PHYSICAL SCIENCES

ISSN (Print): 24490954
ISSN (Online): 26364972

A DISCONNECTED DRINK INVENTORY MANAGEMENT PROGRAMME

[1]Ayeni. O. A. and [2]Nsien E.F.

[1]Department of Mathematics, Federal University Lafia.
[2]Department of Statistics, University of Uyo, Uyo.

Corresponding Email: abamayeni@gmail.com; ayeni.abam@fulafia.edu.ng

Manuscript received : 20/12/2016 Accepted: 11/02/2017 Published: March 2017

ABSTRACT
This research on "A Disconnected Drink Inventory Management (DDIM) Programme" was carried out in Lafia metropolis with the aim of developing a program that will optimize the proper management of drink inventory as well as assess its impact in organizational performance, growth and productivity.

Key Words: *Drink, Inventory Management, Programme, Stock, Crate of drinks.*

INTRODUCTION

Inventory Management (IM) issues and it related problems are huge and complexes even though they have been around for many years. The quest and enquiry to know when items in an organization are available, what quantity of items have already been sold, what quantity is remaining, having a knowledge of what quantity that should be purchased considering the high (low) demand becomes a complex when dealing with large amount of items and multinational organizations. Adeyemi and Salami (2010) results reveal that inventory management is very important in effective and efficient organizational usage and control of materials and goods that have to be stored and kept for future use in case of production of goods as well as exchange of services. Augustine and Agu (2013) believe that inventories are vital to the actualization, successful functioning of companies that are into manufacturing and sales of goods. This Inventory Management could include raw materials, goods, work-in-progress, materials like spare parts, disposables, consumables, finished goods etcetera. Vohra (2008) states that the department of finance prefers to cut down costs in investment into stocks so as to reserve finances for later, better and needful uses. In another development, Augustine and Agu (2013) also revealed that inventory stands as an a vital decision making tool at all levels manufacturing, disseminations, sales of goods and total current assets of the company or the organization. Moore, Lee and Taylor (2013) has it that inventory often represents as much as forty percent (40%) of total Income (capital) of individual organization while Sawaya Jr. and Giauque (2006) holds that inventory many a times represents thirty-three percent (33%) of company's assets as much as ninety percent (90%) of working capital. Whereas, Inventory plays a major role in the entire investment of an organization, there is the need for a better program optimizer for Inventory Management which will function with or without network and will in turn impact the organizational performance and growth. Based on the above, these works will illicit "A Disconnected Drink Inventory Management (DDIM) Programme" that will optimize Inventory Management in organizations.

This study will evolve a program that will optimize IM in organizations. Developing "A Disconnected Drink Inventory Management Programme" will help to manage stocking of items, checkmate under stocking and high (low) demand from customers and its' impact in organizational performance, growth and productivity.

The work of Augustine and Agu (2013) defined inventory work as the putting and stocking of many goods, items or resources used by a company or an organization. Chase and Aquilano (1995) further added that an inventory system consists of laid down rules, policies and regulations as well as controls that check and monitor levels of inventory and assess their levels of replenishments and many orders made by the managers. Onwuchekwa (1993) defined "Management as an act of organizational design whose functions are to identify for a focal business organization areas of crucial contingencies and constraints so that the business organization can make structural responses to value these constraints and contingencies within its boundaries". Orga (2006) has it that inventory control is a technique or way of ensuring that the correct quantity of desired stock is made available at the right time and in the right proportion and place. Nweze (2004) defines inventory control as the means of ensuring that actual flow of Inventory in an organization conforms to the plan. Temeng, Eshun and Essey (2010) result reveals that some organizations have funds invested in inventory than necessary but still not able to meet customer demands because of poor distribution of investment among Inventory items. Banjoko (2004) states that "Inventory performs significant functions in the total production system with seven reasons for holding inventories as: enhancing uninterrupted flow of production; meeting variations in product demands; allowing flexibility in production scheduling; decoupling successive stages of production; leveling production activities; providing means of hedging against future prices and delivery uncertainties and obtaining economic lot size and gaining quantity discount". Drury (1996) defined inventory as a stock of goods that is maintained by a business in anticipation of some future demand. Kotler (2002) believes that "Inventory Management is all activities involved in developing and managing the Inventory levels of raw materials, semi-finished materials (work-in-progress) and finished goods so that adequate supplies are available and the costs of over and under stocks are low". Ile (2002) classified Inventory into three types namely: raw materials, work-in-progress and finished goods. Augustine and Agu (2013) infers that inventory management is the act of ensuring that balanced items of stock are maintained at the desired and correct quantity, quality, place and time in an organization to ensure organizational business continuum. Keth, Muhlemen and Oakland (1994) in their text stated that "major organizations of IM and control inform managers on how much of a good to re-order, when to re-order the good, how frequently orders should be placed and what should be placed and when appropriate safety stocks is for minimizing stock-outs". Thus, in net shell, inventory management is desired to consider what is needed, at what time and to minimize the number of times one is out of stock.

