

Inventory Management System Software for Public Universities in Ghana (IMSSPUG)

M. O Yinyeh, S. Alhassan

Abstract— Managing inventories at Public Universities is one of the major challenges for higher educational institutions in Ghana. This is especially true for large, diverse and research-oriented institutions like the University for Development Studies. To arrest this deficiency, inventory management system software is the ideal answer for the ever growing public Universities in Ghana. In this paper, we present Inventory Management System Software for public Universities in Ghana. The software is efficient in managing stock supplies; stock issues and provides timely alert messages and reports to management in order to make inform decisions. It also requires minimal internal memory (512 MB) to operate and respond instantly to commands.

The software is made of two parts: the frontend is developed using Microsoft Visual Basic 2010 and the backend from SQL Server Database 2008. The software would be implemented on personal computers (PC) over a Local Area Network (LAN).

Index Terms— Database, Inventory, Public, Software, University

I. INTRODUCTION

An inventory control system is a set of hardware and software based tools that automate the process of tracking inventory. The kinds of inventory tracked with an inventory control system can include almost any type of quantifiable goods, including food, clothing, books, equipment, and any other item that consumers, retailers, or wholesalers may purchase

Inventory Management is one of the basic problems for public Universities in Ghana. It causes a lot of paperwork, in the absence automated system. Implementing such systems will require a lot of preliminary works such as determination of the requirements, system structure and decision software

Manuscript received August, 2013.

*M.O Yinyeh, Department of Computer Science, University for Development Studies, Navrongo, Ghana
+233246240888*

S. Alhassan, Department of Computer Science, University for Development Studies, Navrongo, Ghana

requirements.

Inventory Management System (IMS) is generally used by IT Office/Department or Accounting Office of a company or a University. Therefore, searching the basic needs for implementation is the first step of IMS design. Several meetings with IT Office and Accounting Office are arranged. Accounting Office needs detailed reporting tools, detailed categorization and declaration of specifications on each item, purchasing and billing info. The Information Technologies Office needs another module except the requirements of Accounting Office. The module is about the interior maintenance and exterior product service flow. For interior maintenance flow, there will be a section. This section will be available for all users. Basically, a maintenance request will be created by the users, and the IT Office will respond to these requests. Finally, it is necessary to consider the end user's needs that are also important part of the IMS software design [4].

Maintaining accurate inventory levels affects several areas throughout the organization. In addition to improving operations in the warehouse, stock levels affect purchasing, restocking, and sales. Additionally, in most organizations, the purchasing department will often check the inventory software to verify stock levels before ordering more products. Having accurate inventory at all times allow this department to make smarter decisions. [3]

The implementation of an inventory control solution can help to simplify work processes within an organization, leading to improved efficiency and productivity. Without an inventory management system, staff may not be operating efficiently. The way information passes from one employee to another wastes valuable time, and leaves room for mistakes to occur in stocking.

Employees may forget to record a batch number, order or issue the wrong goods to a customer, or move items around the warehouse store, making it difficult for other employees to find the goods they need. By incorporating an inventory control solution, a standard set of practices are created to handle every inventory transaction. [2]

The most important benefit of an inventory management system is to save time and money. Again, without an inventory management system, countless man-hours are wasted manually recording what items are used for each

transaction, delivering these forms to the office, and then manually entering the data into the accounting system.

Implementation of a system that updates in real-time, process all transactions at the store or warehouse will virtually eliminate the need to manually enter data. As soon as the warehouse/store employee posts the transaction, it is automatically updated into the accounting system. This saves time both in the warehouse/store and in the office.

II. FEATURES

A. Order management

Should inventory reach a certain threshold, the inventory management system can be programmed to prompt managers to reorder that product. This helps companies avoid running out of products or tying up too much capital in inventory [6].

