RESOURCE MANAGEMENT SYSTEM

For P-1110

Powerchip Technologies.

Project Report

Submitted in partial fulfillment of the requirements for the award of the degree of

M.Sc. Applied Science (Software Engineering)
Bharathiar University,
Coimbatore.

Submitted By

R. SIVAPRAKASAM
Reg. No. 9937S0094

Guided By

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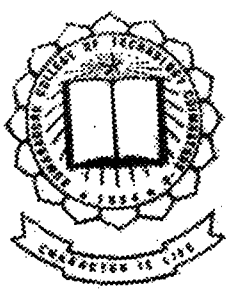

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE – 641 006

CERTIFICATE

This is to certify that this project work entitled

"Resource Management System"

Submitted to

KUMARAGURU COLLEGE OF TECHNOLOGY

In partial fulfillment of the requirements for the award of the degree

Of

M.Sc. APPLIED SCIENCE (Software Engineering)

The record work done by

R. SIVAPRAKASAM
Reg. No. 9937S0094

During his period of study in the Department of Computer Science and Engineering, Kumaraguru College of Technology, Coimbatore – 641 006, under my supervision and guidance and this project work has not formed the basis for the award of any guidance and this project work has not formed the basis for the award of any degree/ Diploma/ Associate ship/ Followed or similar title to any candidate of any university.

Professor and Head

Staff-in-charge

Submitted for University Examinations held on 30-4-2001

Internal Examiner

External Examiner 30/3/04

DECLARATION

I hereby declare that the project work entitled

Resource Management System

Done at

Powerchip Technologies.

and submitted to

Kumaraguru College of Technology

In partial fulfillment of the requirements for the award of the degree

M.Sc. APPLIED SCIENCE (Software Engineering)

Is a report of work done by me during my period of study in Kumaraguru College of Technology, Coimbatore – 641 006

Under the supervision of

Mr. K.R. Baskaran B.E., M.S.,
Assistant Professor, Dept of Computer science & Engineering.
Kumaraguru College of Technology, Coimbatore.

Place : Coimbatore
Date : 30-4-2004

Signature of the Candidate
(R. Sivaprakasam)

Staff-in-charge

Mr. K.R. Baskaran B.E., M.S.,
Assistant Professor, Dept of Computer Science & Engineering,
Kumaraguru College of Technology, Coimbatore.

POWERCHIP TECHNOLOGIES

February 2004

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. R. Sivaprakasam of Kumaraguru College of Technology, Coimbatore has completed his industrial project with our organization as a part of his M.Sc (Software Engineering) Curriculum. He was involved in a project on "Resource Management System". The duration of the project was from December 20th 2003 to February 28th 2004.

His contribution to the company was good & we wish him success in all his endeavors.

For POWERCHIP TECHNOLOGIES,

Magesh Pattabhiraman

POWERCHIP TECHNOLOGIES PCT CHENNAI

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...t till the goal is reached

ACKNOWLEDGEMENT

I express my deep sense of gratitude to **Dr. K.K. Padmanaban, B.Sc (Engg), M.Tech, Ph.D,** Principal, **Kumaraguru College of Technology**, Coimbatore, for giving me the opportunity to carry out this project.

I express my sincere gratitude to **Dr. S. Thangasamy B.E. (Hons), Ph.D** Prof and Head of the Department of Computer Science Engineering, Kumaraguru College of Technology, Bharathiar University , for the immense concern shown during the course of the project.

I express my most profound gratitude to my project guide **Mr. K.R. Baskaran** B.E, M.S., Assistant Professor, Department of Computer Science & Engineering and **Mr. C.Rajankrupa** MCA, Lecturer, Department of Computer Science & Engineering, Kumaraguru college of Technology, for their valuable comments and suggestions given to me, right from the beginning of the project.

This project work is done in Powechip Technologies, Chennai in partial fulfillment of the award for the degree of Master of Science in Applied Science – Software Engineering of Bharathiar University, Coimbatore. It is a matter of privilege and honor for me to place on record **Mr. Magesh Pattabhiraman**, Managing Director, Powechip Technologies. and for his unstinted co-operation and encouragement at levels to undergo this project work.

I deem it a great pleasure to place on record my deep sense of gratitude and indebtedness to Bharathiar University, for providing me this excellent opportunity to work on this project.

I also thank our beloved parents for their moral and financial support without whom the project wouldn't have been completed. We also express our sincere gratitude and thanks to all our intimate friends, well-wishers and family members whose good wishes are responsible for crossing an important milestone in my life.

Above all, I thank the Almighty for the completion of this endeavor.

RMS – Resource Management System is a computer resource maintenance application. It is basically an inventory system, which keep tracks of the service details, customer details, vendor details, etc. It comprises of five main modules – Purchase, Sales, Service, Report and Help.

The Purchase module deals with the master details, vendor details and product details of the computer resource. The master details consists of all the components that are available to be purchased, and the vendor details provides all the information about the vendor and the product details consists of all the details about the products.

The Sales module deals with the customer details, in stock details and billing. This module also deals with certain report, so that it helps for future reference.

The Service module mainly comprises of the Annual maintenance contract and on call service to the system. The Annual maintenance is something like a deal between the customer and the firm, on call details deals with all the daily problems faced by the customer.

The Report module is designed to produce any kind of report that the user needs. Similarly the report module is made in such a way that it can fetch information that is feed into the system in whatever format the user needs. The report module also produces some essential bills, which acts as a document, which can be used for future reference and as well as a proof for any further qualification.

