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Automated Inventory

Devendra Kumar¹, Aditi Audichya², Ambuj Verma³, Bhavesh Kumar Sharma⁴, Amit Bohra⁵

^{1, 2, 3, 4}U.G. Students, B.Tech, Dept. of Computer Science & Engineering, Global Institute of Technology, Jaipur

⁵Assistant Professor, Dept. of Computer Science & Engineering, Global Institute of Technology, Jaipur

Abstract: *The purpose of the Automated Inventory is to automate the existing manual inventory system with the help of computerized automation software, in a manner such that it provides the functionality to store the valuable data or information for a longer period of time, along with its easy access and manipulation. The application can track sales and the available inventory.*

It also notifies the store owner when the products need to be reordered and also their quantity. Automated Inventory is an application developed for Windows operating system, which enables users to control and monitor inventory and generate various reports.

This project reduces the manual work and delay for managing the stock, inventory, product category and products. The technologies used in this system are MySQL (Xampp), Python & Django, HTML & CSS.

Keywords: *Automated Inventory, Stock, Invoice, Purchase, Sales, Productivity, Online, System, Software.*

I. INTRODUCTION

In comparison to larger organizations with more physical space, items in smaller companies may go straight to the stock area instead of a receiving area. If the company is a wholesale distributor, the items may be finished products rather than raw materials or components. The commodities are subsequently removed from the stock regions and sent to production facilities, where they are processed into finished goods.

The final products may be returned to warehouses for storage before being sent, or they may be dispatched directly to customers. Balancing the risks of surplus and deficiency in inventory is especially difficult for organizations having complicated and larger manufacturing processes and supply chains. Also, there may be different challenging decisions to make, such as what quantities of products to purchase or produce, when to restock inventory, what price to pay for a product, as well as when and at what price the product should be sold. Small businesses can easily keep track of the stock manually and use Excel sheets to store the data and Excel formulas to determine reorder points and amounts. But, it's not the case in larger companies. They use various software for that purpose.

That's where the concept of automated inventory comes into account. Automated inventory uses data such as serial numbers, cost of goods, quantity of goods and the dates to keep track of the goods as they move through the process. The implementation of this system has the ability to simplify company tasks and can also increase efficiency and production. Through this, we can save employees' and customers' precious time.

A. Motivation

This paper will help to create better understanding in redefining the requirements of shop owners. In today's extremely competitive market, efficient management is also gaining popularity. The goal of this study is to see how automated inventory improves a store's performance.

B. Scope of Inventory Management

The scope of an inventory system can cover many needs, including valuing the inventory, measuring the change in inventory and planning for future inventory levels. Measuring the change in inventory allows the company to determine the cost of inventory sold during the period. This allows the company to plan for future inventory needs.

C. Objective

- 1) To ensure proper supply of materials and stock so that customers' demand can be fulfilled without any issue.
- 2) To avoid problems related to stock of products present in the inventory.
- 3) To maintain an organized record of inventory.

II. FUNCTIONALITIES

Following functionalities can be provided by the Automated Inventory.

- 1) *Employee Registration*: Initially, the employees can register in the application using their email address and after that, an OTP is sent on the email. Then, after filling the required details he/she can set a password.
- 2) *Adding New Items*: New items can easily be added to the inventory.
- 3) *Filtering*: Through filters, the products can be easily found.
- 4) *Low Stock Notification*: Shop owners can see the total stock of each product. The user will be notified, if the stock is about to finish.
- 5) *Categories of product*: The products are divided into various categories, so that the products can be filtered by the groups.
- 6) *Product Request*: Shop owners can make requests for the products to maintain the stock.
- 7) *Generate Invoice*: An invoice will be created automatically once the order is placed.
- 8) *View Invoice*: In order to understand what items are required by the customers, the shop owner can see the various generated invoices.
- 9) *QR code Scanning*: For instant product identification and easy tracking, QR codes are used.