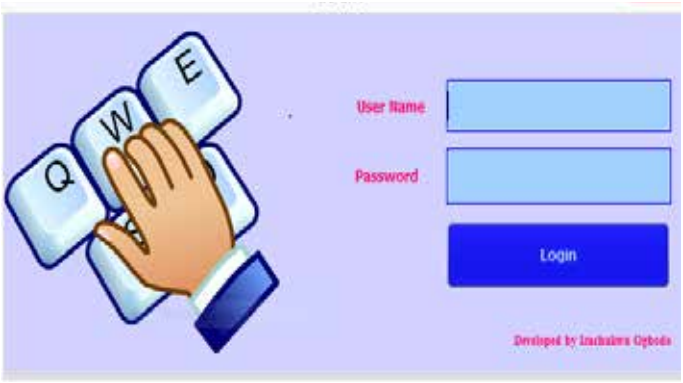
MATERIALS AND METHODS

Inventory Theory initially called the Mathematical Theory of Inventory and Production falls under Operations Research and Operations Management. It is a design of production and inventory systems to minimizing costs by studying different decisions in manufacturing, supply chains, warehousing and logistics. Inventory Control Problems are faced by industries considering how much to order in each time period to meet the demands of the product. Modeling this type of problem could be mathematically done using Optimal Control, Dynamic Programming and Network Optimization. The research work centres on the Theory of Inventory Management by Thomas M. Whitin that applies formal analytical methods to complex practical problems. Some industries use different theories of inventory control and mathematical formulae to optimize the production and storage capacity of many thousands of units of products. It also helps the companies minimize costs. Some micro-company and major-company managers as well as owners could use ideas from several inventory control methods to manage their production and storage of goods based on their cost-containment and the services needed by the customers. This research work will help small scale and large scale companies to minimize costs, check inventory of goods purchased, in the stock and those that has already been sold out.

ILLUSTRATION OF THE PROPOSED "DISCONNECTED DRINK INVENTORY MANAGEMENT PROGRAMME" IN INTERFACE FORMAT

The drink inventory program is illustrated as show below.

Figure I: LOGIN



This interface show cases the username and password that gives users access to the program. Entering the username and password correctly props up another interface reading Success "login successful" with "ok" button. Clicking the "ok" button brings another interface with the title "Admin Dash Board".

Figure I b Login Success

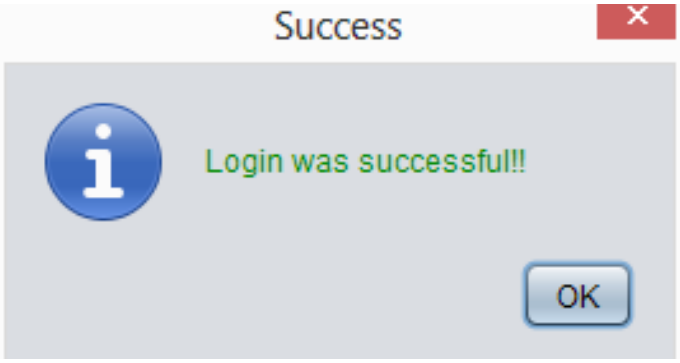


Figure II: ADMIN DASHBOARD.

This interface contains seven major icons on the task bar such as FILE, SALES, CREATE, DRINK, ACCOUNT, SECURITY and HELP. Below the task bar is the welcome note with username and log out button. Furthermore on the same interface is four ADMINISTRATIVE FUNCTIONS namely: Register employee; View Records of employee; Edit employee record and Remove employee. Still on this interface is the INCISIVE INVENTORY LOGO with date and name of the developer.

