Web Based Inventory Management System

Harini Aru[1], Indra Priyadharshini[2]

[1]UG student, RMK College of Engineering and Technology
[2]Assistant Professor, RMK College of Engineering and Technology

---***---

Abstract - *It is crucial for an association to comprehend its stock to accomplish both effective and quick activities, that as well, at a moderate expense. A powerful administration of stock aids in diminishing costs which further holds records and funds under control. From a client's perspective, it encourages you to give better client administrations through quick conveyance and low delivery charges, thus, meeting client assumptions. In this task, the items show up from the wholesalers or direct merchants into the client product house, and on the other side, a similar item is being stacked in the rack for individuals to purchase. The goal of this venture is to enable the user to log in to the application utilizing secure qualifications, enter or transfer information relating to approaching inventories, update merchandise development and stock subtleties on a standard premise. It likewise enables the rules and classification of the executives, so the framework produces required alerts through mails and Invoice Management.*

Key Words: Inventory Management, Stock, Web application, Billing, Stock management

1. INTRODUCTION

The inventory management system is the mix of innovation that involves both hardware and software along with cycles and techniques that manage the observing and upkeep of loaded items, regardless of whether those items are organization resources, crude materials, and supplies, or completed items fit to be shipped off merchants or end customers. A inventory management system comprises of a system for distinguishing each stock thing and its related data, for example, standardized identification marks or resource labels; hardware instruments for perusing standardized tag marks, for example, handheld standardized tag scanners or cell phones with standardized identification filtering applications; Inventory the board programming, which gives a focal information base and perspective for all stock, combined with the capacity to examine information, create reports, gauge future interest, and that's just the beginning; Processes and strategies for marking, documentation, and announcing. This ought to incorporate a stock administration strategy like Just in Time, ABC Analysis, First-In First-Out (FIFO), Stock Review, or another demonstrated philosophy; People who prepared to follow these strategies and cycles.

Materials Management [1] is related to organizing, getting, taking care of and giving the reasonable material of right quality, perfect sum at right spot in fortunate time to co-ordinate and schedule the creation development in an integrative course for a mechanical undertaking. Stock Management is fundamentally the technique by which an affiliation is given the items and undertakings that it needs to achieve its objectives of buying, amassing and improvement of materials. Stock organization systems are critical to how associations track and control inventories. Having the option to measure stock in a fortunate and definite manner is fundamental for having consistent business exercises since stock is routinely one of the greatest current assets on an association's bookkeeping report. Stock is a summary for items and materials, or those product and materials themselves, held open in stock by a business.

A perfect inventory management system will mention to you what product is available, what is on hand when it will show, and what you've sold. With such a framework, you can design buys wisely and rapidly perceive the quick things you need to reorder and the sluggish things you should write down or uncommonly advance. [2]Some retailers track stock utilizing a manual label framework, which can be refreshed day by day, week after week, or even month to month. In a manual label framework, you eliminate sticker prices from the item at the place to checkout. You at that point cross-check the labels against the actual stock to sort out what you have sold. A key stock organization measure is restoration.

A good inventory management system will make the user be informed what product is available, what is on hand, when it will show up and what you've sold. With such a framework, you can design buys wisely and rapidly perceive the quick things you need to reorder and the sluggish things you should write down or extraordinarily advance. [4] A few retailers track stock utilizing manual methods or manual systems, which can be refreshed day by day, week by week, or even month to month. In a manual system, you eliminate sticker prices from the item at the place to checkout. You at that point cross-check the labels against the actual stock to sort out what you have sold.

The objective of good inventory management is to "meet or surpass clients' assumptions for item accessibility with the measure of everything that will augment an association's net benefits or limit complete inventory venture". [3]This goal is very difficult if not impossible to reach without a comprehensive inventory management system.

2. RELATED WORK

Bungled inventory implies disillusioned clients, as well much money tied up in distribution centers and more slow deals. This task kills the desk work, human issues, manual postponement and accelerate measure. [1]Inventory Management System will have the capacity to follow deals and accessible inventory, tells a storekeeper when it's an ideal opportunity to reorder and the amount to purchase. Inventory Management System is a windows application produced for Windows working systems which centered nearby Inventory control and produces the different required reports.

This is the primary module of our endeavor. In which we can keep up the inconspicuous components of bill organization, with the objective that we can arrange data in one table plan. The owner of this association can find all of the inconspicuous components in a single view page plan. All the stock segments should be kept up in that see, so it very well may be revived each time as sassy the need. [2] The printing module can print out the plan of the bill. It can be changed over into a pdf plan and delivered the bill for the customer. In this the owner of this association can see the one tab detail of all the customer, which they buy over a day, week or a month for the tally the thing, so they can accept the which thing is needed for the client and accounting to that they can settle the markdown and various offers.

