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Analysis And Improvement Of Inventory System Development With More Security And Searching Tools

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Abstract

This paper introduces the goal is to give the store a system with improved and more flexible functionality by suggesting a sales and inventory management system as a replacement for outdated manual methods. The system's goal is to offer tools for more effectively controlling the store's inventory. The paper scope will concentrate on elements like databases, report generation, standard control (QA), and the store's point of sale to meet the determined objectives. The system is anticipated to produce a user-friendly user interface that is simple enough for those without an IT background to operate.

Keywords inventory management, Rad techniques.

I. INTRODUCTION

Inventory management is the practice of monitoring and keeping track of a company's stock items. Inventory control assures that the business will always have what it needs.

By keeping the cost as low as feasible, materials and products Excellence in supply chain management starts with effective inventory management. Warehouse must keep an eye on storage because the old artificial method of managing inventory has several drawbacks, including low efficiency, inadequate security, and a tendency to accumulate a lot of files and data over time, which makes it difficult to identify, update, and maintain. The inventory management system is a fundamental component of businesses, and the corporate decision-makers and managers are essential. As a result, you must set up a comprehensive inventory management system based on an agile supply chain. This system must be able to offer users adequate information and efficient querying, reflect inventory timely and dynamically, and enable managers to shift their analysis from qualitative to quantitative.

Whether a business is a product or service-focused, the inventory management system is a crucial component. Inventory management's goal is to create regulations that will result in optimal inventory Successful inventory management reduces the need for capital. Inventory management reduces expenses and boosts profitability. The business employed in this study's case study is a Flexible commercial electronics device manufacturer circuit boards, printed [1], [2]. One sector of the economy that is expanding quickly the retail sector, where new stores are opening up periodically to suit the need of local customers. Customers can choose from a variety of retail establishments, from hypermarkets to mini-marts, depending on what is most convenient for them. The majority of the stores are located in residential areas.

The end-user can purchase a wide variety of products and services from the store from suppliers or wholesalers. As a result, the nature of the retail industry demanded effective inventory management in order to satisfy client demand. Spreadsheets are the conventional method used by retailers to keep track of their sales and inventory, but as stores develop bigger, they become less useful. This is because more things will be made available in larger quantities, making it difficult and time-consuming for the merchant to track sales made with inventory level in the store. Additionally, when the store uses an improper way to determine the things that customers have purchased, the situation worsens. Therefore, by developing an inventory system, this project will offer a solution for

shops, who are still utilizing a traditional method to maintain their inventory data. The shop structure is provided by the computer-based Sales and Inventory Management System, which also controls and maintains the inventory of items [11].

By linking each day's "Point of Sales" with the inventory level of the business, the Sales and Inventory Management System technique is frequently utilized to prevent merchandise overstock or outrages. One crucial area that requires careful management to support the smooth operation of regular corporate operations is inventory. As a result, there is virtually little security for any data, documents, or anything linked to everyday business or inventories. For each good and each supplier, numerous records have been kept, taking up time and becoming useless for future references. Existing inventory management also does not offer any tools for identifying products with an expiration date for food-based items like milk, bread, wheat, etc. Failure to identify the expired date of certain products causes the store to incur losses on those items. Because the system now in use only calculates the total amount of each customer's purchases and lacks a database connection, it is unable to generate a report on point of sales at the end of the day. As a result, different types of reports are created each time because there is no formal procedure for creating reports in the store's log book. The straightforward report, which calculates the day's total sales based on the cash in the teller deck, offers no guidance for the owner in terms of running the firm effectively. As the existing system lacks a database to keep track of daily sales totals, the owner cannot tell if there is a shortage of cash on the cashier's desk or if any cases have been stolen. The fact that customers who made purchases at the store typically do not obtain sufficient receipts as references has also been recognized as a problem. Instead, only receipts with prices created by the system are present.