Figures III a: REGISTER NEW EMPLOYEE

FIGURE III b: REGISTER NEW EMPLOYEE

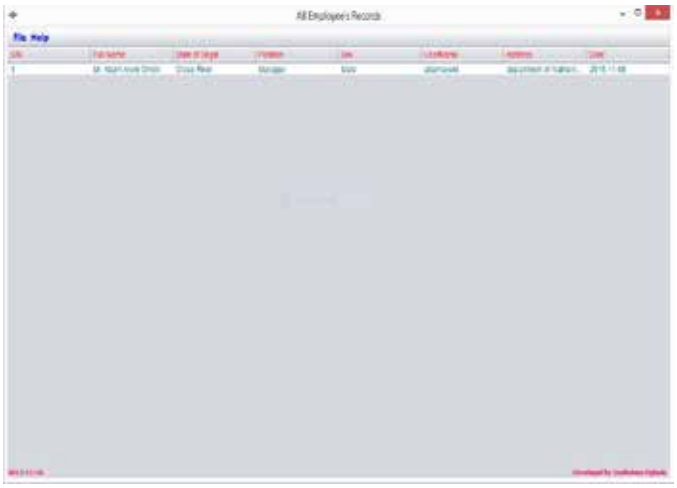


Figure IV: VIEW ALL EMPLOYEES RECORDS

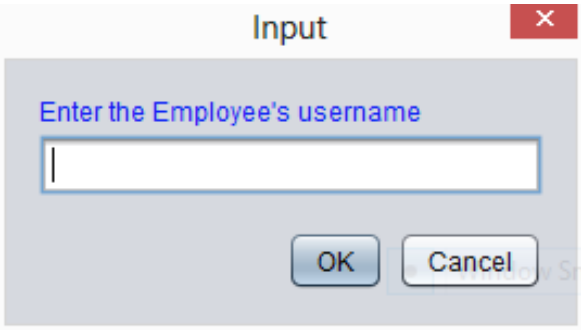
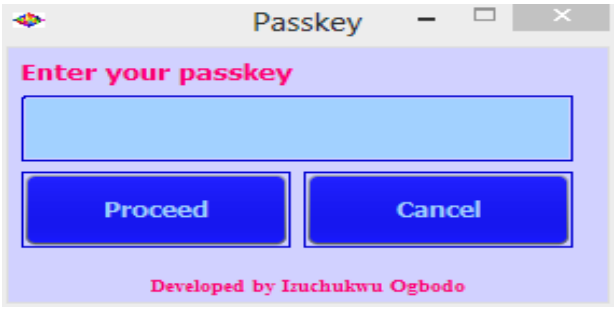


Figure IV b: ENTER EMPLOYEES USERNAME

FIGURE V: (b) PASSKEY TO REGISTER NEW EMPLOYEE



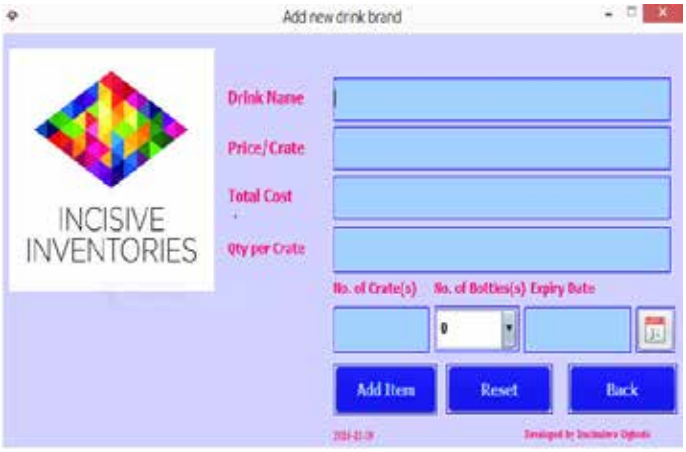
(1) Clicking on the File show cases two links: Print (Ctrl +P) and Exit (Ctrl +Alt + E). These links will help users to print what they wish to or exit from the program. A click on the Exit props up an interface titled "Confirm" with the question, "Are you sure you want to log out with options: Yes or No"

FIGURE VI: MAKE SALES

(2) From FIGURES VI and VII, clicking on Sales, a link (Ctrl + M) shows and a click on it brings up an interface showing select drink, quantity, add to chart, total amount, change (balance), I have change or I do not have change, cash collected, complete transaction, generate invoice, customer's unique ID, number of indebted customers, amount of indebtedness, information of items running out of stock, name of item and quantity.