The data used in the improvement of this endeavor work will be accumulated from various levels of organization in the conveyance, utilizing review [6]. In addition, from that, we got an idea where they are missing that is Inventory control and Bill times. In paper presents a caution about the data segment in the bill which in perspective on PDF design. With the goal that the retailer will refresh about the leftover things in the shop. Keeping an equilibrium between something over the top and too little inventory for future use in the shop. [4] Tracking inventory as it is shipped between areas. To keep stock for every single information also as of each item's they are managing. It is additionally utilized to diminish overhead expenses and Time-saving applications. It will give a Maximum benefit inside less expense, update Log will be kept up.

In the paper [9] Inventory management of extras is one of the exercises Zambia Air Force (ZAF) attempts to guarantee the ideal usefulness condition of gear to adequately accomplish its jobs. This commitment must be made conceivable via robotizing the current manual and paper-based inventory system. An electronic inventory management system utilizing cloud design and standardized identification innovation was proposed. A writing audit was directed on three innovations utilized in inventory management is Radio Frequency Identification (RFID), Standardized tag Technology, and Near Field Communication (NFC). An audit was likewise attempted on the connection attempts to distinguish the idea that could be received in the proposed system. A gauge study was performed to comprehend the difficulties looked by ZAF in the inventory management of extras. The consequences of the gauge study were investigated and tracked down that the difficulties were ascribed to the current manual inventory management system primarily because of human blunders, off base inventory revealing, and pilferage of things. The proposed model system was created furthermore, verified to be quicker, effective, and more dependable than the manual and paper-based system.

The primary interaction of the general store management system activities incorporates the acquisition of products, investigation, warehousing, returns, renewal, deals, advancement, value management, and inventory gains and misfortunes. [8] Work process plans to form a closed-loop PDCA. After the acquisition, it creates a notification to inform the review faculty into warehousing, while at the same time expanding inventory records and into the business interaction. During deals measure, in view of inventory gains and misfortunes and the interest custom advancements, the system goes through renewal and value management and creates a notification of evaluation into the cycle once more. Imprint return product and renewal merchandise into the return/ renewal measure, putting away the chargeback track record in the verifiable information base, those which doesn't complete effectively will reappear the profits or revealed misfortune treatment and track work process.

3. PROPOSED SYSTEM

3.1 Dedicated logins based on roles

In the proposed system, the logins are given based on the role the particular person plays in the super market. A signup is mandatory for the employees accessing the website using their own role and employee id. So based on the roles there are different functionalities added for access by them. And one common module is given for the superior admin who heads the network of that particular supermarket. The

superior authority is permitted to access all the modules of the web based inventory management system.

3.2.1 Managers Module

The first module is meant to be the manager module. As soon as the stocks arrive at the shop the stocks will be recorded in the website to prevent any shortage in the stocks while the customers have purchased some products. The products in high demand tend to move so fast whereas the products with a nominal demand moves slow from the shop rack to the customer's bag. So based on the demand each product's need to restock will be mandatory. To prevent the discrepancies happening in this regard. So whenever the product goes below a threshold automatically the concerned authority gets the alert on the email so that the item could be restocked. So the manager can belong to the inventory or to the shop and based on that the access of data and the authority to update varies. The manager at the shop will be able to update the incoming goods to the shop where as the manager at the inventory will be able to update or order products from the suppliers. Basically the shop manager module has the billing software access that plays a key role in the application. It's based on this module's quantity update the alerts are being sent to the concerned authority. The concerned authority gets the email alert with the name of the product and the remaining stock as soon as a product falls below threshold. So here after the alert the authority could shift the products the inventory to the shop or he can order from the supplier if the product is not available in the inventory.
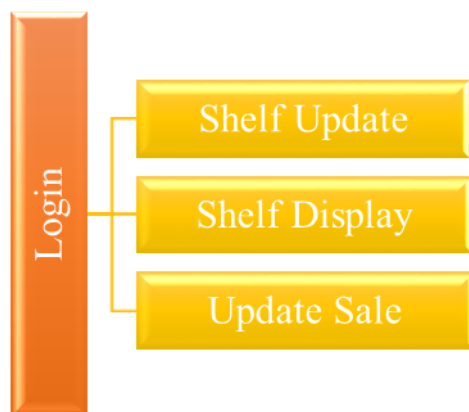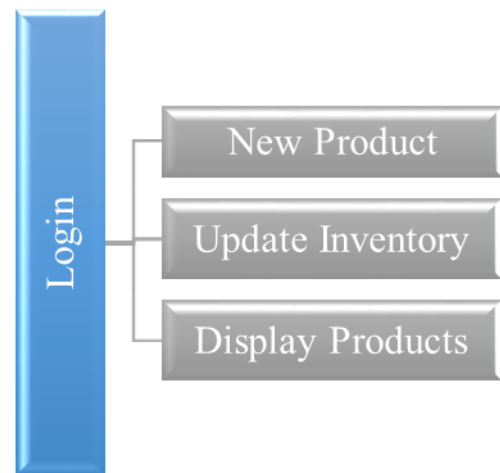