The Help module is used to give the details how to work with the system, and how the processing is done. This Function helps the user in knowing the full detail of the application and the working principle of each and every functionality and also describes the function's dependencies. All the functionalities are grouped under its own modules.

The important aspect of RMS is its ability to produce various kinds of reports. The application uses Visual Basic as its front end, Oracle as its backend.

CONTENTS

1.0. Introduction

This document provides comprehensive details about the client i.e. the Hardware department of Powerchip technologies, the organization, and the project and about the details of the authority of the project.

1.1. Client

About the Hardware department of Powerchip Technologies:

The Hardware department of Powerchip technologies comprises of more than 70 well efficient service engineers, who takes care of the all the works pertaining to the service department which mainly cares about c-2-c program that is the close to customer program.. The hardware department of Powerchip technologies, takes care of more than 250 employees in the Chennai branch alone, it has all the details about the employees including their personal details, vendor details, customer details and the in stock details.

The Hardware department of Powerchip Technologies provides all the hardware components and as well as service to both the domestic customer and as well as the corporate customer. The basic idea of hardware department of Powerchip technologies is to sell as much as components as possible and to create a huge amount of customer base in Chennai. It also acts as service partners for some leading software concerns. It also keeps in touch with all the customers by its various service program. The firm buys most of the components directly from the manufacturer.

As the service department serves as the core base for the power chip technologies, efforts were put on this department in 1996. As a result of a continuous Research and development they started a Help desk which now comprises of more than 10 Hot line attender's. This has now resulted in more than 35 corporates in touch with Powerchip technologies. More over pct has a wide range of customer base in domestic sector too. The average call rate per day stands at 230 calls. The service department is well organized with more than 130 employees, in which 70 of them are

service engineers and 45 engineers are domain experts.

The key strategy to Powerchip technologies is the C-2-C program, which has really developed the concern

1.2. About the Organization

About Powerchip Technologies:

Powerchip technologies was started in 1995 as a hardware concern which primarily concerns with

- Key Strategies
- Domain expertise
- Wide customer base
- Quality Focus
- "C-2-C" - Close to Customer, a unique customer delivery program

Domain Expertise

Powerchip Technologies apply experienced consultants to business problems that match their expertise. The result? More than 100 Fortune 1000 clients who are willing to place their trust in us - repeatedly.

Its current domains and applications:

- Domains
  - Applications
- Financial services (Securities/ Banking/ Insurance)
  - Customer Relationship Management

- Healthcare
  - Procurement
- E-Business
  - Supply Chain Management
- Diversified services
  - Project Management
- Retail
  - Data Warehousing
- Automotive / Manufacturing
  - Content Management
- CPG/ Food & Beverage
- Transportation
- Technology skills

Powerchip Technologies delivers solutions on a variety of platforms and technologies. In short, our solutions can be adapted to technologies that work for you. Our current technology skill sets include

- Microsoft
- Oracle
- IBM
- Internet technologies

1.3 About the project:

RMS – Resource Management System is a computer resource maintenance application. It is basically an inventory system, which keep tracks of the service details, customer details, vendor details, etc. It comprises of five main modules – Purchase, Sales, Service, Report and Help.

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The Help module is used to give the details how to work with the system, and how the processing is done. This Function helps the user in knowing the full detail of the application and the working principle of each and every functionality and also describes the function's dependencies. All the functionalities are grouped under its own modules.

2.0. Background

2.1. Source of data:

All the data's which are used in Resource management system, is a primary data. All the data's that is used in the Resource management system is provided by the Hardware department of Power chip Technologies. The primary data provided by the company is highly confidential that it can't be exposed to unauthorized people, Hence we are restricted to publish the data in this document.

2.2. System Requirement

2.2.1. Software profile:

VISUAL BASIC 6.0:

Visual Basic is a powerful programming system for developing sophisticated graphical applications for Microsoft windows environment. Its productivity has been enhanced by addition of a complete set of tools to simplify rapid application development.

Visual Basic 6.0 introduces us to the new world of active technology, a unique way to harness the Internet. Visual Basic offers many silent features to aid in the development of full-featured applications including.

Data access functionality allows creation of front-end applications the can work on most of the popular databases systems.

Active TM technology allows usage of the functionality provided by other applications, such as Microsoft Word, Microsoft Excel, and other Windows applications and their possible development on the web.

Applications developed using Visual Basic provides a true EXE file that uses a runtime Dynamic-Link Library (DLL) which can be freely distributed.

Calling powerful API functions available in Visual Basic optimizes application performance.

ACCESSING DATABASES:

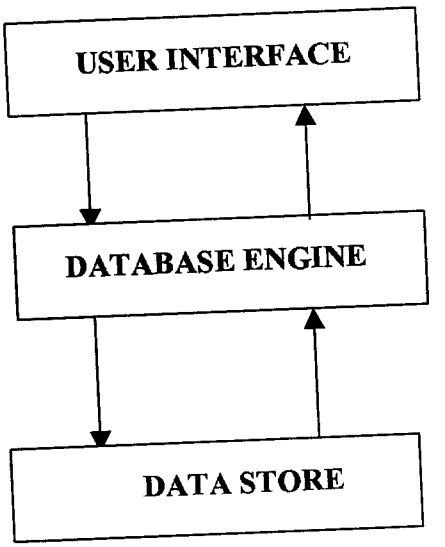
Visual Basic provides a set of tools created and use structured database systems to manage application data. These tools are Microsoft Jet Database Engine, the Data Control and the Data Access Objects (DAO) programming interface. Visual Basic provides Jet Database, version 3.5 for 32-bit programming. The Data Control and Data Access Objects are the interfaces used to connect to the Jet Database Engine.