FIGURE VII: RETURNED CHANGE

FIGURE VIII: ADD NEW DRINK BRAND



(3) A click on Create brings up "Create a new brand drink" as contained in FIGURE VIII. Clicking on it once leads to a new dialogue box titled "Add new drink or brand". It also indicates the Drink name, Price per create, total cost, quantity per create, number of creates, number of bottles, expiry date, add item, reset and go back.

(4) Clicking on Drink, four links come up. (a) Edit Drink (Ctrl +E). A click on Edit Drink brings out the following: select the type of drink, drink name, price, total cost, and quantity per create, number of creates, number of bottles, expiry date, save, reset or go back.

FIGURE IX (a): ADD MORE DRINK

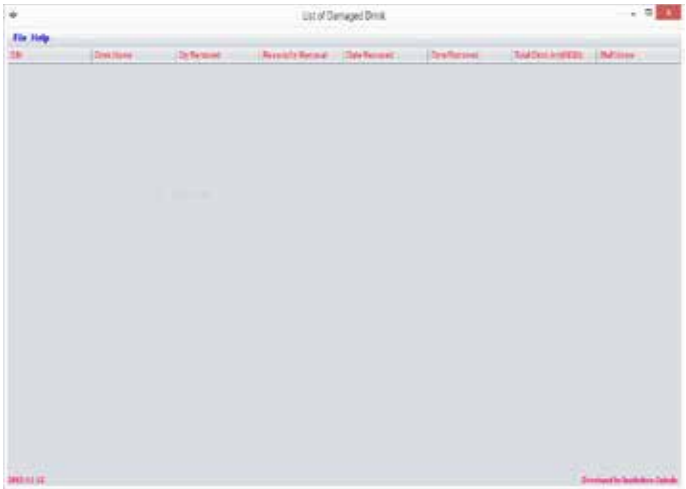
(b) Add more Drink (Ctrl + A) and Check Available Drink (Ctrl + C). A click on check available drink brings up stock information, S/N, drink name, total quantity, cost per create in naira (NGN), Total cost (NGN), profit per create (NGN), Total profit (NGN), Selling price (NGN), Total drink, expiry date, file and help. A place of mouse on file brings up two links: Print (Ctrl + P) and close this window (Ctrl + Alt + C). Similarly, a place of the mouse on Help (Ctrl + Shift + A) brings up information about those that developed the program.

FIGURE IX (b): REMOVE DRINK

(c) FIGURES IX (a, b) shows how to Add more drinks and Remove Damaged Drink (Ctrl + Shift + R). Clicking on remove damaged drink shows the items and drinks to be removed should be keyed in with options of either to remove or go back.

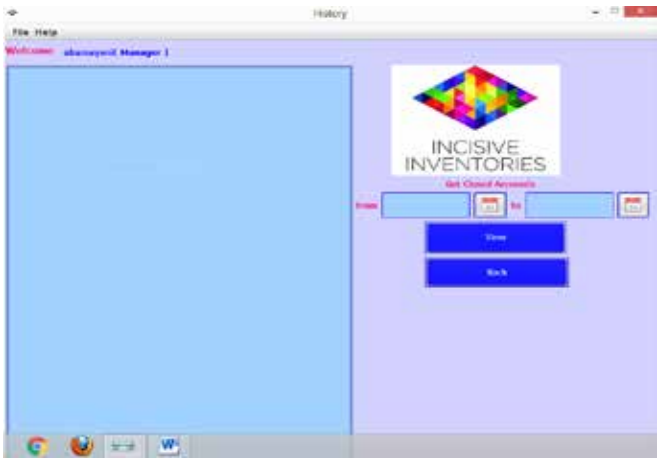
FIGURE X: DRINK INFORMATION

FIGURE XI: LIST OF DAMAGED DRINK



(d) FIGURES X and XI show how to View all Damaged Drinks (Ctrl + Alt + D).

