

Online Garments Inventory Management System

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Abstract— Management Systems are usually designed to enhance the efficiency of handling the information of any system, which is running through an inefficient procedure and is expensive, time consuming, insecure and it needs more manpower. The Online Garments Inventory Management System is a system which makes the working procedure of present manual system of Garments easier and increases its efficiency to a high degree. The main objective of this application is to automate the existing system which is manually maintaining. The whole system is accessed from different terminals of the network. There are three major sectors in this system- employee management, product inventory and raw materials inventory. In the employee management system all information of the employees are stored. In the product inventory system, the invoice and the delivery information is maintained. Raw materials inventory controls the purchase information, shipping information, total materials of stock in the garments. The Entity Relationship model is used to design the database that will store and organize the garments data. The data is stored in MySQL Database Server and populated it with some sample data. Using HTML, PHP, Java Script and CSS, an internet based graphical user interface has been created that allows garments authority and administrator to access the system remotely.

Keywords—Inventory, JavaScript, Management System, MySQL, PHP.

I. INTRODUCTION

The garments sector of Bangladesh became a prominent player in the economy within a short period of time. The industry has contributed to export earnings, foreign exchange earnings, employment creation, poverty alleviation and the empowerment of women [1]. The prime reason why garment sectors have come out to be the champion in the field of export is obviously the cheap labor. Labor is not as cheap anywhere in the world as it is in Bangladesh. Women contribute to the working force in

these garment factories, as they are relatively cheaper than men. According to data obtained from the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) Members Directory 2011-2012, there are more than 5,000 garments operating in Bangladesh garment sector, of which most of them are in Dhaka area and the export income is about 24287.66 million US dollar [2]. Fig 1 shows the comparative statement on export of Ready Made Garments and total export of Bangladesh.

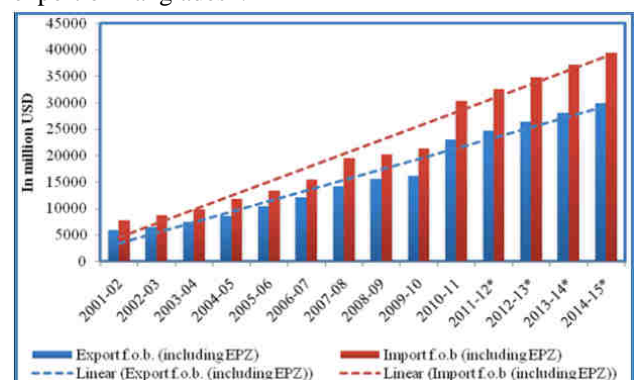


Fig.1: Comparative statement on export of Ready Made Garments (RMG) and total export of Bangladesh (in million \$US)

In today's world of information technology everything has to be done first. The computer has truly changed our mode of life. Today there still exist many sectors where the whole system is maintained manually. But in the era of technology this manual system becomes a bar in the development of our country. The manual system is expensive, time consuming, insecure and it needs more man power. On the other hand, our proposed system overcomes all these limitations. Online Garments Inventory Management System automate the management system which is a process for managing and locating employees, raw materials, products, customers, vendors etc and payroll which stores all the financial information of employees. The main objective of our system is to automate and secure the existing management system of

local garments, so that the export income of our country increases more rapidly.

The rest of this paper is organized as follows. The proposed system requirements are included in section 2. Section 3 elucidates the system design which includes the state diagram and E-R diagram of the proposed system. Implementation and testing of our system is described in section 4. Conclusions and ideas for future work regarding this system will be represented in section 5.

II. PROPOSED SYSTEM REQUIREMENTS

Building an automated garments management system involves a work of meticulous planning and structuring. It can often be difficult if one does not follow a well structured methodology approach. After an evolution of the suitability of the most commonly used life cycle methodology; waterfall, RAD, prototyping, incremental and spiral; Prototyping Model was chosen. By combining the better features of the other two approaches the Prototyping model is particularly suitable for addressing the needs of Online Garments Inventory Management System. The Prototyping model which is used in this system is shown in Fig. 2.