ADO (ActiveX Data Objects):

Active x data Objects also called as universal data Objects .VB 6.0 supports wide range of ADO. Since Objects are ActiveX based, they work across different platforms and programming languages unlike data control works strictly in the VB environment. The most importance of ADO is its capability tom access many kinds of data .Not limited to just relational and non-relational database

WORKING WITH DATABASES:

A Visual Basic database application has three parts such as User Interface, Database Engine and Data store. The Database Engine lies between the program and physical database. The figure below represents the database architecture.



- The user interface is what the user sees and interacts with. It contains forms that display the data and enable users to view or update.

- The Database Engine is contained in a set of DLL files that are linked to the Visual database and handles indexing, locking and referential integrity. It also contains query processor that accepts SQL queries to carryout the desired database operations and a result processor to manage the result returned by queries. The data store is the file or files containing the database tables. It contains data but does not do anything to or with it.

ORACLE:

Oracle is an Object Relational Database Management System (ORDBMS). It offers capabilities of both relational and object-oriented database systems. In general, objects can be defined as reusable software codes, which are location independent and perform a specific task on any application environment with little or no change to the code.

Oracle products are based on Client/Server Technology. This concept involves segregating the processing of an application between two systems. The Client or front end database application also interacts with the database by requesting and receiving information from the database server.

Oracle uses the Internet File System, which is a Java based application, which enables the database to become an Internet development platform. The data stored in the database can be used for building HTML web pages. Oracle also provides support for building Java application by offering a new version of Jdeveloper. Corba 2.0 complaint Object Request Broker (ORB) that provides users with ability to call in and out of the object sever using Corba's IIOP, which is also integrated with Oracle.

2.2.2 Hardware profile

Minimum Requirement:

- 128 MB RAM
- 20 GB Hard Disk
- Processor P III

3.0 System Description

3.1. System Study and Analysis

3.1.1. Purpose:

The purpose of this document is to understand the modules in Resource management system. The modules included in the product have been listed along with a detailed description of functions involved in each module.

3.1.2. Scope:

The scope of this project is to provide a solution to maintain and manage a centralized Skill Set Information-base about all the technical human resources in SSI Technologies.

3.2. Modules:

Modules	Sub-modules
Master Entry	❖ Customer Master ❖ Vendor Master ❖ Engineer Master ❖ Item Master
Purchase	❖ Place Order ❖ Purchase Entry ❖ Report
Sales	❖ Purchase Entry ❖ Clearance ❖ Report
Service	❖ AMC ❖ On Call ❖ Warranty ❖ Report

Queries	❖ Quotation
Help	

3.2.1. Definitions, Acronyms and Abbreviations:

RMS	Resource Management System
C-2-C	Close to Customer Program
AMC	Annual Maintenance Contract

3.2.2. References:

- VB 6.0 – **Black Book** & www.microsoft.com
- Software Engineering – A practitioner' s Approach

  By Roger Pressman
- Oracle 9i – www.Oracle OCP.com

3.2.3. Overview:

Purchase Module:

The Purchase module deals with the master details, vendor details and product details of the computer resource. The master details consists of all the components that are available to be purchased, and the vendor details provides all the information about the vendor and the product details consists of all the details about the products.

Sales Module:

The Sales module deals with the customer details, in stock details and billing. This module also deals with certain report, so that it helps for future reference.

Service module:

The service module mainly comprises of the Annual maintenance contract and on call service to the system. The Annual maintenance is something like a deal between the customer and the firm, on call details deals with all the daily problems faced by the customer.

Report:

The report module is designed to produce any kind of report that the user needs. Similarly the report module is made in such a way that it can fetch information that is feed into the system in whatever format the user needs. The report module also produces some essential bills which acts as a document which can be used for future reference and as well as a proof for any further qualification.

Help:

This Function is used to give the details how to work with the system, and how the processing is done. This Function helps the user in knowing the full detail of the application and the working principle of each and every functionality and also describes the function's dependencies. All the functionalities are grouped under its own modules.

3.2.4. General description:

Product Perspective:

- At any point of time system provides the information for a given criteria.
- Automates Hardware Resource management.
- Easy-to-use system with user friendliness at the highest level.

- Helps generate a variety of summaries and reports.
- Maintains comprehensive and integrated information about Employee.
- Maintains comprehensive and integrated information about purchase details.
- Maintains comprehensive and integrated information about Sales and Service.

Product Functions:

- Login
  - Change Password
  - Configure Users
  - Logout
- Master
  - Customer Master
  - Vendor Master
  - Engineer Master
  - Item Master
- Purchase
  - Place Order
  - Purchase Entry
- Sales
  - Sales Entry
- Service
  - New Service
    - ✓ Internal
    - ✓ External

- Request Service

- Clearance
  - Cheque
  - Credit
- Queries
  - Quotations
- Reports
- Help

User Characteristics:

The user should be able to operate a computer under the Windows operating system.

General Constraints:

Some of the constraints when using the application can be listed below

- ✓ The Application can be used with an windows operating system and crystal reports
- ✓ The Application uses Oracle server as database with crystal reports for generating reports.
- ✓ The Application uses Window NT security.

