1. **INTRODUCTION**
   1. **Purpose:**

HARDWARE AUTOMATION is a software application maintains the records related to purchase, sales, stock updates. HARDWARE AUTOMATION system is high performance software, which speeds up the business operations of the organization.

* 1. **Scope:**

It may help collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. This system is developed in such a way that even a naïve user can also operate the system easily. The calculations are made very quickly and the records are directly saved into databases and the databases can be maintained for a longer period of time. Each record can be retrieved and can be verified for the future transactions.Also this system provides high level of security for data leaking as only admin people can access the database.

* Provide a user friendly interface to the user to work with application.
* Add new goods and manage the entire item in the store.
* Generation of reports related to all the store problems.
  1. **Aim:**

The main goal of the application is to maintain the records of stock, billing, details of purchasers and sellers with the company.HARDWARE AUTOMATION is a software application maintaining the records related to

* Purchase
* Sales
* Production
* Vendor details
* Customer Detail
  1. **Objectives:**

The objective of HARDWARE AUTOMATION is to record the details various activities of user. It will simplify the task and reduces the paper work. During implementation every user will be given appropriate training to suit their specific needs.It support for managing the records and track materials on the basis of both quantity and value.

* To identify and track all data processing assets in an System Repository.
* To provide System access to all necessary personnel (data entry, view, update and deletion).
* To provide a full range of reports that will satisfy informational requirements.
* To document the HARDWARE AUTOMATION within the Standards and Procedures Manual.
  1. **Methodologies:**

HardwareAutomation is designed as several modules, separated by their specific roles and functions. It has one module called Admin module. Admin module again divided into sub modules. The sub modules are:, Purchase, Sales, Vendor, Product, Stocks.

This system can be accessed only by admin. The system checks for valid user name and password, if it is correct then system will process into main page. Main page helps the user to choose the options, which he wants to perform the operations like purchase,sales etc. User can also provide the bill report to the customer and also generate the reports related to the particular operation.

1. **ANALYSIS**

**2.1. INTRODUCTION:**

HARDWARE AUTOMATION is an enterprise-wide discipline concerned with the identification and tracking of Information Services (IS) hardware and software assets. Its three main areas of concern are:

* + - Acquisition
    - Redeployment
    - Termination

**Acquisition** procedures are established to assist personnel in procurement of software and hardware products. Its main purpose is to ensure that proper justifications are performed and that financial guidelines are followed.

**Redeployment** procedures are responsible for ensuring that assets are tracked when moved from one location to another and that budgetary considerations are adjusted as needed.

**Termination** is responsible for deleting the asset from the stock when it is discontinued, or replaced. The owner's budget will be updated to reflect the asset termination and the asset will no longer be listed when location reports are generated.

**2.2. SOFTWARE & HARDWARE Requirements:**

**SOFTWARE Requirements:**

Operating System : WINDOWS

Front End : PHP

Back End : MySQL

Developing Tool : Dreamweaver

**Hardware Requirements:**

Processor : Intel Pentium III 833MHz

RAM : 128 SD-RAM.

Hard Disk : minimum 5MB of hard disk

**Communications Protocols:**

The HARDWARE AUTOMATION uses a web-based interface to display inventory data to the stock manager client. The product will use of open-source software primarily due to cost of implementation. A JSP servlet will be hosted by an Apache Tomcat web server. Since a web interface will be used, a network that supports the HTTP/HTTPS (8080) protocol must exist, whether it is a private network for an isolated customer deployment or an Internet connection for a multi-site customer deployment. The bandwidth of the network depends on the frequency of transactions.

**2.3. Database Requirements:**

The MySQL software delivers a very fast, multi-threaded, multi-user, and robust SQL (Structured Query Language) database server. MySQL, the most popular Open Source SQL database, is developed, distributed, and supported by MySQL AB. MySQL AB is a commercial company, founded by the MySQL developers, that builds its business providing services around the MySQL database. MySQL is a relational database management system.

**3 DESIGN**

**3.1. INTRODUCTION:**

The systems objectives outlined during the feasibility study serve as the basic from which the work of system design is initiated. Much of the activities involved at this stage of technical nature requiring a certain degree of experience in designing systems, sound knowledge of computer related technology and through understanding of computers available in the market and the various facilities provided by the vendors. Nevertheless, a system cannot be designed in isolation without the active involvement of the user. The user has a vital role to play at this stage too. The data collected during feasibility study will be utilized systematically during the system design. It should, however be kept in mind that detailed study of the existing system is not necessarily over with the completion of the feasibility study. Depending on the plan of feasibility study, the level of detailed study will vary and the system design stage will also vary in the amount of investigation that still needs to be done.