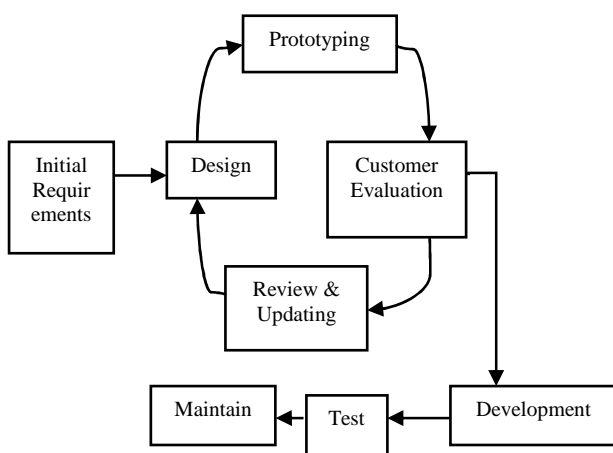


Fig.2: Prototyping Model

The current system gives a clear concept of what has to be done and exactly what types of information has to be received. The proposed system has to be real time online system so that the administrator can get all the information of the garments whenever he/she wants to check. The administrator can also add, update, search and delete garments information.

III. SYSTEM DESIGN

System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. One could see it as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering

[3]. If the broader topic of product development "blends the perspective of marketing, design, and manufacturing into a single approach to product development," then design is the act of taking the marketing information and creating the design of the product to be manufactured. Systems design is therefore the process of defining and developing systems to satisfy specified requirements of the user. The purpose of System Design is to create a technical solution that satisfies the functional requirements for the system. To design this system the below state diagram is employed which is a type of diagram used in computer science and related fields to describe the behavior of systems.

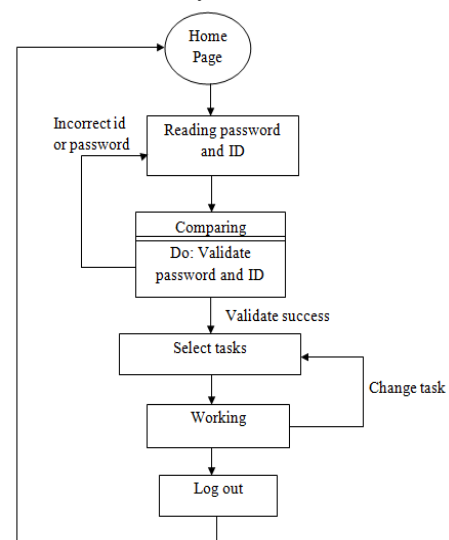


Fig.3: State diagram of garments system

The physical objects of the system; the user, raw materials, vendors- corresponds to entities in the entity relationship and the operation to be done on those entities holds, checkout and so on correspond to relationships. The Entity Relationship (E-R) model is an abstract and conceptual representation of data. After some consideration, the following E-R design has been decided which minimizes the redundancy of the stored information. In Online Garments Inventory Management System two types of Entity – Relationship (E-R) diagram is needed. These are E-R Diagram of employee and raw Materials Inventory and E-R Diagram of employee and product inventory which are shown in Fig. 4 and Fig. 5.

Fig. 4: E-R diagram of employee and raw materials inventory

properly in its environment, including installation, configuration, running, testing, and making necessary changes.

In computer science, an implementation is a realization of a technical specification or algorithm as a program, software component, or other computer system through programming and deployment. Many implementations may exist for a given specification or standard. For example, web browsers contain implementations of World Wide Web Consortium-recommended specifications and software development tools contain implementations of programming languages. Fig. 5 shows the implementation layout of the proposed system.

