

Inventory Management a Review

Namrata Chaubey¹, Shubham Jain², Hement Saraswat³

Department of IT

Inderprastha Engineering College

Corresponding Author: namratachaubey39@gmail.com¹

Abstract

Inventories are raw materials, work-in-process goods and completely finished goods that are considered to be the portion of business's assets that are ready or will be ready for sale Inventory could be added to the organization in two ways, one way is to store the inventories initially in advance, but that's more expensive and profitable and the other way is to keep adding everything in the stock according to our need, that's a slow process but less expensive. Our project " E – record System" basically deals with the management of the computer appliances available in the college and to provide a request based service of any specific item to the user , tackle the complaints and the user information related to the assignment of appliances to them.

Keywords: *Inventory, purchase, issue, demand forecasting, maintenance, management.*

I. INTRODUCTION

Inventories are raw materials, work-in-process goods and completely finished goods that are considered to be the portion of business's assets that are ready or will be ready for sale. Formulating a suitable

inventory model is one of the major concerns for an industry.

Inventory management systems are central to how companies track and control inventories. Having the ability to measure

inventory in a timely and accurate manner is critical for having uninterrupted business operations because inventory is often one of the largest current assets on a company's balance sheet. Two inventory management systems exist: perpetual system and periodic system. Each system has its pros and cons, and companies may choose based on their own needs for inventory control and available company resources.



Fig 1: Advantages of keeping an inventory

II. LITERATURE REVIEW

Alasfoor, Ali [1] presented an applied research on inventory management at a textile chain store in Malaysia. It specifically examined the relationship between inventory management and company's performance. It helped us to analyze the working flow of inventories in a

company and which eventually helped us to relate their findings with our project whose aim is to deal with the inventories.

Alcuaz, Manuel L. Jr [2] explained different ways of analysis of inventories using different methodologies and comparing the annual turnover of consecutive years for 4 years, maintaining the record of every article and finally representing it with a percentage value. Serhii Ziukov [3] says that There is a need for new and effective methods for modelling systems associated with inventory management, in the face of uncertainty. Uncertainty exists regarding the control object, as the process of obtaining the necessary information about the object is not always possible. The solution of such complex tasks requires the use of systems analysis, development of a systematic approach to the problem of management in general. Inventory models are distinguished by the assumptions made about the key variables: demand, the cost structure, physical characteristics of the system. These assumptions may not suit to the real environment. There is a great deal of uncertainty and variability. The research object is models of inventory control under uncertainty.

Williams[4]explained that The purpose of this paper is to provide a review of inventory management articles published in major logistics outlets, identify themes from the literature and provide future direction for inventory management research to be published in logistics journals. Two major themes are found to emerge from logistics research focused on inventory Management. First, logistics researchers have focused considerable attention on integrating traditional logistics decisions, such as transportation and warehousing, with inventory management decisions, using traditional inventory control models. Second, logistics researchers have more recently focused on examining inventory management through collaborative models.

José Roberto do Rego Marco Aurélio de MesquitaSpare[5]presented Spare parts inventory are needed for maintenance and repair of final products, vehicles, industrial machines and Equipment, frequently requiring high investments and significantly affecting customer satisfaction. Inventory management is complex due to the large number of different items and low demands. This article presents a literature review on single location spare parts inventory control, embracing both demand forecasting

techniques and inventory control decisions on the different life cycle stages. Overall, the literature review identified the following research opportunities on inventory management: criteria to decide to stock or not an item, how much to order in the first and the last batch, demand forecasting and inventory control models integration and case studies on real applications.

[6]This thesis is concerned with the development of an intelligent inventory management system. The aim of the system is to bridge the substantial gap between the theory and the practice of inventory management and to help industrial inventory managers to achieve an effective and successful inventory management. The proposed system attempts to achieve this by providing automatic pattern identification and model selection facilities. Such a hybrid knowledge-based inventory system consists of a collection of techniques (or pattern identifier) for identifying demand and lead time patterns and a knowledge base (or rule base) for subsequent selection of a suitable inventory model taking into consideration aspects of the practical situation.

K.V sunitha[7]states that he objective of inventory management is explained in some

detail sections. Section two is concerned with inventory management techniques. Attention is given here to basic concepts relevant to the management and control of inventory. The aspects covered are: (1) Determination of the type of control required, (2) The basic economic order quantity, (3) The reorder point, and (4) Safety stocks.

Angel Raphella. S, Mr. Gomathi Nathan. And Ms. Chitra. G states that [8] As a result to today's uncertain economy, companies are searching for alternative ways to stay competitive. This study goes through the process of analyzing the company's current forecasting model and recommending an inventory control model to help them solve their current issue. As a result, an Economic Order Quantity (EOQ) and a Reorder Point was recommended to help them reduce their product stock outs. The shortage of raw material for Production always makes the process discontinuous and reduces the productivity. The ABC analysis technique for the inventory control system is first used to identify the most important multiple products and then the economic order quantity (EOQ) of each product is developed to find their inventory model equation individually.