**3.2. FINAL ENTITIES AND ATTRIBUTES:**

IMS has several Entities and Attribute. The entities and attributes are:

|  |  |
| --- | --- |
| Entity | Attributes |
| Admin | User name, password |
| Purchase | Vendor Id,PO Number, product id, Quantity, |
| Sales | Product id, Quantity,invoice no |
| Vendor | Vendor name, tin,address |
| Customer | Customer name,Customer id,address |
| Product | Product id,Product name,rate |

**3.3. DATA FLOW DIAGRAM(S):**

0th level:

Admin

1st level:

Material information

Admin

Database

2ndlevel:

Admin

Database

**3.4. ENTITIY-RELATIONSHIP MODEL:**

ADMIN

Chooses

Menu

Sales

Schedule

Bill

Production

Vendor

**1**

**N**

**3.5. PHYSICAL DATABASE DESIGN:**

**Vendor table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Description | Attribute Name | Data Type | Length | Constraint |
| Vendor code | Vend id | varchar | 15 | Primry key |
| Tin |  | Varchar | 20 | Not null |
| Vendor name | Name | varchar | 20 | Not null |
| Vendor address | Address | varchar | 20 | Not null |
| Phone number | Phone | int | 10 | Not null |
| Email ID | Email | varchar | 20 | Null |
| Vendor count | Vendcount | int | 20 | Null |

**Sales table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Description | Attribute Name | Data Type | Length | Constraint |
| Customer id | cid | varchar | 20 | Not null |
| Date | Date | date | 10 | Not null |
| Invoice number | ino | int | 20 | Primary key |
| Product id | Pid | int | 50 | Primary key |
| Quantity | Qty | int | 20 | Not null |
| Total | Tot | int | 20 | Not null |
| Remarks | Remrks | Varchar | 50 | Null |

**Customer table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Description | Attribute Name | Data Type | Length | Constraint |
| Customer id | cid | Varchar | 20 | Primary key |
| Customer name | Cname | varchar | 20 | Not null |
| Address | Address | varchar | 50 | Not null |
| Email ID | Email | varchar | 20 | Null |
| Phone number | Phone | Varchar | 10 | Not null |
| Customer count | Countcid | int | 20 | Null |

**Product Detail:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Description | Attribute Name | Data Type | Length | Constraint |
| Product Code | Pid | Varchar | 15 | Primary key |
| Product Name | Pname | varchar | 20 | Not null |
| Rate/unit | Rate | Varchar | 10 | Not null |
| Validity | Valid | Varchar | 15 | Null |
| Product count | Countpid | Int | 15 | Not null |

**Bill table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Description | Attribute Name | Data Type | Length | Constraint |
| Bill id | bill-id | int | 20 | Primary key |
| Customer name | Cname | varchar | 20 | Null |
| Email ID | Email | varchar | 20 | Null |
| Date | Date | date | 10 | Null |
| Serial no | Slno | int | 20 | Null |
| Item Code | Itemcode | int | 50 | Primary key |
| Item Name | Item Name | varchar | 20 | Null |
| Quantity | Qty | int | 20 | Null |
| Unit price | unit-price | int | 20 | Null |
| Total | Tot | int | 20 | Null |