III. METHODOLOGY

This project follows the basic fundamentals of 'Software Development Life Cycle' (SDLC). Product is scanned using a QR code scanner. QR code is an encoded version of human-readable text which can be instantly scanned and decoded by the machine. Every QR code represents certain pieces of information which includes a number of black squares and dots (encoded version of human-readable text). Once the QR code is scanned, it automatically gets decoded, which represents a uniquely identified number for that particular product, through which we can get the entire information about the product, after confirmation it leads to invoice generation. The most important part of inventory management is controlling and maintaining the inventory, in other words, knowing when stock gets low in quantity and when it needs to be re-ordered.

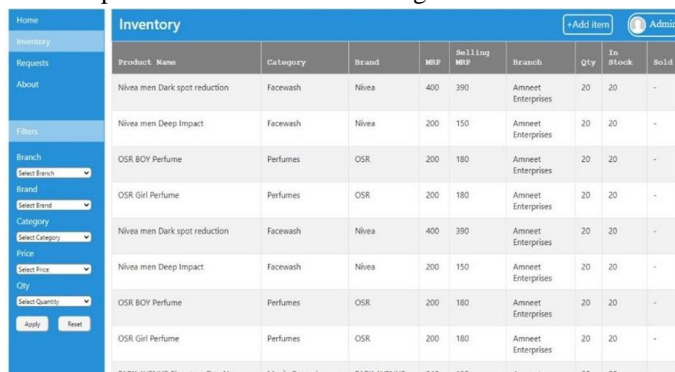
IV. INTERFACE OF THE PROPOSED SYSTEM

A login form is used to authenticate users in order to secure the system from un-authorized access. Fig. 1 shows the login form for automated inventory.



Fig. 1 Login form for automated inventory

Fig. 2 shows the inventory in which all the products are stored and managed.



Product Name	Category	Brand	MRP	MRP	Branch	Qty	In Stock	Sold
Nivea men Dark spot reduction	Facewash	Nivea	400	390	Amneet Enterprises	20	20	-
Nivea men Deep Impact	Facewash	Nivea	200	150	Amneet Enterprises	20	20	-
OSR BOY Perfume	Perfumes	OSR	200	180	Amneet Enterprises	20	20	-
OSR Girl Perfume	Perfumes	OSR	200	180	Amneet Enterprises	20	20	-
Nivea men Dark spot reduction	Facewash	Nivea	400	390	Amneet Enterprises	20	20	-
Nivea men Deep Impact	Facewash	Nivea	200	150	Amneet Enterprises	20	20	-
OSR BOY Perfume	Perfumes	OSR	200	180	Amneet Enterprises	20	20	-
OSR Girl Perfume	Perfumes	OSR	200	180	Amneet Enterprises	20	20	-

Fig. 2 Inventory

After the customer has successfully placed an order, an invoice will be generated automatically. Fig. 3 shows the invoice of selling products.



Invoice: SD048_order_id_2

Amneet Enterprises
CIN : 590339091350695
GSTIN : 183200156933505

Automated Inventory
C29 GOVINDPURI RAMNAGAR
Jaipur, Rajasthan (PINCODE : 302019)

TAX INVOICE

Order Id : 2 Cashier : PG /11
Bill Dt : 12/6/2021 Time : 19:4

SN	Particulars	Qty	Vat	Value
1	JAGUAR Classi	1	198.4	1300.860
2	SKINN by TITA	2	178.2	1168.200
3	DENVER Hamilt	1	52.9	347.220
4	OSR Girl Perf	1	29.2	191.160
5	Nivea men Dee	3	72.9	477.900
6	Nivea men Dar	1	63.2	414.180
Items: 6 Qty: 9				3899.520

<< --GST Breakup Details-- >> (Amount INR)

Fig. 3 Invoice

V. CONCLUSION

This paper is the abstract representation of the Automated Inventory which is a reliable software for inventory management. This system reduces the difficulties related to inventories. It improves sales and productivity. It also lowers costs and raises profit margins. The system does not accept invalid data. Also, however good and efficient a system may be, there is always space for more improvement in it. So, considering this factor, the system is designed in such a way that changes can be given for further enhancements without affecting the presently developed system.

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