Fig -2: Inventory Manager Module

3.2.2 Admin Module

The other module that is present is the web application is the admin module. Here in this module the admin is considered to be the superior authority and will be able to access all of the modules present in the web application. He will be able to view as well as update the products. This makes sure that all the process and updates of the managers in both inventory and shop are seamlessly made and the admin could always make sure that there is no fraudulent activities taking place in the product sale or update.
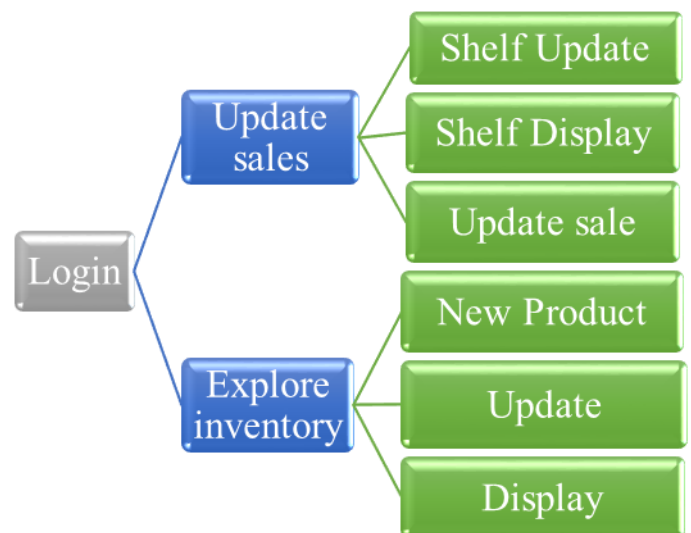

Fig -3: Admin Module

3.3. Billing system

In this inventory management web application we have a dynamic billing software that is built which is connected to the centralized database. So as soon as the products are purchased by a customer and the bill has been generated for

Fig -1: Shop Manager Module

that automatically the product's count for the products that has been purchased will be deducted in the database. So here there is no delay between the product sale and product update. As soon as the threshold given by the authority is reached automatically the alert is sent to the concerned authority on this regard. By this the sale and restock are in line and synchronous.

3.4. Damage analysis

The other facility available with the web application is the damage product list with all the products and its quantity that has encountered a damage. This is a trivial part of the web application where the damages are recorded based on the product with the cause of the damage. So this data will serve as an eye opener for the shop management to prevent the losses due to those causes and take all the precautionary measures based on the data recorded. Also, this can be extended to have an ML based analysis upon what are all the possibilities of damages and the prediction of damages can also be made using the ML algorithms based on the recorded data that would grossly decrease the damage and contribute in the profit of the organization.

3.5. Damage analysis

The other facility available with the web application is the damage product list with all the products and its quantity that has encountered a damage. This is a trivial part of the web application where the damages are recorded based on the product with the cause of the damage. So this data will serve as an eye opener for the shop management to prevent the losses due to those causes and take all the precautionary measures based on the data recorded. Also, this can be extended to have an ML based analysis upon what are all the possibilities of damages and the prediction of damages can also be made using the ML algorithms based on the recorded data that would grossly decrease the damage and contribute in the profit of the organization.

3.6. Place order from suppliers

Apart from the other modules that are build, we are planning to add another module for ordering the products from the suppliers through the web application itself. Here the manager in the inventory will be given the authority and access to the supplier module wherein the list of products that are to be restocked in the inventory can be given as a csv file and the file will be forwarded to the supplier. The supplier will be sending a return receipt and the products which will again be recorded to keep track of the payments made and the payments yet to be made to the suppliers. The inventory manager will have the facility to add new suppliers and also remove the suppliers from the list of no