3.2.5. Overview of Modules:

Module	3.2.5.1 Master

Module Functions

Functions List

The following are the functions provided by this module

- ✓ Engineer Master
- ✓ Item Master

Engineer Master

Functional Requirements

This function collects Engineer information from the user. This is used to add new Engineers, updating existing Engineers, etc.

Description

- ➢ This module comprises of adding new Engineers, modifying existing Engineers and other master operations.
- ➢ New Engineer's personal details like name, address, phone no., etc. are stated by the user.
- ➢ The Engineer ID is automatically generated by the system. The user can also modify the existing Engineer details.

Inputs

⇒ Engineer personal details

Outputs

⇒ New Engineer is added to the database.

⇒ Existing Engineer details are updated and added to the database.

Process Validations

⇒ Engineer personal detail validation.

Item Master

Functional Requirements

This function collects Item information from the user. This is used to add new Items, updating existing Items, etc.

Description

- This module comprises of adding new Items, modifying existing Items and other master operations.
- The user states new Item's details like item name and item general name.
- The Item ID is automatically generated by the system. The user can also modify the existing item details.

Inputs

⇒ Item details.

Outputs

⇒ New Item is added to the database.

⇒ Existing Item details are updated and added to the database.

Process Validations

⇒ Item detail validation.

3.2.5.2 Sales Module

Module Functions

Functions List

The following are the functions provided by this module

✓ Add/Modify Sales Entry

Add/Modify Sales Entry

Functional Requirements

This function collects Item information, Customer information and price information from the user. This is used to sell the items depending on the stock level of the item.

Description

➢ This module comprises of customer details where the user can select the customer for selling the item.

- The item type and the quantity level is quoted by the user depending on the customer's requirements.
- The item costs are automatically generated by the system.
- The payment mode has to be stated by the user during a Sale. The tax, shipping cost for the item is generated automatically by the system.

Inputs

⇒ Customer information

⇒ Item information

⇒ Item quantity

⇒ Shipping and handling

⇒ Freight charges

⇒ Tax details

⇒ Payment mode

Outputs

⇒ New Sales is added to the database.

⇒ Existing sales details are updated and added to the database.

Process Validations

⇒ Item quantity, price checking.

⇒ Payment mode.

⇒ Shipping and handling.

⇒ Freight amount.

Module:	3.2.5.3. Service

Module Functions

Functions List

The following are the functions provided by this module

✓ Request a service

Request a Service

Functional Requirements

This function collects Information about the system defect from the user. This is used to keep track of the defects stated by a customer.

Description

- The user provides the defect or problem stated to him by the customer through a telephone or any other communication medium.
- The user in this function notifies these defects or problems stated by a particular customer.
- The service details are modified based on the service id generated by the system during the service entry.

Inputs

⇒ Service information.

⇒ Defect/Problem details.

Outputs

⇒ New defect entry is added to the database.

⇒ Existing defect details are updated and added to the database.

[redacted]

Module Functions

Functions List

The following are the functions provided by this module

✓ Cheque/Credit

Cheque/Credit

Functional Requirements

This function collects Cheque/Credit status from the user. This is used to keep track of the pending and finished transactions.

Description

➢ The user provides the finished or pending status. If the option pending is chosen then the system displays the cheque id, transaction type, etc, which are pending.

➢ The finished status lists out the finished transactions through cheque or credit.

➢ User can update these informations after the transactions.

Inputs

⇒ Cheque/Credit status.

Outputs

⇒ Update Cheque/Credit details are added to the database.

Module Functions

Functions List

The following are the functions provided by this module

✓ Intake Entry

✓ Intake Delivery Entry

Intake Entry

Functional Requirements

This function collects Pending/Finished service status, solution from the user. This is used to keep track of the pending and finished services.

Description

➢ The user provides the finished or pending status and the solution for that particular service.

- If the option pending is chosen then the system displays the service type, service id, customer information and item information etc, which are pending and the corresponding Engineer provides solution for the problem.
- Similarly finished status lists out the finished services with the necessary service information, customer information and item information.
- These details are updated whenever necessary for the user.

Inputs

⇒ Service status.

⇒ Solution.

Outputs

⇒ Service details are displayed, updated and added to the database.

Process Validations

⇒ Service Status

Intake Delivery Entry

Functional Requirements

This function collects Pending/Finished, date from the user. This is used to view the delivered and non-delivered items, services on a particular day.

Description

- The user provides the finished or pending status and the date. If the option pending is chosen then the system displays the service id, customer information and item information etc, which are pending and not yet been delivered.
- Similarly finished status lists out the finished services and which are delivered and not delivered to the customer, with the necessary service information, customer information and item information.
- These details are updated whenever necessary for the user.

Inputs

⇒ Service status.

⇒ Date.

Outputs

⇒ Service, Delivery details are displayed, updated and added to the database.

Process Validations

⇒ Service Status, Date.

3.2.5.6 Queries Module

Module Functions

Functions List

The following are the functions provided by this module

✓ Quotations.

Quotations

Functional Requirements

This function collects Item information from the user. This is used to produce the quotation report to the customer.

Description

- The user provides Item type, serial number. Price and the Item Id are automatically generated by the system.
- The item's quotation for the report can be added. The report includes the customer name, address, item information and the necessary details.
- The quotations are based on the customer's request.

Inputs

⇒ Item type.

Outputs

⇒ The quotation is produced as a report.

