

Ideation Phase
Literature Survey

Date	7 September 2022
Team ID	PNT2022TMID43190
Project Name	Inventory Management System for Retailers in Cloud Application Development

Literature Survey: Inventory Management System for Retailers

Inventory Management System for Retailers is a management of process of distributing the products to the Shop owners from retailers. This management reduce the working cost & functional cost and also helps to know the demand over the customers.

Existing Solution:

- **iVentRetail**

Reference Link: <https://ivend.com/retail-inventory-management-software/>

- **Zoho Inventory**

Reference Link: <https://www.zoho.com/in/inventory/>

- **Inventory management for retail companies: A literature review and current trends**

Reference Link:

https://www.researchgate.net/publication/352235223_Inventory_management_for_retail_companies_A_literature_review_and_current_trends

- **Development of inventory management system**

Reference Link: <https://ieeexplore.ieee.org/document/5478077>

Inference from the existing solution:

The requirement for an indication, a tool, and a methodology to determine the business's trend and control inventories.

The decision for inventory management is based on

- Data from different key performance metrics, which take into account several aspects of the inventory influencing the business and
- Methodology (such as AUD and MDP) to forecast revenue and discount on the products.

- Tools (such as RFID and barcodes) to maintain correct records across digital and physical databases.

Drawbacks of Inventory management:

- Poor tracking due to the customer behaviour.
- Changing demand and Overselling.
- Supply chain and logistics complexity including warehouse management.
- Insufficient order management.
- Forecasting inventory seasonal buys due to depreciation, market downs, product damage and theft.
- Stock predictions.
- Chat bot or any other AI tools for communication will be lag.
- No individual email tracking.
- Completely in manual input.

[1] Automated Reordering and In-Stock Information, And System Crash

ADVANTAGE: Computerized inventory informs employees and customers within seconds whether an item is in stock. Because the inventory is synced with sales, there is a running tally of what is in stock and what isn't. This helps flag reordering needs and provides better service to customers. As inventory drops below a specific threshold, new orders are placed with vendors and tracked to let customers know when the new products will arrive.

DISADVANTAGE: One of the biggest problems with any computerized system is the potential for a system crash. A corrupt hard drive, power outages, and other technical issues can result in the loss of needed data. At the least, businesses are interrupted when they are unable to access the data they need. Business owners should back up data regularly to protect against data loss.

[2] Integration With Accounting and Malicious Hacks

ADVANTAGE: Many of the computerized inventory platforms integrate with accounting software to track cash flow. This makes the process of transferring inventory costs and assets between programs seamless and reduces the need for additional bookkeeping costs. Financial statements are more easily generated with shared data between inventory and bookkeeping.

DISADVANTAGE: Hackers look for any way to get a company or consumer information. An inventory system connected to point-of-sale devices and accounting is a valuable resource to hack into in search of potential financial information or personal details of owners, vendors, or clients. Updating firewalls and anti-virus software can mitigate this potential issue

[3] Forecasting and Planning and Reduced Physical Audits

ADVANTAGE: Inventory management software does more than track where inventory is located and when to reorder it. A data collection system is used to create needed forecasting and strategic planning reports. Business owners review trends regarding which products do well in certain months or during specific cyclical seasons. Business owners use this data to plan for growth and order inventory intelligently to best utilize cash flow resources.

DISADVANTAGE: When everything is automated, it is easy to forego time-consuming physical inventory audits. They may no longer seem necessary when the computers are doing their work.

However, it is important to continue to do regular audits to identify losses such as spoilage or breakage. Audits also help business owners identify potential internal theft and manipulation of the computerized inventory system.

[4] Simplicity and Technical Issues

ADVANTAGE: Most business owners are not accountants or bookkeepers by trade and find it challenging to do most accounting tasks. This is where accounting software programs give a business owner advantages. A wide variety of accounting software programs are consumer friendly. Business owners can shop around to find a program that is easy to install, learn and use. Many programs provide prompts for the type of data that should be entered in each section. Once the system is established with bank accounts, debts, and vendors, the business owner only needs to update information

DISADVANTAGE: When dealing with computers, issues can arise. You may be completing year-end data for your accountant and experiencing a power outage. Computers might acquire a virus and fail. There is also the potential of users incorrectly performing software tasks that they are not familiar with. If a user tries to do one thing but inadvertently does something else, it might take some work to undo the error

[5] Reliability, Cost-Effectiveness, and Incorrect Information

ADVANTAGE: Most business owners are not accountants or bookkeepers by trade and find it challenging to do most accounting tasks. This is where accounting software programs give a business owner advantages. A wide variety of accounting software programs are consumer friendly. Business owners can shop around to find a program that is easy to install, learn and use. Many programs provide prompts for the type of data that should be entered in each section. Once the system is established with bank accounts, debts, and vendors, the business owner only needs to update information as it comes Most of the major software programs make using the program simple. The math is accurate and reliable, so a business owner can accurately determine available funds at any time

DISADVANTAGE: Business owners can do a lot to mitigate the disadvantages and potential problems associated with computerized accounting with proper planning and software integration. Taking the time to establish it correctly is easier and cheaper than trying to backtrack because when a problem occurs.

Literature Survey				
S. No.	Title	Author	Year	Description

1	The relationship between capacity utilization and inventory investment	Abramovitz , Odigian	1957	They highlighted the relationship between capacity utilization and inventory investment. Existing stock of inventories was expected to adjust to the desired levels. Thus the variable, existing stock of inventories, was essential to be negatively related with the desired stock. The result was that there is positive relation among the ratio of inventory to sales and inventory investment. High ratio of stocks to sales in the past suggests requirement of high levels of inventories in the past and promising high investment in inventories in the current period also
2	A Proficient Process for Systematic Inventory Management	R. Sheth, M. Vora, R. Sharma, M. Thaker and P. Bhavathankar	2020	This system thus helps the inventory managers to optimize their functioning with several data analytics algorithms such as regression modelling, market basket analysis, and other machine learning techniques to provide an allround solution to their needs.
3	Inventory management for retail companies: A literature review and current trends	Macas, Cinthya & Aguirre, Jorge & Arcentales-Carrion, Rodrigo & Pena, Mario	2021	The need to analyse their KPIs becomes highly significant, as well as their different systems, methodologies, and tools used within inventory management and optimization.

Reference:

- [1] J.C.F. Ehrenthal et.al, "Demand seasonality in retail inventory management", European Journal of Operational Research, Volume 238, Issue 2, 2014, Pages 527-539, ISSN 0377-2217, <https://doi.org/10.1016/j.ejor.2014.03.030>.
- [2] Xin Tian a,b, Haoqing Wang a,b, Erjiang E c,*, "Forecasting intermittent demand for inventory management by retailers: A new approach", Journal of Retailing and Consumer Services, Volume 62, September 2021, 102662, <https://doi.org/10.1016/j.jretconser.2021.102662>