longer they are going to purchase products from the particular supplier. This becomes an easy process to manage the entire super market system because every management function are possible with a single web application dedicated for that supermarket. All at one place will make the data be factual and no redundancy or discrepancy would occur in any way.
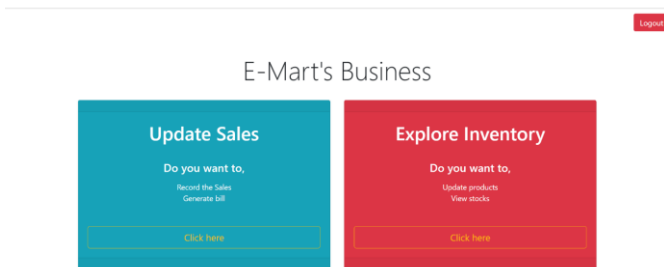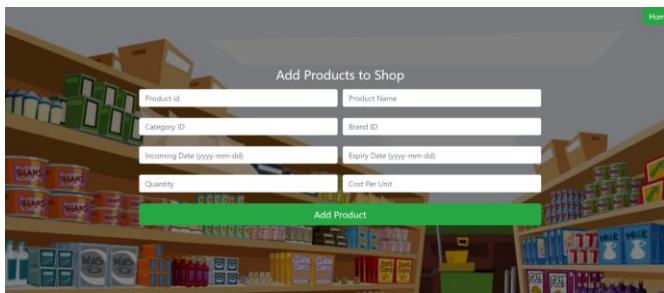
3.7. Viewing products

The last module that is added is a module where the products based on the previous updates are listed. Also a search bar is present at the top to just give the name of the concerned product to be searched. This module displays the products brand wise, category wise as well as product wise also. This display module will enable the user to get to know the complete details of the products and its brands in his/her super market.

3. CONCLUSIONS

Exact inventory management is critical to maintaining a profitable product business. Following stock consistently can help keep away from stock blunders and different issues. A solid inventory management programming could diminish the danger of overselling, saves expenses, keep away from stock-outs just as overabundance stocks, and builds the benefit. It likewise advances great terms with sellers and providers just as clients. This thus prompts greater efficiency, great quality, sensible costs, and a decent benefit which prompts a mutually beneficial arrangement for both the customers and vendors.

SCREENSHOTS

REFERENCES

[1] Khobragade, Punam, et al. "Research paper on Inventory management system." (2018)

[2] Mendhe, Utkarsha, et al. "Bill Generator and Inventory Maintenance." (2017).

[3] Rawat, Kalpana. "Today's inventory management systems: A tool in achieving best practices in indian business." *Anusandhanika* 7.1 (2015): 128.

[4] Mendhe, Utkarsha, et al. "Research paper on Stock Maintenance And Print Bill." *International Research Journal of Engineering and Technology (IRJET)* (2017).

[5] Kaur, Jasleen, and Pankaj Deep Kaur. "CE-GMS: A cloud IoT-enabled grocery management system." *Electronic Commerce Research and Applications* 28 (2018): 63-72.

[6] Rezwan, Sifat, et al. "IoT Based Smart Inventory Management System for Kitchen Using Weight Sensors, LDR, LED, Arduino Mega and NodeMCU (ESP8266) Wi-Fi Module with Website and App." *2018 Fourth International Conference on Advances in Computing, Communication & Automation (ICACCA)*. IEEE, 2018.

[7] Broekmeulen, R. A. C. M., and J. C. Fransoo. "Inventory control of perishables in supermarkets." *International Journal of Production Economics* 104.2 (2006): 462-472.

[8] Zhu, Xiumei, et al. "Improvement of the Supermarket Management System based on Commercial Category." *Heshani Perera is Reading Executive MSc. Supply Chain in AeU University of Malaysia. She is completed B. Sc. in Logistics* (2013).

[9] Muyumba, Thomas, and Jackson Phiri. "A Web based Inventory Control System using Cloud Architecture and Barcode Technology for Zambia Air Force." *International Journal of Advanced Computer Science and Applications* 8.11 (2017): 132-142.

[10] Mehta, Sagar S., Prasad S. Puranik, and Satish B. Sharma. "A Review on Inventory Management System for Improving Efficiency of Project Development Cycle." *Journal of Advanced Database Management and Systems* 3 (2016): 24-29.

BIOGRAPHIES

Ms. Harini Arul pursuing B.E Computer Science and Engineering at RMK College of Engineering and technology. She presently does research on applications of machine learning and automation using in various technology. She has developed Machine Learning model for agricultural production analysis and a web based inventory management system. Her areas of interest are Machine Learning, IOT, and problem solving and web development.

Ms. Indra Priyadharshini is currently working as Assistant Professor in Department of CSE at RMK College of Engineering and Technology. She completed her B.Tech and M.Tech Under Anna University. She has written many research articles related to application of Cloud Computing, Health care, Network Security, etc., She has membership with ISTE, IAENG and DSCI.