Ozalp " Ozer [9] research, his chapters provide a discussion of four fundamentals of effective inventory management. First, it requires managers to know how best to use available information. Second, managers need to quantify the value of information. Third, they need to coordinate decentralized inventory operations. Finally, effective inventory management requires decision tools that can be embraced by their users. The chapter's emphasis is on the use of information, and the role of new information technologies in inventory management

Stephen Arogord anand Jaideep Gupte [10] acknowledges the capacity of diverse inventory management techniques to reduce material wastages while simultaneously increasing cost-efficiency, thereby helping the organization to achieve superior performance. In this regard, research so far tends to treat multiple inventory management techniques in silos; there has been relatively few significant attempts to undertake a holistic review and presentation of the several key emerging techniques available to today's practitioner, hence the motivation for the present paper, which primarily aims at referring the reader to an outline the conceptual literature on

contemporary inventory management practice

III. PROBLEM STATEMENT

Inventory management is a science primarily about specifying the shape and placement of stocked goods. It is required at different locations within a facility or within many locations of a supply network to precede the regular and planned course of production and stock of materials. This research mainly examines the inventory (Computer appliances in IPEC), management of these items, having a digital record for them. This research paper's purpose is to find out an effective way to manage and maintain all the data regarding the appliances and defining different user interfaces for specific users. Not just managing the placements of the inventory, but also maintenance of stock, already present in the college. To solve the challenge of proper inventory management, companies often turn to software that can help them keep track of all of their inventory, orders, vendors and more. Startups frequently record inventory quantities in Microsoft Excel because it's easily accessible and they don't have to put a lot of money into obtaining it. But they find that Excel

comprehensive features they need to analyze data, spot trends in sales and supply chains, automatically update inventory records from a barcode scanner, and keep their data secure yet accessible. Using a simple inventory management solution is a step up from Excel, but its limitations soon leads growing businesses to switch to a more advanced solution over time. This leads to wasted time and money spent learning a new system every few years.

IV. PROPOSED METHODOLOGY

The method of investigation depends upon the purpose of the study. The present investigation aims at studying how the material management is performed by the ISSUING STORE of the Inderprastha Engineering College. It attempts to identify the relation, issue of materials and cost of materials and the staff to whom it has been allotted, request and delivery of the materials. The major aim of this project is to deal with the flow of computer appliances in the college premises and to maintain a record of everything in a computerized form. And the study analyses how the appliances are managed by the unit. For all the above facts and factors, the main object is to deliver the proper functioning and planning of the unit, which play an

important role in the appliance distribution in the respected department of the college. Shows the way of flow of the project which states that the user or the admin will login via the login page and the user can make a request for any product which he or she wants. Then the request would be sent directly to the admin and then

he will approve the request which means a permission to the user to take the item request from the store.

Second step is where a complaint is received directly by the comments section which is open for all.



Fig 2: Login Window

This figure depicts the login for all the types of user such as admin and faculty. This is the main window from which application starts.

Allotment Details

Product Id	Product Name	Date	Description	Status
56	HardDisk	2017-02-16	dg dpt fl	Approved
23	Ram(4GB)	2017-04-02	mdrh	Approved
9	Ram(4GB)	2017-04-02	fafs	Approved
9	Keyboard	2017-04-02	er	Approved
9	Mouse	2017-04-02	erhgt	Approved

Fig 3 Allotment details window

Product Id	Product Name	Company Name
304	keyboard	logitech
342	mouse	bel

Request For Product

Product ID:

Product Name:

Description:

Fig 4: Request for product window

This window is for the request of the products from the above list where the user could see the items available in the store and request for it.

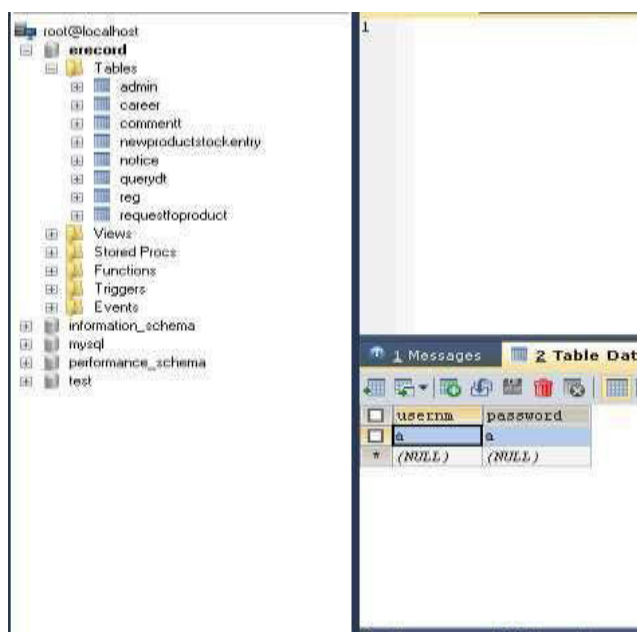


Fig 5: Database Window

This is the main database table which shows the details of the appliance as well as all the details of which it is allotted.