Process Validation

⇒ Item type.

Module 3.2.5.7. Reports

Module Functions

Functions List

The following are the functions provided by this module

- ✓ Purchase Order
- ✓ Invoice
- ✓ Delivery Challan
- ✓ Invoice Cum Delivery Challan
- ✓ Warranty Claim Certificate
- ✓ AMC
- ✓ Service Job Sheet
- ✓ Customer Details
- ✓ Engineer Details
- ✓ Vendor Details
- ✓ Item type details
- ✓ Stock
- ✓ Service Details
- ✓ Service Entry
- ✓ Item Intake Details
- ✓ Cheque Details

✓ Credit Details

✓ Sales Compare Chart

Purchase Order

Functional Requirements

This function collects Purchase Id from the user. This is used to produce the purchase report.

Description

➢ The user selects the purchase id. On clicking the report button the purchase order report is produced.

➢ The report contains vendor information like their address, phone no. and also about the items information like name, quantity, price and total price.

Inputs

⇒ Purchase Id

Outputs

⇒ The purchase report is produced.

Process Validation

⇒ Purchase Id.

Invoice

Functional Requirements

This function collects Sales Id from the user. This is used to produce the sales report.

Description

- The user selects the sales id. On clicking the report button the sales report is produced.
- The report contains customer information like their address, phone no. and also about the items information like name, quantity, price and total price.

Inputs

⇒ Sales Id

Outputs

⇒ The sales report is produced.

Process Validation

⇒ Sales Id.

Delivery Challan

Functional Requirements

This function collects Sales Id from the user. This is used to produce the delivered item report.

Description

- The user selects the sales id. On clicking the report button the delivery report is produced.
- The report contains customer information like their address, phone no. and also about the items information like name, quantity, price and total price and the delivery status.

Inputs

⇒ Sales Id

Outputs

⇒ The delivery report is produced.

Process Validation

⇒ Sales Id.

Invoice Cum Delivery Challan

Functional Requirements

This function collects Sales Id from the user. This is used to produce the sales cum delivery report.

Description

- The user selects the sales id. On clicking the report button the sales report is produced. It contains the items that are delivered after a sale is made.
- The report contains customer information like their address, phone no. and also about the items information like name, quantity, price and total price. The delivery status for each item is stated in this report

Inputs

⇒ Sales Id

Outputs

⇒ The Sales cum Delivery report is produced.

Process Validation

⇒ Sales Id.

Warranty Claim Certificate

Functional Requirements

This function collects Sales Id from the user. This is used to produce the warranty report for an item.

Description

- The user selects the sales id. On clicking the report button the warranty report is produced. It contains the items and their warranty period.
- The report contains customer information like their address, phone no. and also about the items information and their warranty period.

Inputs

⇒ Sales Id

Outputs

⇒ The Warranty report is produced.

Process Validation

⇒ Sales Id.

Annual Maintenance Contract

Functional Requirements

This function collects Service Id from the user. This is used to produce the AMC report for a particular service.

Description

- The user selects the service id. On clicking the report button the AMC report is produced. It contains the item's information like price and contract information.
- The report contains customer information like their address, phone no. and the contract period.

Inputs

⇒ Service Id

Outputs

⇒ The AMC report is produced.

Process Validation

⇒ Service Id.

Service Job Sheet

Functional Requirements

This function collects Service Id from the user. This is used to produce the Service Job Sheet report for a particular service.

Description

- The user selects the service id. On clicking the report button the Service Job Sheet report is produced. This is one of the acknowledgement report produced by the system
- The report contains customer information like their address, phone no. and the delivered status. This is used to check whether the items have been serviced and delivered to the customers.

Inputs

⇒ Service Id

Outputs

⇒ The Job Sheet report is produced.

Process Validation

⇒ Service Id.

Customer Details Report

Functional Requirements

This function collects Internal/External status from the user. This is used to produce the Customer Details report for a particular service.

Description

- On clicking the report button the Customer Details report is produced.
- The report can be separated based on the type of customer. The customer may be an internal customer or an external customer.
- The report contains customer information like their address, phone no. and the reference details. It also contains the Engineer's name who serviced the items of that customer.

Inputs

⇒ User Status.

Outputs

⇒ The Customer Details report is produced.

Process Validation

⇒ Customer Id.

Engineer Details Report

Functional Requirements

This function collects the Engineer Details and produces Engineer Details report.

Description

- On clicking the report button the Engineer Details report is produced.
- The report can be separated based on the type of customer. The customer may be an internal customer or an external customer.
- The report contains customer information like their address, phone no. and the reference details. It also contains the Engineer's name who serviced the items of that customer.

Inputs

⇒ Customer Id.

Outputs

⇒ The Customer Details report is produced.

Process Validation

⇒ Customer Id.

Vendor Details Report

Functional Requirements

This function collects the Vendor Details and produces Vendor Details report.

Description

- On clicking the report button the Vendor Details report is produced.
- The report contains vendor information like their address, phone no., tngst no., cst no. and the reference details.

Outputs

⇒ The Vendor Details report is produced.

Item Type Details Report

Functional Requirements

This function collects the Item Details and produces Item Details report.

Description

- On clicking the report button the Item Details report is produced.
- The report contains item information like item name and the item type.

Outputs

⇒ The Item Details report is produced

Stock Report

Functional Requirements

This function collects the Stock Details and produces Stock report.