B. Asset tracking

When a product is in a warehouse or store, it can be tracked via its tracking criteria, such as serial number, lot/batch number or revision number. Nowadays, inventory management software often utilizes barcode, radio-frequency identification (RFID), and/or wireless tracking technology. [1]

C. Service management

Organizations that are primarily service-oriented rather than product-oriented can use inventory management software to track the cost of the materials they use to provide services, such as cleaning supplies and educational materials. This way, they can attach prices to their services that reflect the total cost of performing them.

Filter products and product variants listings to show only those products that are currently available in stock.

Decrement inventory levels when orders are processed to reflect stock quantities.

Receive notifications when inventory levels reach an out-of-stock threshold [5].

III. INVENTORY SOFTWARE INTERFACES

To make the software secured and prevent unauthorized access a login module is built in to control users to the system Fig 1.0 shows the login form for the software.

Fig 1.0 Login form for inventory software

After gaining access to the software, the main page of the software is displayed enabling menu items that an access privileges permits. Fig 2.0 shows the main window of the inventory management software.

Fig 2.0 Main window of the Inventory Management system software

Fig 3.0 Shows Received Voucher

Fig 3.0 Entry form for Goods Received Voucher

The form below shows the Issue voucher

Fig 4.0 Issue Voucher Form

The form below (Fig 5.0) takes records of all suppliers of goods and services.

Fig 5.0 Supplier details form

Fig 6.0 shows the form for reporting on Goods/services received on daily, weekly, monthly, quarterly or yearly. This applies to issues, stock as well as stock levels.

Fig 6.0 Reporting form for inventory software

IV. CONCLUSION

The implementation of this inventory software in public Universities would go a long way to reduce the difficulties associated with Inventories. Some of the benefits associated with the automated system include;

A. *Inventory management increases profitability*

- Forecasting, controlling & managing inventory increases productivity and sales, while reducing costs, resulting in greater profitability
- Accuracy improvements & time savings, in addition to the reduction of fixing costly mistakes, can result in considerable cost savings across an organization
- Quick access to current & historical pricing, cross-reference product codes and a robust tool set for managing purchasing activities, enables streamlined processes and improved spend management [7]

B. Inventory management improves cash flow

- Purchasing the correct inventory in the right amount to meet the University demand, while eliminating slow-moving, obsolete inventory leads to higher profits and better cash flow
- Credit management & collection tools integrated within an inventory management system helps convert receivables to cash quicker [7]

C. Inventory management improves decision-making

- Rapid, accurate data collection enables access to real-time business intelligence across all areas of the University.
- Issue, event and project management tracking integrated with an inventory management system enables all associates to proactively identify & solve business issues [7].

D. Inventory management increases customer satisfaction

- Responding to trends, seasonality, promotions & changing marketing conditions results in having the right products in stock.
- Properly identified products available to ship enables the University to order & receive the correct items quickly [7]

M.O Yinyeh, Department of Computer Science, University for Development Studies, Navrongo, Ghana.

S. Alhassan, Department of Computer Science, University for Development Studies, Navrongo, Ghana.

REFERENCES

- [1] David Acker, “Chemical Inventory Management System” Auburn University Risk management and Safety.
- [2] How Inventory Control Can Benefit Your Business An ACCU-DART White Paper. <http://www.mindovercorp.com/ACCU-DART%20White%20Paper.pdf>
- [3] Inventory Management. http://highered.mcgraw-hill.com/sites/dl/free/0073525235/940447/jacobs3e_sample_ch11.pdf
- [4] K. Elleithy and T. Sobh (eds.), Innovations and Advances in Computer, Information, Systems Sciences, and Engineering, Lecture Notes in Electrical Engineering 152, DOI: 10.1007/978-1-4614-3535-8_2, Springer Science+Business Media New York 2013.
- [5] Software Smith, “Commerce Server”, 2007 65 Sample chapter from. www.software-smith.com/csbook
- [6] Thomas A. Cellucci, 2008 “Developing Operation requirements”
- [7] <http://inventory.acctivate.com/benefits-of-inventory-management/>