VI. RESULT

With this project we are able to order the items which are required by the users and the admin approves the request, maintaining the details of each stock being added by the admin in the store, details of the user such as the name, employee id, salary and the items allotted to him or her, the comments made by the user for any products and the comments section is visible to all.

CONCLUSION

In the past years, the efficiency of inventory management has become an area of major concern in business. This paper has presented the definition and meaning of inventory. We are discussing the literature review of two papers on the same topic. Then we discussed about the methodology that we are going to use in this project.

Finally we have shown that we will be using java, HTML, CSS to develop the project. Lastly, few sample images are being presented about the admin interface of the project. Inventory control system is a system to manage the inventory at stock (or out) in

place of manual systems (or half-automatic ones). The suggested system was developed around a group of agreed standards to fit a wide range of control stock of any organization. The system will help the organization to keep track on its suppliers, customers and the item movement; be it stock-in or out, or between different branches, or to-from the customers. The suggested system is easy to navigate through because it has a simple graphical user interface, thus giving the user the flexibility in his work to enhance and increase his production, which is what the organization wants. Beside the fact that it needs a somewhat strong training, it is pretty much easy to use. Having an easy system helps the employees do their work better which increases the effectiveness of their work; which by itself increases the effectiveness of the organization.

FUTURE WORK

In our project we have only included the movement of appliances from store to the user, not beyond that but in future, we can also deal with the statistics of previous years and months so that we can analyze them and do the demand forecasting for the future use. We can also use the previous records to gain the knowledge about the worn out or

damaged products so that we can have an analysis of its lifecycle and use the information for future use.

A. The Human Element

Our system makes use of humans to enter all the data regarding the appliances or the users of that system. Loss through theft or mistakes can lead to inaccurate inventory counts, while mis-shelving can make it challenging to find inventory that is supposed to be there but is actually in a different location than what the system says.

B. RFID

One of the more radical advances in inventory management is the introduction of radio frequency identification tagging. RFID tags put a small radio device on each piece of inventory, allowing each piece to be tracked and located. Whether a warehouse uses an RFID tag on each pallet or a retail store uses one on each item of inventory, RFID technology makes it easier to track items and can save time in tracking and data entry as well as eliminate much human error. In our software the administrator needs to enter the credentials of the user and the serial number of the appliances manually but if we add an RFID machine to the software then it will automatically take the

credentials by the sensors and that will reduce great amount of work for the administrator. The systems will become more automatic and friendly.

LIMITATIONS

The project is mainly concerned about the series of processes that will be happening with the stocks after it comes in the store house of the college. We are not dealing anything beyond the scope of our institution, the chain of events that fall for the supplier are not discussed here. Efficient inventory control methods can reduce but cannot eliminate business risk. The objectives of better sales through improved service to customer; reduction in inventories to reduce size of investment and reducing cost of production by smoother production operations are conflicting with each other. The control of inventories is complex because of the many functions it performs. It should be viewed as shared responsibilities

ACKNOWLEDGEMENT

Throughout the project and in the making of this research paper we have been guided by our mentor and the head of the department (HOD) Dr. Pooja Tripathi, without whose help we would not have been able to complete this work successfully.

REFERENCES

- 1) Alasfoor, Ali. (2009). Personal communication, Arc Fabrication and Welding Services, Bahrain.
- 2) Alcuaz, Manuel L. Jr, (2008). Map insights; Retail problems, solutions, Business World,
- 3) Serhii Ziukov from "A literature review on models of inventory" retrieved from <https://www.mruni.eu/upload/iblock/019/VSE-15-5-1-03.pdf>
- 4) <https://Williams%20and%20Tokar%202008.pdf>
- 5) José Roberto do Rego Marco Aurélio de Mesquita Spare parts inventory control: a literature retrieved from http://www.scielo.br/pdf/prod/v21n4/en_AOP_T6_0001_0308.pdf
- 6) <http://usir.salford.ac.uk/14812/1/DX199575.pdf>
- 7) "A Study on inventory management in Sujana metals products LLimited"

retrieved from the URL
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.454.2225&rep=rep1&type=pdf>.

8) Inventory Management- A Case Study derived from
https://www.ermt.net/docs/papers/Volume_3/3_March2014/V3N3-185.pdf

9) Inventory Management: Information, Coordination and Rationality
https://www.utdallas.edu/~oxo091000/pdf/Ozer_Inventory_Management_01-06-08.pdf

10) Contemporary Inventory Management Techniques: A Conceptual Investigation derived from
http://sdmimd.ac.in/pdfs/Contemporary_Inventory_ICOMAR16.pdf