Description

- On clicking the report button the stock report is produced.
- The report contains stock information like item name and the quantities available.

Outputs

⇒ The Stock report is produced

Service Details Report

Functional Requirements

This function collects the Service Details and produces Service report.

Description

- On clicking the report button the stock report is produced.
- The service report may be AMC or Warranty report.

➢ The report contains Item information like item name and customers associated with it.

Outputs

⇒ The Service report is produced.

Service Entry Report

Functional Requirements

This function collects the finished and pending details and produces Service report.

Description

➢ On clicking the report button the Service report is produced.

➢ The Service report is differentiated with finished services and pending services.

➢ The report contains item name, problems, solution and customers associated with it.

Outputs

⇒ The Service report is produced

Item Intake Details Report

Functional Requirements

This function collects the finished and pending details and produces Item Intake report.

Description

- On clicking the report button the Item Intake report is produced.
- The Item Intake report is differentiated with finished services and pending services.
- The report contains item name, intake date, engineer name and customer name associated with it.

Outputs

⇒ The Item intake report is produced

Cheque Report

Functional Requirements

This function collects Cheque details and produces Cheque report.

Description

- On clicking the report button the Cheque report is produced.

- The report contains transaction type, transaction id, cheque id and cheque date.

Outputs

⇒ The Cheque report is produced.

Credit Report

Functional Requirements

This function collects Credit details and produces Credit report.

Description

- On clicking the report button the Credit report is produced.
- The report contains transaction type, transaction id and credit date.

Outputs

⇒ The Credit report is produced

Sales Compare Report

Functional Requirements

This function collects Sales details and produces Sales compare report.

Description

- On clicking the report button the Sales compare report is produced.
- The report contains sales of each year, which is compared using a chart.

Outputs

⇒ The Sales Compare report is produced

Help

Functional Requirements

This function collects Help details.

Description

- On clicking the help button the help for RMS is shown.
- The help provides comprehensive details of how to use RMS.
- This guides the user to how operations can be done in each forms.

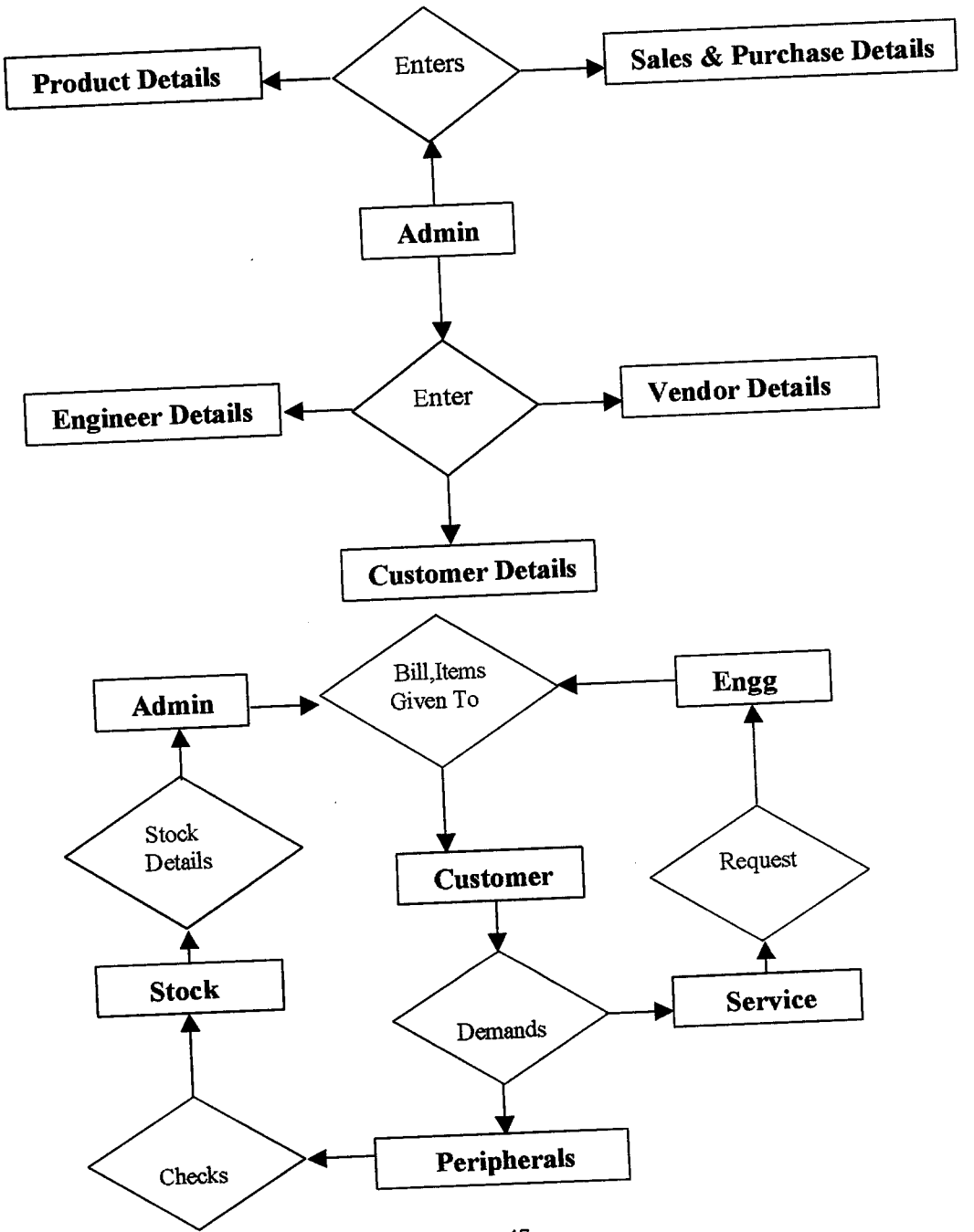
Outputs

The Help is shown to the user.

