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Product Expiry Alert Management System: A panacea to the death caused by expired products.

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Abstract

In recent times, people have lost their lives due to the consumption of expired products bought from stores because of the inability of these stores to detect expired products on their counter and show glasses. This drags the name of these companies to mud, hence the choice of this innovation. This project is aimed at developing an alert system which notifies shop owners and managers of products and goods which are about to expire in their business domains. The researcher developed a product expiration system that manages products' production dates and their expiration period in a computerized manner. The Application program interface (API) of the system was designed and coded in Visual Basic 2010 programming language-operational tool that were executed using System Analysis and Design Methodology (SSADM); while MySQL was used at the backend, integrated with the Personal Home Page (PHP) scripting language which controls the expiry alert Short Message Service (SMS). The system was tested in windows 10 and it performed creditably well. The results from the system include an expiration schema that has the ability to send notifications about goods that have a month to expire.

Keyboard: Product, Expiry, Computerized, System, SMS

Introduction

A product is an item or a service offered for sale. It can be in physical, virtual or cyber form. Every product is made at a cost and each is sold at a price. The price that can be charged depends on the market, the quality, the marketing and the segment that is targeted. Each product has a useful life after which it needs replacement, and a life cycle

after which it has to be re-invented (Hugo, 2013). A brand can be revamped, re-launched or extended to make it more relevant to the segment and times, often keeping the product almost the same.

A product is an object or system made available for consumer use; it is anything that can be offered to a market to satisfy the desire or need of a customer (Cutright, 2015). Products are often referred to as merchandise, products are bought as raw materials and then sold as finished goods. A product needs to be relevant: the users must have an immediate use for it. A product needs to be functionally able to do what it is supposed to, and do it with a good quality. A product needs to be communicated: Users and potential users must know why they need to use it, what benefits they can derive from it, and what it does difference it does to their lives. Advertising and 'brand building' best do this. A product needs a name: a name that people remember and relate to. A product with a name becomes a brand. It helps it stand out from the clutter of products and names.

A product should be adaptable: with trends, time and change in segments, the product should lend itself to adaptation to make it more relevant and maintain its revenue stream. Products are considered as the business resources for the organization (Antai, 2014). This includes managing the product with appropriate way to review any time as per the requirement. Therefore, it is important to have a web-based Product Expiration System which has the ability to generate reports, report products expiry dates, maintain the balance of the stock, details about the purchase and sales in the organization, which helps to minimize loses to the business or negative health hazards to consumers. This web application can be used by large or small business organization for the management of their stock in the production houses. After analyzing the other Product Expiration systems, we decided to include some common and key features that should be included in every Product Expiration system. The main aim of the project is to develop Product Expiration System Model software in which all the information regarding the stock of the organization will be presented. It is an internet based application which has admin component to manage the inventory and maintenance of the inventory system. This application is based on the management of stock of an organization. The application contains general organization profile, sales details, Purchase details and expiration dates presented in the organization. There is a provision of updating the inventory also.

Objective of the Study

The aim of this paper is to Design a Product Expiry Alert Management System with the following objectives:

i. To develop the easy management of the inventory.

ii. To handle the inventory details like purchase details, manufacturer details and expiration dates of Products.

iii. To maintain a record of batches of product brought to the store.

iv. To keep a record of product brought to the store.

v. To detect products about to expire and expired products in the store and send alert to consumers who have bought the products, as to discard it in case they haven't consumed it.

Methodology Used and Why

The methodology which the researcher considers most suitable and advanced for this research is SSADM (**Structured System Analysis and Design Methodology**). This type of methodology i.e. SSADM is adopted because:

- It could analyze the problems of the existing system perfectly.
- It could design a new system that is structured in order to ease the organization of the pre-event problems.
- It provides for easier documentation and Maximum functionality.

SSADM is a system approach to the design and analysis of information system. SSADM is a waterfall method for the production of an information system design. SSADM can be thought to represent a pinnacle of the rigorous documental approach to system design and contrasts with more contemporary Rapid Application Development method such as (DSDM). SSADM is one particular implementation and builds on the work of different schools of structure analysis and development methods. It follows rigid method of structure and therefore is highly disciplined.

Analysis of the Existing system

The existing system was analyzed and problems were identified after data gathering.

Method of Data Collection used in the analysis of the existing system

During the research work, data needed for the project was gathered from various sources. In gathering and collecting necessary data and information needed for system analysis, two major fact-finding techniques were used in this work and they are:

(a) Primary Source

This refers to the sources of collecting original data in which the researcher made use of empirical approach such as personal interview and questionnaires.

i. **Personal Interview:** Some of the staffs were interviewed to share their feeling and experience about the manual system of processing sales data information. Their respond was that manual system is time consuming and has element of errors. They stressed that the manual system has not helped them much.

ii. **Observation:** A situation whereby sales files and receipts will full everywhere makes the offices untidy. Having observed that searching for sales record are time consuming makes the manual method ineffectively.

