

# **INVENTORY MANAGEMENT SYSTEM FOR RETAILERS**

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## **INTRODUCTION:**

Inventory management is a challenging problem in supply chain management. A tool or system to aid the inventory management would be a beneficial tool in this area. The term inventory refers to a company's stockpile of material and the components that make up the output. Inventory management refers to managing the quantity, quality, location and transportation of various products utilised in manufacturing by various industrial organisations or in sales by various retailers.

Accurately maintaining the quantity (in numbers) of the finished goods in the inventory makes it possible to quickly assess the quantity of products needed for the upcoming sales. It also improves the communication between the entities of the supply chain like retailers, manufacturers, customers, etc.

## **LITERATURE SURVEY:**

### **1. Design of a Computerized Inventory Management System for Supermarkets**

#### **Aim:**

The aim of this paper is to design a Computerized Inventory Management System to ascertain stock level of a supermarket, when to order for more goods, keep status and updates of transactions, thereby helping managerial decisions, progress level and stock taking.

#### **Scope:**

This work covers stock control, management and tends to correct anomalies in business. It analyses Opening of New Stocks, stock updates and ability to view existing ones. It provides a quick way of operation by capturing the manual process and automating them.

**Implementation:**

This system handles the new stock, Stock order, Stock update, Product or Item Search to check availability and Stock Report are electronically handled.

- A login page is created to ensure security.
- If it is successful, it will display the splash screen after which it will automatically display the main menu form.
- The user has the option of choosing from the onscreen menu options- New Stock, Update Stock, Search and View options.
- The user form will capture records regarding stock details. Which are stored in the database, retrieved and viewed later.

**2. The inventory management system for automobile spare parts in a central warehouse****Aim:**

This paper aims to develop an enhanced fuzzy neural network (EFNN) based decision support system for managing automobile spares inventory in a central warehouse.

**Scope:**

To get better accuracy than in Artificial Neural Network. This project integrates the knowledge of domain experts into enhanced fuzzy neural networks (EFNN), which generates connection weights based on the fuzzy analytic hierarchy process (AHP) method without painstakingly and time-consuming turning them.

**Implementation:**

The Proposed system is of three components.

**1. Hierarchical structure development of the fuzzy AHP**

The domain experts are interviewed about the part factors, demand factors, time factors, sales factors and associated factors that affect the supply of the spare parts.

**2. Weights determination**

Another questionnaire on the basis of the proposed structure is formulated. The questionnaire surveys are used to compare pairs of elements of each level with respect to each element in the next higher level. A 7-point scale is used.

**3. Decision making based on EFNN.**

EFNN - a 5 layered hybrid neural network with the feature to self-organize its activation function is implemented to get better accuracy.

### **3. Automated Inventory Management Systems and its impact on Supply Chain Risk Management in Manufacturing firms of Pakistan**

#### **Aim:**

The aim of this research is to investigate the contribution of automated inventory management systems in increasing the efficiency of inventory management.

#### **Scope:**

The scope of this study is to utilize four automated inventory management systems which includes Radio frequency Identification (RFID), Enterprise Resource Planning (ERP), Electronic Data Interchange (EDI) and Material Requirements Planning (MRP) and analyses their role as a supply chain risk mitigation strategy through implication of risk management process.

#### **Implementation:**

The previous studies about Automated Inventory Management Systems are studied and their models are reviewed. The study involves quantitative research and developed a conceptual framework to increase the understanding of interrelationships between automated inventory management systems (AIMS), Employee training and development (ETD) and supply chain risk management (SCRM).

### **4. Design of smart inventory management system for construction sector based on IoT and cloud computing.**

#### **Aim:**

A novel approach to create a model and show how this can help construction sector in managing inventory of essential form work shuttering products.

#### **Scope:**

This research reveals that there could be an opportunity to approach barcode-based designs by amalgamating such with Cloud Computing, Arduino-based wireless station nodes, IoT and a secure form channel to access data through a dedicated web portal.

### **Implementation:**

The proposed model is a novel Aluminum Shuttering Inventory Management System (ASIMS) consist of barcodes, Arduino-based IoT devices, wireless sensor networks and Cloud Computing to track Aluminum formwork shuttering components under actual field conditions.

- Upon receipt of Aluminum formwork shuttering components from vendor at site, a Goods Receipt Note (GRN) entry is passed in the system.
- Physical verification of the received items and GRN process have needed to be completed.
- The barcode labels for the items are generated and printed. The printed barcode labels are then affixed on the formwork shuttering components.
- Using our proposed application, the component is labelled and then mapped with corresponding geolocational coordinates to enable tracking.
- Movement of materials within site and for intra-site stock transfers have to be tracked and recorded using our proposed model for scanning barcodes affixed to items.
- Aluminum formwork shuttering components are often cut and resized according to localized requirements. During such process of resizing, the created new items have to be checked, verified physically and logged using our proposed software. Again, new barcode labels have been generated for the new components derived from the parent item.

## **5. Design of smart inventory management system for construction sector based on IoT and cloud computing.**

### **Aim:**

A novel approach to Design of smart inventory management system for construction sector based on IoT and cloud computing.

### **Implementation:**

The Routine Activity of a Particular Company and Firms is about Management of Inventory and Working Capital Management. Inventory is one of the most important Components of Current assets and Current assets, Generally, Part of Working Capital, so it is very important to know the amount lock up in Inventory and to manage the inventory at a very optimal manner. Here in this Research Segment, we analysed and Study about inventory Management practice followed by Steel Authority of India Limited. Stock of Raw Material, WIP, FG etc. is a very crucial matter in the short-term liquidity position and its impacted significantly on long term profitability. In this Research Work, Last 5 Years data

is collected from Annual reports of the company and based on such data various ratios are applied in order to measure efficiency of Inventory and here we also used various Statistical tools in order to examined the behaviour of selected ratios.