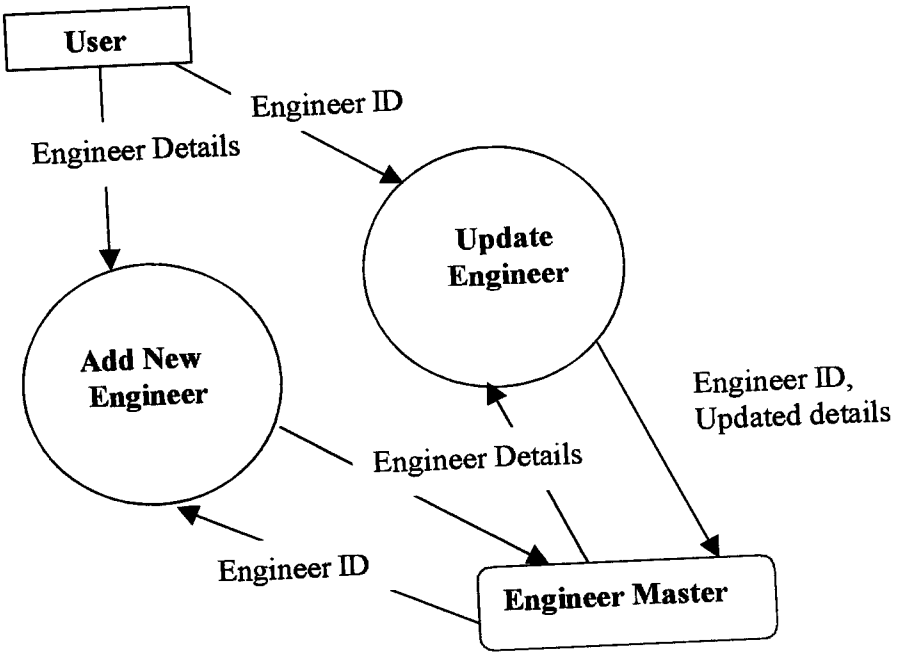
DATA FLOW DIAGRAM

4.0. Data Flow Diagram

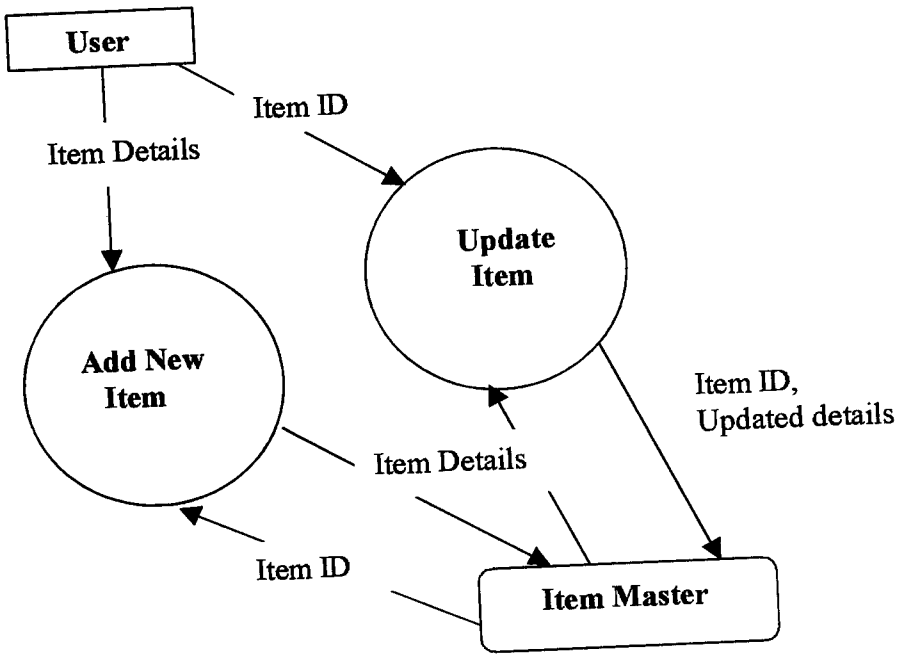
Entity Relationship Diagram



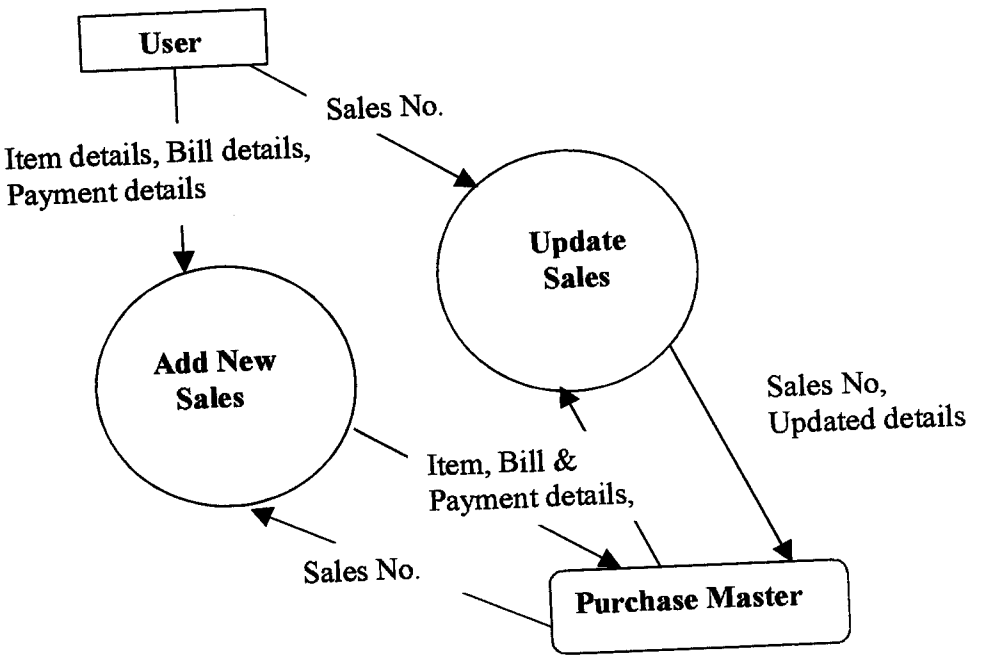