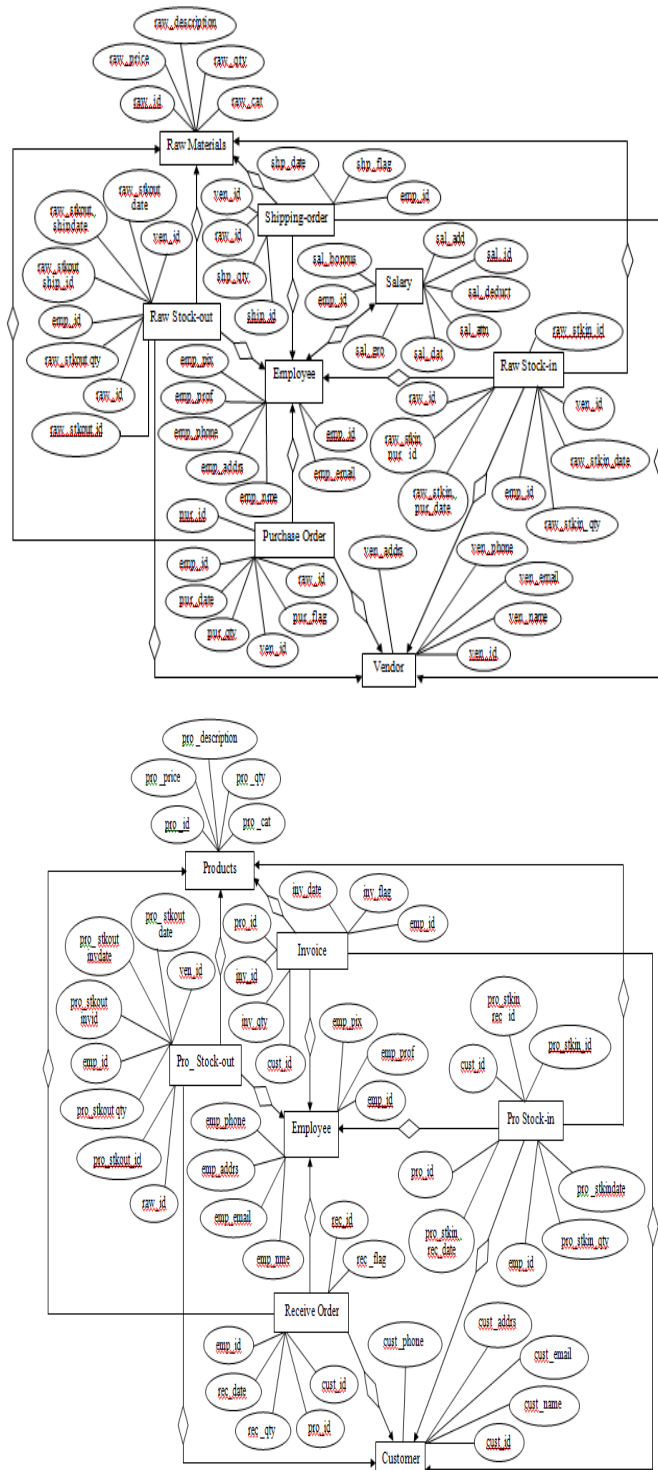


Fig.5: E-R diagram of employee and product inventory

IV. IMPLEMENTATION AND TESTING

Implementation is the carrying out, execution, or practice of a plan, a method, or any design for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something that actually happens [4]. In an information technology context, implementation encompasses all the processes involved in getting new software or hardware operating

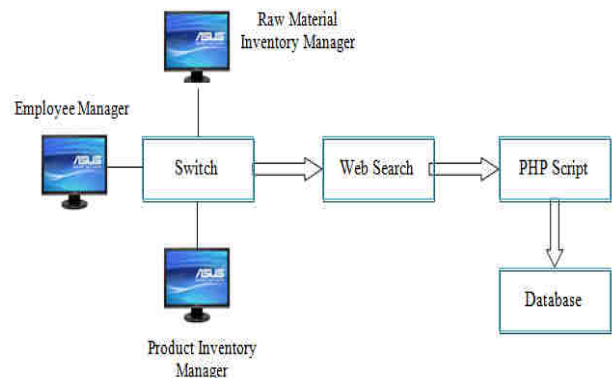


Fig.6: Layout of Online Garments Inventory Management System

Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation [5]. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs (errors or other defects). Software testing can be stated as the process of validating and verifying that a software program/application/product:

- Meets the requirements that guided its design and development
- Works as expected
- Can be implemented with the same characteristics

Software testing, depending on the testing method employed, can be implemented at any time in the development process. However, most of the test effort occurs after the requirements have been defined and the coding process has been completed. As such, the methodology of the test is governed by the software development methodology adopted. Different software development models will focus the test effort at different points in the development process. Newer development models, such as Agile, often employ test driven

development and place an increased portion of the testing in the hands of the developer, before it reaches a formal team of testers. In a more traditional model, most of the test execution occurs after the requirements have been defined and the coding process has been completed.