## **6. A study on Inventory management in Tamil Nādu State Transport Corporation Limited, Kumbakonam.**

### **Aim:**

A Study on Inventory Management In Tamil Nadu State Transport Corporation Limited.

### **Implementation:**

The purpose of Inventory Management is to ensure availability of materials in sufficient quantity as and when request also to minimize the investment in inventories and to know about how to maintain stock of the company. In this paper analysing Inventory Management in TNSTC - Kumbakonam was done using different tools such as ABC, FSN, EOQ and VED analysis. From the analysis, the fast-moving inventory, class A inventory and very useful category of items were found and appropriate suggestions were given to the company.

## **7. Impact of Inventory Management on the Profitability of SMES in Tanzania.**

### **Aim:**

A novel approach to analyse the impact of Inventory Management on the Profitability of SMES in Tanzania.

### **Implementation:**

A well-designed and implemented Inventory management is expected to contribute positively to the SMEs profitability. The purpose of this paper is to examine the relationship between inventory conversion period and SMEs profitability and determine the impact of inventory management on SMEs profitability. The dependent variable, gross operating profit is used as a measure of profitability and the relation between inventory management and SMEs profitability is investigated for a sample of 26 Tanzanian SMEs, using annual financial statements data analysis for the period 2006 -2011. This study employs Regression analysis to determine the impact of inventory conversion period over gross operating profit taking current ratio, size of the firm, financial debt ratio as control variables. The results indicate that there is a significant negative linear relationship between inventory conversion period

and profitability. The relationship between two control variables viz; current ratio, financial debt ratio and gross operating profit indicate the expected negative relationship whereas the firm size indicate unexpected positive relationship. This may be due to managerial fail.

#### **8. An assessment of the Inventory Management Practices of Small and Medium Enterprises (SMEs) in the Northern Region of Ghana.**

##### **Aim:**

An assessment of the Inventory Management Practices of Small and Medium Enterprises (SMEs) in the Northern Region of Ghana.

##### **Implementation:**

The purpose of this study was to assess inventory management practices and its effect on the financial performance of SMEs in the Northern Region of Ghana. The study adopted a descriptive cross-sectional survey research design which allowed the collection of primary quantitative data through structured questionnaires. The target population was 1000 owner/ managers of SMEs. Stratified random sampling technique was used to obtain a sample of 300 SMEs comprising 164 trading 26 manufacturing, 10 hairstyling, 62 dressmaking, and 38 carpentry enterprises. The data was analysed using both descriptive and inferential statistics. The study revealed that SME financial performance was positively related to efficiency of inventory management (EIM) at 1 per cent significance level. The study concluded that stock management practices have influence on the financial performance of SMEs, hence there was need for SME managers to embrace efficient stock management practices as a strategy to improve their financial performance and survive in the uncertain business environment.

#### **9. Relationship Between Inventory Management and Profitability: An Empirical Analysis of Indian Cement Companies.**

##### **Aim:**

An analysis on relationship Between Inventory Management and Profitability: An Empirical Analysis of Indian Cement Companies.

**Implementation:**

The purpose of this paper is to examine the relationship between inventory conversion period and firms' profitability. The dependent variable, gross operating profit is used as a measure of profitability and the relation between inventory management and profitability is investigated for a sample of five top Indian cement companies over a period of ten years from 2001-2010. This study employs Regression analysis to determine the impact of inventory conversion period over gross operating profit taking current ratio, size of the firm, financial debt ratio as control variables. The results indicate that there is a significant negative linear relationship between inventory conversion period and profitability. The results of this research are in line with the previous findings. The findings indicate that Inventory conversion period has an inverse relationship with firm profitability i.e. when the ICP days increase the profitability of firm decreases and vice versa. It was found that, the firm profitability as measured by GOP has a negative relationship with financial debt ratio. This implied that profitability increases with decrease in financial debt ratio. Further in this study the relationship between the firm size and GOP was positive which indicates that profitability increases with an increase in firm size. The relationship between current ratio and the GOP was negative.

**10. A Study on Inventory Management with Reference to Carborundum Universal Limited (CUMI) in Murugappa Group.****Aim:**

A Study on Inventory Management with Reference to Carborundum Universal Limited (CUMI) in Murugappa Group

**Implementation:**

The study is on inventory management is a vital part in the manufacturing organization to be more competitive. Inventory are raw materials, work-in-process goods and completely finished goods that are consider to be the portion of business assets that are ready or will be ready for sale. Formulating a suitable inventory is one of the major concerns for an inventory. Therefore, the purpose of this research is to identify the problem of inventory management faced by the manufacturing of an enterprise. The study is been concluded that the performance of carborundum universal limited is excellent in inventory

management and their increasing in productivity and sales indicates the good sign for the company.

### **Conclusion:**

An inventory management system is an essential replacement for a manual pen and paper system. Its intended purpose is to control the movement and storage of the products with the added benefit of enhanced security and quicker handling. The Inventory management system software is a necessary tool to keep track of the stocks of a particular retailer. It is also capable of providing valuable information to sales data and analytics. Ultimately, it is the lifeline of a company as it drives profitability by generating sales. The way a company maintains its inventory can have a significant impact on its overall success.

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