**3.6 UML Diagrams:**

**Use case diagram:**

System

**Admin**

**Enter valid user name & password**

**Select menu item**

**Enter item details to purchase or sale**

**Check for availability of stock**

**Purchase or sale item**

**Issue bill**

**Generate report**

**Class Diagram:**

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**SEQUENCE DIAGRAM:**

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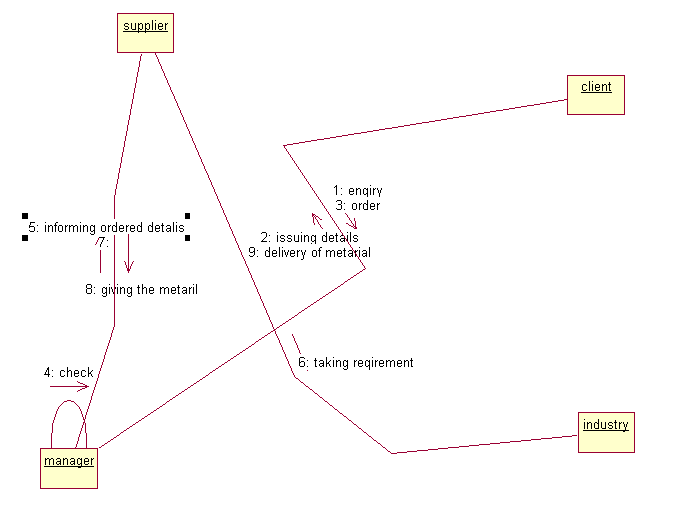
**Component Diagram:**

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**Activity Diagram:**

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**Collaboration Diagram:**

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**4 SOFTWARE DEVELOPMENT METHODOLOGIES**

**Flow diagram:**

START

Login pagePurchase

Validation

Load project

Main page

Show menu selection screen

Bill

Search

Schedule

Product

Sales

Purchase

Generate reports

The existing system will be accessed only by Admin. Admin has to enter his

**5 SYSTEM TESTING**

**TESTING METHODS USED**

The development of software involves a series of production activities where opportunities for injecting of human fallibility are enormous. Because of human inability to perform and communicate with the perfection, software development is accompanied by a quality assurance activity.

Performance testing was not taken for consideration as the available hardware is of minimum required configuration.

**Software Testing Techniques**

The Test Case design methods used are:

1. WHITE BOX TESTING
2. BLACK BOX TESTING
3. **WHITE BOX TESTING**

* Using this testing method it was assured that all the independent paths were exercised atlas once.
* All the logical decisions on their True and False sides were executed.
* Statement Coverage Criteria was taken into accounts and was ensured that every statement was executed atlas once.

1. **BALCK BOX TESTING**

* Using this technique incorrect and missing functions were identified and corrected.
* Interfacing errors, initialization errors and termination errors were also found using this technique.
* The errors uncovered during the testing were analyzed and fixed and documented for the future use.

**DIFFERENT LEVELS OF TESTING**

A strategy for the software testing integrates test case design techniques into a well-planned series of steps that results in the successful construction of software. Any testing strategy must incorporate test planning, test execution and resultant data collection and evaluation.

Unit testing and integration testing were the performance of the system and the output was expected and consistent.

**Unit Testing:**

Unit testing focuses verification efforts on the smallest unit of software design. Each of the modules was verified individually for errors.

**Integration Testing:**

Integration testing is a systematic technique for constructing the program structure while at same time conducting tests to uncover errors associated with interfacing. Here unit-testing modules were taken and the program structure that was specified in the design was built and then testing was carried out.

**6 OUTPUT FORMS & REPORTS**

**Home page:**

**Login page:**

**Main page:**

**7 CONCLUSIONS**

**7.1. Conclusion:**

In the light of software engineering methods, we gather requirements, analyze and figure out the workflow, design methods and structures, construct scenarios, make tests, code the software, debug the faults and bugs, and finally we obtain a new HM software. Our first aim is to develop the HM software that is able to meet the requirements gathered. During the development process, there are many feedbacks, leaded us to re-design. Briefly, we could satisfy the user’s requirements. It is also a scalable and a flexible solution.

**7.2. Advantages:**

* Inventory information can be handled easily.
* The manager can easily view when the updates are done at the point of sale devices.
* The manager can make decisions very fast.
* The manager can plan the goods production.
* Friendly user interface.
* Time saving.
* Save paper work.

**8 FUTURE ENHANCEMENTS**

The scope of the project includes that what all future enhancements can be done in this system to make it more feasible to use

* Databases for different products range and storage can be provided.
* The system can be made online.
* Multilingual support can be provided so that it can be understandable by the person of any language.
* More graphics can be added to make it more user-friendly and understandable
* Manage & backup versions of documents online.
* Providing charts and graphs.
* More report can be generated based on different queries.

**BIBLIOGRAPHY**

1. DuBois P, Hinz S, Pedersen C (2005) MySQL 5.0 Certification Study Guide, MySQL Press
2. Schwartz B, Zaitsev P, Tkachenko V, Zawodny J, Lentz A, Derek J. Balling (2008) Highperformance Mysql, 2nd Edn. O’Reilly, Sebastopol

**Text Books:**

Software Engineering : Roger Pressman