Tests are frequently grouped by where they are added in the software development process, or by the level of specificity of the test. The main levels during the development process as defined by the SWEBOK guide are

- Unit Testing
- Integration Testing
- Performance Testing
- Requirement Testing
- System Testing

4.1 UNIT TESTING

Unit testing refers to verify the functionality of a specific section of code, usually at the function level. In an object-oriented environment, this is usually at the class level, and the minimal unit tests include the constructors and destructors. These types of tests are usually written by developers as they work on code (white-box style), to ensure that the specific function is working as expected [6]. One function might have multiple tests, to catch corner cases or other branches in the code. Unit testing alone cannot verify the functionality of a piece of software, but rather is used to assure that the building blocks the software uses work independently of each other.

In the candidate system “**Online Garments Inventory Management System**”, unit testing has been exclusively done after finishing every module.

4.2 INTEGRATION TESTING

Integration testing is any type of software testing that seeks to verify the interfaces between components against a software design. Software components may be integrated in an iterative way or all together ("big bang"). Normally the former is considered a better practice since it allows interface issues to be localized more quickly and fixed. Integration testing works to expose defects in the interfaces and interaction between integrated components (modules). Progressively larger groups of tested software components corresponding to elements of the architectural design are integrated and tested until the software works as a system.

4.3 PERFORMANCE TESTING

Performance testing is testing that is performed, to determine how fast some aspect of a system performs under a particular workload. It can also serve to validate and verify other quality attributes of the system, such as scalability, reliability and resource usage. Performance testing is a subset of Performance engineering, an

emerging computer science practice which strives to build performance into the design and architecture of a system, prior to the onset of actual coding effort.

4.4 REQUIREMENTS TESTING

Requirements should be clear and specific with no uncertainty, measurable in terms of specific values, testable having some evaluation criteria for each requirement, and complete without any contradictions.

4.5 SYSTEM TESTING

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black box testing, and as such, should require no knowledge of the inner design of the code or logic. As a rule, system testing takes, as its input, all of the "integrated" software components that have successfully passed integration testing and also the software system itself integrated with any applicable hardware system. The purpose of integration testing is to detect any inconsistencies between the software units that are integrated together (called assemblages) or between any of the assemblages and the hardware. System testing is a more limited type of testing; it seeks to detect defects both within the "inter-assemblages" and also within the system as a whole.

As far as the proposed “**Online Garments Inventory Management System**” is concerned, it meets all this requirements.

V. CONCLUSIONS

Bangladesh is a developing country. Her economy depends firstly on Agriculture and secondly on garments sector. Our country earns a lot of foreign currency by exporting these garments product. For this reason we have tried to develop Online Garments Inventory Management System software. From the analysis, performed in the design process of Management System; it can be safely concluded that the Online Garments Inventory Management System is a highly efficient GUI based component. The main objective of this system is to automate the existing system which is manually maintaining the records of the employees, customers, vendors, employee salary, raw materials, purchase order, shipping order, total stock of raw materials, receive order, invoice etc. so that the current system can be replaced and accepted without major changes and problems. It is tried to make more efficient, user-friendly and effective for the fulfillment of the users requirement. In our analysis we use high techniques to prepare a good design to be easy for implementation phase, so we hope that the system will appear in good case. Every system has some limitations and our proposed system is also not untouchable in this regard. Although it includes many

features but still it would not be sufficient as the customer requirements. Access the system through internet will be more users friendly and effective. In future we will develop this system as an e-commerce site in which we can order raw materials and garments product through the internet.

ACKNOWLEDGEMENTS

The authors would like to thank the anonymous reviewers for their valuable comments which helped to improve the presentation of the paper.

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