II. LITERATURE REVIEW

1) Inventory Management System: History and Concepts:

Millions of people participate in numerous sales transactions every day all around the world, generating a steady flow of value that is the foundation of our economies. Sales generally refer to a deal between two parties in which the buyer receives assets, services, or goods in exchange for payment. As a result, the exchange involves each participant giving something up in exchange for something of value to them. Contrarily, inventory refers to the unfinished goods, work-in-progress items, and raw materials that are regarded as the part of a business's assets that are still in use or are prepared to be sold. This explains why a business has to have inventory on hand in order to sell products to customers and get payment, which will generate profits. High inventory and low inventory are the two main issues that businesses encounter while managing their inventory levels. Due to costs associated with inventory storage, obsolescence, and spoilage, holding a high quantity of inventory for an extended length of time is typically not good for a firm. However, having little inventory is also bad because it puts the company at risk of losing potential customers and market share. In an effort to address inventory issues, effective inventory management is the key. According to Tim Crosby's (2012) study on "How Inventory Management Systems Work", inventory management systems are the norm for companies as well as smaller firms and suppliers to know which products are selling and which are occupying shelf space. The strategy strikes a balance between a retailer's financial necessity to maintain as little stock as possible and the objective of ensuring customers always have plenty of what they desire (Tim Zierden, 2009). Therefore, contemporary inventory management systems must be able to track sales and available inventory, interact with 14 suppliers very instantly and collect and incorporate other data, such as seasonal demand [4].

In the early days of inventory keeping, merchants recorded purchases or counted the number of units left at the end of the day in order to predict future demands, according to Anton Dolinsky (2010) in his essay about "Barcodes, sales, and inventory control". After the Industrial Revolution, however, mass production and improving consumer experiences at the point of sale became the fundamental objectives of business, making it difficult to continue this practice. The first contemporary check-out system made its debut in the early 1930s and employed punch cards to connect with catalogue goods. It was created by a team from Harvard University. The introduction of inexpensive laser technology in the 1960s offered optimism for renewing the idea. Then, just before the 1970s, the contemporary bar code, also known as the Universal Product Code (UPC), was created [6]. As a result, as computing power increased concurrently, UPC code's ability to aid in tracking and managing inventories increased tremendously. Another new inventory tracking technology has just entered retailers, warehouses, and factories as technology development progress (Edward A. Silver, 2007). A microchip is used in radio frequency identification (RFID) to convey product data to a scanner or other data aggregator. As a result, the continuous "beep, beep, beep" of bar codes being read at the checkout lane symbolizes contemporary inventory management systems of stock tracking.

2) Assessing the benefits of the Barcode technology:

According to Yves Dallery (2010) in their study paper on "The Impact of the Usage of Bar Code Technology on Supply Chain Operations", the bar code system is one of the data capture technologies that has been widely adopted in practically every industry. By utilizing the barcode sector, the grocery industry, for instance, was able to obtain revenue savings of 2.67 percent and 2.89 percent, respectively. The typical objectives for implementing the barcode system are to decrease data capture mistakes, collect timely data for inventory control, increase buyer and seller communication, and better customer service. Additionally, the technology enables companies to keep an eye on operations, manage resources, and identify anomalies before they affect throughput by acting as the major source of real-time feedback. Barcode applications' potential benefits for supply networks have been extensively researched. One of the studies comprises a qualitative study that clarifies the idea behind bar code technology and creates conceptual approaches in an effort to comprehend it better. According to case studies done in manufacturing and distribution businesses, barcode systems are crucial to improving the efficiency of inventory management [7]. Less money is invested in inventory as a result of the studies, which

also indicate improved inventory control, improved customer service, and empowered employees. An essential component of a successful supply chain is the integration of marketing and inventory information systems employing barcode technology.

III. PROPOSED METHODOLOGY

1) Rapid application development (rad) methodology:

In order to ensure easy interaction between users and developers with various IT backgrounds, the author opts to adopt one of the "rapid application development (RAD)"-based technique categories when creating the system. The SDLC phases can be adjusted using the RAD-based methodology to expedite the delivery of particular system components to users. Users will be better able to comprehend the system and suggest changes that will help it function more effectively.