(b) Secondary Source

The secondary data were obtained by the researcher from magazines, Journal, Newspapers, Library source and Internet downloads. The data collected from this means have been covered in literature review in the chapter two of the project.

Choice of Programming Language used in the proposed system

The choice of programming language is visual basic dot net (Visual Studio 2012) and the database used is MySQL which was integrated with PHP scripting language that helps to control the expiry SMS alert. Visual Basic dot Net is a high level

programming language by Microsoft Corporation. It has elements of an object oriented language.

Reason for Using Visual Basic Programming Language

Reusability

VB code features reusable components, called controls. These controls let programmers employ fully tested, working code written by other programmers, resulting in significant time savings. For example, if a programmer wants to write a program allowing users to load a file into memory, she need only drag the File Dialog control onto her program's user input form and set the control's parameters. By contrast, programming languages before VB, such as C and C++, had no such pre-packaged controls. Programmers had to cut and paste code from existing programs, an error-prone process.

SYSTEM DESIGN

System design is the process of defining the architecture, components, interface and data for a system design, which computerized or computer base is aim at evacuating the whole problem associated with the existing system.

The major factor taken into consideration in the design of the new system is the issue of processing SMS alerts, and storing sales data/information in an electrical format. The new system has a schema for bought items, sold items, remaining items, sales report and SMS alert.

The Design of the new system

The new system tackled all burning issues listed in the study objective including:

i. To develop the easy management of the inventory.
ii. To handle the inventory details like purchase details, manufacturer details and expiration dates of Products.
iii. To maintain a record of batches of product brought to the store.
iv. To keep a record of product brought to the store.

v. To detect about to expire and expired products in the store.

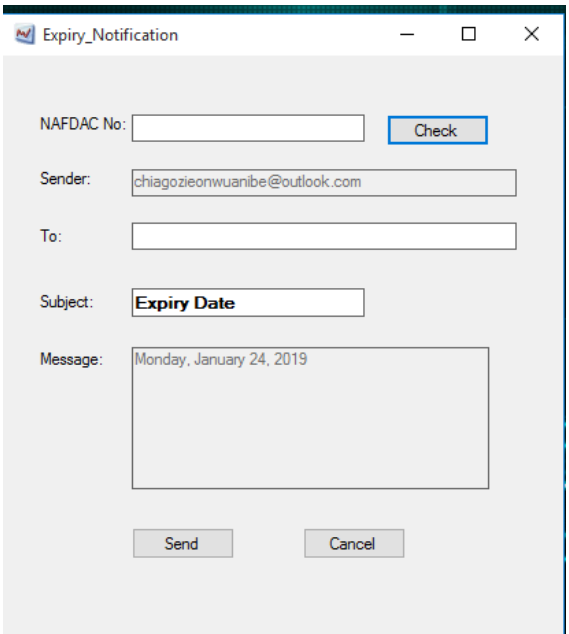
These helped to give solutions to the ab initio stated problems posed by not having alert expiry system.

DESIGN PROCESSES TAKEN:

Verification: Below is the verification form of the design through which all products gets verified.

Expiry Notification

The form below takes cognizance of the product expiry date, and then sends alert to all customers who have purchased products that have expired in the stock.



DISCUSSION

The topic of the research is aimed at making improvement over the manual method of sales into a computerized one which has finally solved the under listed objectives:

Easy inventory management.

Expiration dates of Products alert which helps to alert consumers not to consume such products, thereby saving lives.

Maintenance of a record of batches of products brought to the store.

Calculation of the loss on expired products.

More so, the result of the design includes:

- Increase in speed of processing information
- Efficiency
- Reliability
- Security of production and sales of products.

Conclusion

Having carried out the required study of the design and implementation of product expiry alert management system, sales organizations can now comfortably eliminate the manual methods which have been proved inefficient, tedious, time consuming and prone to errors. The new system is the major target of this research. So the computerization activity depends on the maturity and honesty of the staff. Implementing the new system enables the workers to be well trained and creates new jobs for them. Based on the findings of this work, one can see the product expiry areas of potentiality high cost saving and improved customer's satisfaction. This research study is therefore designed to see to the possibility of eliminating the manual methods that has been in use and the errors that come with the manual system in product expiry alert management system.

Recommendation

This program which was designed and developed through the careful documentation done during the system investigation, has produced a product expiry software. It is recommended that companies should get this system installed as to help save lives that should have been lost if an expiry reminder was not there.

Application Areas

The application area of this software is in every business domain that sells consumable goods, more especially in the stock and product management of Shoprite, Roban Store and other big shopping malls. In view of this, the research recommends that the following consideration be made or effected to make the system work effectively

i. Training of staff in line with the new designed system
ii. Modification and further enhancement can be done to the system
iii. Other companies with distribution problem can use this system with little or no modification

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