-of-the-art RFID inventory system solutions to retail stores across the world. With our RFID software applications you can remotely manage your retail store inventory with the press of a button. RIOT Insight offers a state-of-the-art RFID system to retail stores across the world. An RFID system involves the placement of RFID tags on items that emit signals to the reader which are then processed by an application, generating real-time results for stock taking, inventory levels, transactions or individual customer purchase order history.

C) Stock Management

The scope of Stock management: replenishment lead time, carrying costs, asset management, inventory forecasting, inventory valuation, inventory visibility, price forecasting, physical inventory, available space, quality management, replenishment, returns and defective goods, and demand forecasting. RFID stock control or RFID Inventory management is the process of managing products in a retail store by using RDIF tags, readers and software (also known as an RFID system). A proper RFID inventory management system is required to precede the regular and planned course of production and stock of materials.

D) RFID Reader Software

RFID is a modern alternative to barcode scanning and combined with RFID reader software provides the retail owner with accurate and up-to-date data and

statistics. Retailers can use the RFID reader software to: manage inventory, RFID scan encoding, RFID EPC tag voiding, product locator, stock taking and salesfloor replenishment RFID in retail involves the placement of RFID tags on items that emit signals to RFID readers which are then processed by software, generating real-time results for stock taking, transactions, inventory levels, or individual customer purchase order history. Inventory management is what keeps your retail store in running efficiently. Retail inventory management is either taken by hand or electronically. Managing your retail inventory electronically makes everything easier and faster. RFID and barcode technology are used in similar ways to track items, but radio-frequency identification tags do not require a direct line of sight to be read, RFID data can be updated in real-time, and barcode data is read-only and cannot be changed. RFID tags are available in different shapes and sizes with features and options specific to certain environments and applications. Use your RFID reader and manage products with the RIOT application to generate accurate data.

E) RFID Inventory Control

Maintain accurate stock counts, reduce errors, and avoid time consuming manual entry of items with our RFID inventory control software. RIOT real-time inventory reports allow you to compile and analyse essential data, like transactions, inventory levels, or individual customer purchase order history. With RFID stock control software your staff can then concentrate on sales and customer service, instead of stock taking. RFID technology will assist retailers with managing stock, reducing cost, increasing sales and improving cash flow. RFID stock management also gives the user real time and detailed information on inventory levels, as well as detailed information of your stock (quantity, models, colour, size).

III. SYSTEM MODEL

After analyzing many existing SMS we have now the obvious vision of the project to be developed. Before we started to build the application team had many challenges. We defined our problem statement as,

- To make hardware based system of SMS for small organization.
- To make the system easily managed and can be secured.
- To cover all the areas of SMS like purchase details, sales details and stock management

The proposed solution to the stock management. Integration of RFID to the traditional inventory management will help in loss prevention and as an enabler for locating misplaced stock, anti-counterfeiting of stock, and availability of stock on shelves. In this architecture, RFID serves as a replacement for the bar code scanners which are normally used to track products and shipments in similar ways (Smith 2000). This architecture fully integrates the technical advantages of RFID to provide feedback on the process to the inventory manager. RFID system consists of three fundamental components. Initially, the RFID tag is attached to a product in the inventory. The tag contains information about the particular inventory or product and also may include sensors. The next component is the RFID reader, which communicates with the RFID tags. The last component is the backend system, which links the RFID readers to a centralized database or server. The centralized database will store all the information of the products, such as price, for each RFID tagged item. In this proposed architecture for inventory management, the passive tags will be used due to their low cost. Among the functionalities expected to be performed by this system includes:

- Checking the availability of stock on shelves:

- Identifying misplaced stock on shelves.
- Identifying expired stock.
- Identifying counterfeit products.
- Sending updates to the inventory manager.
- Support JIT Inventory
- Visibility of inventory throughout the supply Chain
- Perform the inventory functions with less manual intervention

The Electronic Product Code (EPC) is a unique global identifier of each product in RFID technologies which is used to track and trace products (Yan 2008). The EPC RFID readers will be placed among the shelves and the products will be programmed with EPC RFID enabled tags. EPC RFID tags will send out the signal which will be received by the EPC RFID readers in the radio frequency field. The readers will receive the signal through their antennas and transmit the stored information, i.e. Validation, tracking, counts, and error messages to the EPC middleware. The EPC middleware will filter out the repeating and irrelevant information. Thereafter, information will be sent to the local server. The local server computer system will pass on the information to the inventory manager i.e. reports on inventory, aggregate counts, errors occurred, misplaced stock etc. The end user or owner will receive the notification on inventory through his/her display. This system gives effective technical reference for enterprise managers to monitor whole process of inventory without them being physically involved in the process. The consumers of the products will benefit also in this proposed architecture. They can query information about the product on the remote server using the EPC (Electronic Product Code); the ONS (Object Naming Service) is network system which works similar to the DNS (Domain Name Service). We started research by identifying the need of SMS in the organization. Initially we bounded our research to find the general reasons that emerged the needs of Stock Management System. We used

different techniques to collect the data that can clearly give us the overall image of the application. The techniques we used were interview with the developers, visiting online websites that are presented as the templates and visiting some organization to see their SMS application. Basically the following factors forced us to develop SMS application:

- Cost and affordability
- Lack of stock management.
- Effective flow of stock transfer and management.
- Difficulty in monitoring the stock management.

IV. PROPOSED SYSTEM IMPLEMENTATION

We collected a number of requirements for project from our primitive research, website visits, and interview to the concerned personnel and their experiences regarding the concepts of its development. We have even visited some organization in Dhaka and analyze its importance and try to develop the project by fulfilling all the weakness that were found in the application. We then decided to build same type of application with different logic flow and new language which will be suitable for the small organization.

a. SMS Requirement

The goal for the application is to manage the stock management function of the organization. Once it is automated all the functions can be effectively managed and the organization can achieve the competitive advantage. Business requirement are discussed in the Scope section, with the following additional details: Helps to search the specific product and remaining stock. Details information about the product sales and purchase. Brief Information of the organization today's status in terms of news, number of present stock as per the date entered. It helps to identify the total presented

inventory in the company. To know the balance and details of sales distribute.

V. CONCLUSION

The importance of stock management is very serious, it is one of the most important aspects of any business. Once it is automated all the functions can be effectively managed and the organization can achieve the competitive advantage. Business requirements are discussed in the Scope section, with the following additional details: Helps to search the specific product and remaining stock. Details information about the product sales and purchase. Brief Information of the organization today's status in terms of news, number of present stock as per the date entered. It helps to identify the total presented inventory in the company.

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