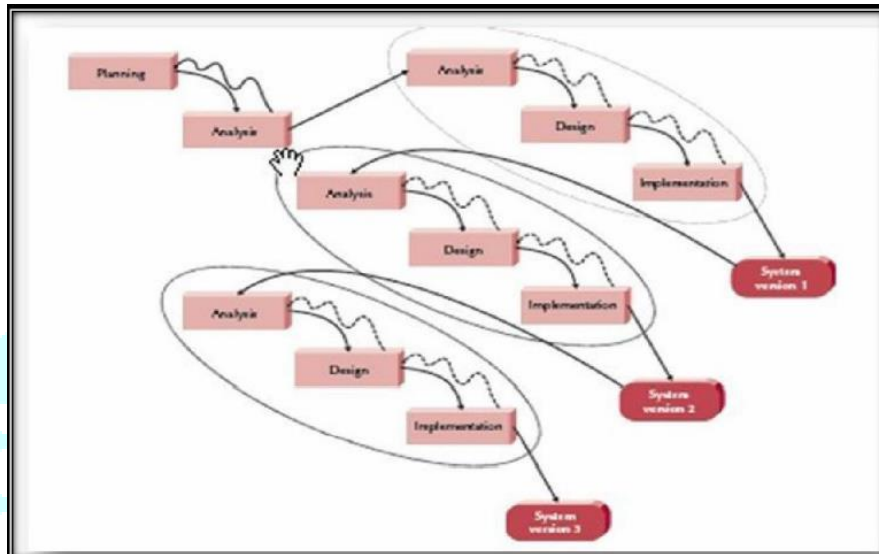


Figure: Phased Development-based Methodology

Phased development based is the ideal methodology to anticipate this problem as it splits an overall system into a series of versions, which are produced sequentially. This is because the system has several module bindings together to work as a full program. Due to time restrictions, the developer is unable to add many functionalities to the system; as a result, the developer has a limited number of suggestions for additional work in the future. When the stock level is low, the Store system may instantly send the supplier an inventory order request by linking the two systems. Therefore, Store must manually place its order with the supplier, which could delay the delivery of the goods. Due to this connectivity, Rahmath Store is able to use just-in-time inventory, which eliminates the need for the store to maintain large stock levels, which is a poor inventory control strategy. As a result, a system prototype will be created using one module at a time. The requirements were divided into a number of versions after the analytical process had determined the general system design. Additionally, one important aspect of a window-based application is the layout's visibility. This enables the author to see navigation and usability issues when creating one of the modules rather than having to invest a lot of time in creating the full system. Version 1 is implemented, and then version 2 development starts. On the basis of the previously noted needs, new ideas, and problems that emerged from the user's experiences with version 1 are integrated. Additional analysis is then carried out. The benefit of phased development-based approaches is that they enable users to quickly gain commercial value by putting a useful solution in their hands. Additionally, because users start using the system earlier, they are more likely to recognize crucial new requirements earlier. These are a few of the explanations for the author's decision to use this methodology for the creation process.

2) project phases:

The project activities are divided into four basic phases, which are as follows: I. Planning: - The issue encountered by the selected shop is identified, and a solution is suggested - The project's objectives and scope are clearly outlined - The paper activities are scheduled in accordance with its timeline. ii. Evaluation Data is acquired, literature is analyzed, and an interview with Rahmath Store is conducted to gather requirements. iii. Design: models and prototypes are created, as well as UML diagrams. iv. Implementation: - Project coding begins and continues until the system is finished - Testing is done to see whether the project is usable - It is made available to the user.

3) Tools, Mechanisms and Software:

The following tools are utilized to develop the system in the project's second phase: I. Visual Basic for Applications An integrated development environment (IDE) from Microsoft is called Microsoft Visual Basic. For all platforms supported by Microsoft Windows, Windows Mobile, Windows CE,.NET Framework,.NET Compact Framework, and Microsoft Silver light, it is used to develop console and graphical user interface applications in both native code and managed code. Microsoft Access (ii) The Microsoft

Jet Database Engine, a relational database management system, is combined with a graphical user interface and software-development tools in Microsoft Access, commonly referred to as Microsoft Office Access. The Professional and above editions of Microsoft Office include it as part of their suite of programs. Windows Access is used to develop application software and supported by Visual Basic for Applications.

IV. CONCLUSION

The idea was created using research conducted to Store as a foundation. Thus, the planning and analysis steps in the development of the system are based on the information gleaned from the interview with the observer. In addition, because this would be the store's first computerized system, its capabilities were solely geared at resolving the problem of inventory management. Due to the workers' lack of IT knowledge, the interface design is also classed as "user friendly," meaning that anyone may use the system, regardless of background in IT. Due to time restrictions, the developer is unable to add many functionalities to the system; as a result, the developer has a limited number of suggestions for additional work in the future. First, the creation of system integration with supplier system. When the stock level is low, the Store system may instantly send the supplier an inventory order request by linking the two systems. Therefore, Store must manually place its order with the supplier, which could delay the delivery of the goods. Due to this connectivity, Store is able to use just-in-time inventory, which eliminates the need for the store to maintain large stock levels, which is a poor inventory control strategy.

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