FIGURE XII: ACCOUNT HISTORY



(5) From FIGURE XII, clicking on Account leads us (a) balance Account (Ctrl + H) and (b) View balanced account history.

FIGURE XIII (a): CHANGE PASSWORD

FIGURE XIII (b): CHANGE PASSKEY

(6) FIGURES XIII (a) and (b) are the products of the Security (Ctrl + Alt + P) revealing how to change password and passkey that will be used to register staff, customers and have access to all the stock in the store or shop.

(7) Figure XIV got by the command (Ctrl + Shift + A) titled Help is about the authors and developer of the programme.

(8) A click on the log out icon props up an interface titled "Confirm log out" with the question: Are you sure you want to log out? Followed by options Yes or No.

RESULTS AND DISCUSSION

From the research work and programme developed, A Disconnected Drink Inventory Programme is a design of production and inventory system aimed at minimizing costs by studying different decisions in manufacturing, supply chains, warehousing and logistics. This Inventory Control Programme considers how much to order in each time period to meet the demands of the product and the desires of the customers. The research work centred on developing a disconnected drink inventory control model that will help companies to optimize the production capacity of their machines and staff as well as the storage of many thousands of units of goods and products. It also will help the companies reduce their production costs. Some micro-company owners and managers can now use this programme idea to control methods of managing their production processes and storage capacity based on their cost minimization and degree of services required by their customers. This research work will help small scale and large scale companies to minimize costs, check inventory of goods purchased, in the stock and those that has already been sold out.

CONCLUSION

This work titled "A Disconnected Drink Inventory Management (DDIM) Programme" was carried out in Lafia metropolis to develop a program that optimizes proper management of drink inventory as well as assess its impact in organizational performance and growth. Therefore, the essence of the inventory programme is to get what is desired and reduce the number of times the manager of the inventory runs out of goods or stock.

REFERENCES

Adeyemi, S.I. & Salami, A.O., (2010), Inventory management: A Tool of Optimizing Resources in a Manufacturing Industry. A Case study of Cocoa-Cola Bottling Company, Ilorin Plant. *J. Soc. Sci.* 23(2): 135-142.

Augustine, A.N. and Agu, O.A., (2013), Effect of Inventory Management on Organisational Effectiveness. *Journal of Information and Knowledge Management*, 3(8). ISSN 2224-5758. www.iiste.org

Banjoko, S.A. (2004), *Production and Operations Management*, Ibadan: Oluseyi Press Limited.

Chase, R.B. & Aquilano, N.J., (1995), *Production and Operations Management,* USA: Von Hoffmann Press, Inc.

Drury, C. (1996), *Management and Cost Accounting, London*: International Housan Business Press.

Ile, N.M., (2002), Management, A Functional Approach, Enugu: Ochumba Printing and Publishing Co. Ltd.

Keth, L., Muhlemen, A. & Oakland, J., (1994), *Productions and Operations Management*, London: Pitman Publisher.

Kotler, P. (2002), *Marketing Management*. 2nd Edition. The Millennium Edition. New Delhi: Prentice Hill of India.

Moore, L. J., Lee, S.M. & Taylor III, B. W., (2013), *Management Science*, 4th Ed, Allyn and Bacon, Needham Heights MA.

Nweze, A. U. (2004), *Quantitative Approach to Management Accounting*, Enugu: Amazing Grace Printing and Publishing Co.

Onwuchekwa, C. I., (1993), *Management Theory and Organizational Analysis*: A Contingency Theory Approach, Enugu: Obio (Nig.) Enterprises.

Orga, C. C., (2006), Productions Management, A Quantitative Approach, Enugu: Veamarks Publishes.

Sawaya Jr. & Giauque, A. (2006). *Production and Operations management*, Orland FL: Harcourt Brace Jovanovich Inc.

Temeng, V.A., Eshun, P.A. & Essey, P. R. K., (2010), Inventory Management, *International Research Journal of Finance and Economics*, 3(2): 23-28. http://www.eurojournals.com/finance.html

Vohra, N. D., (2008), *Quantitative Techniques in Management,* New Delhi, Tata Mc Graw-Hill Publishing Co. Ltd.