4.1. Engineer Master:



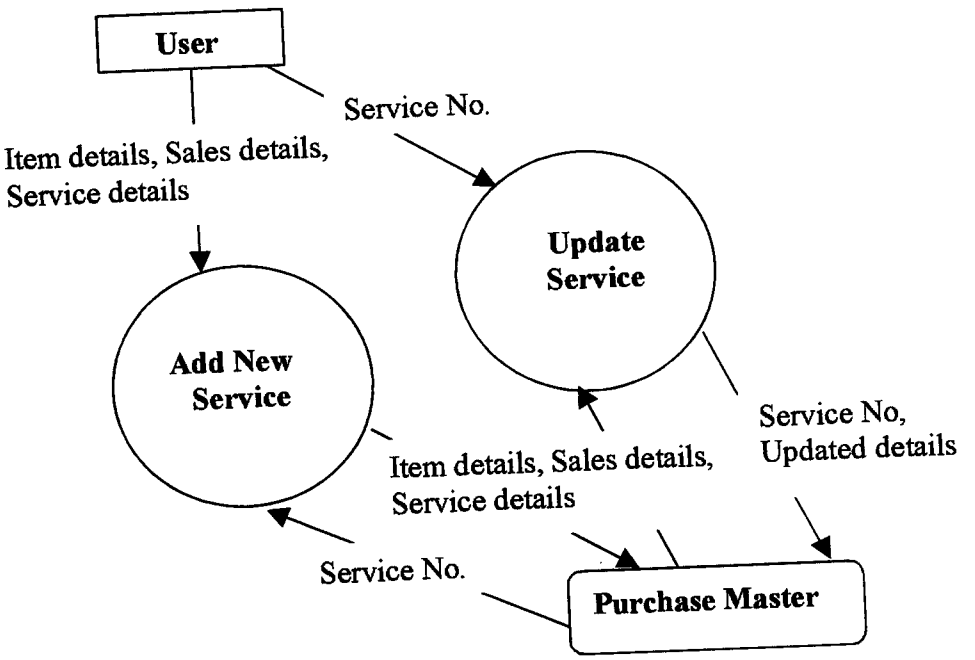
4.2. Item Master:



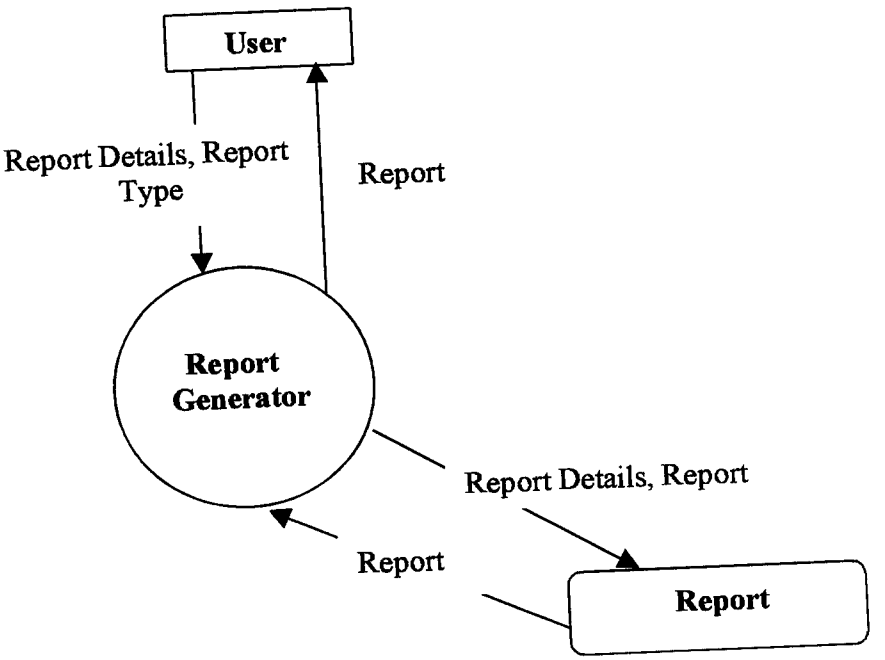
4.3. Sales Master:



4.4. Service Master:

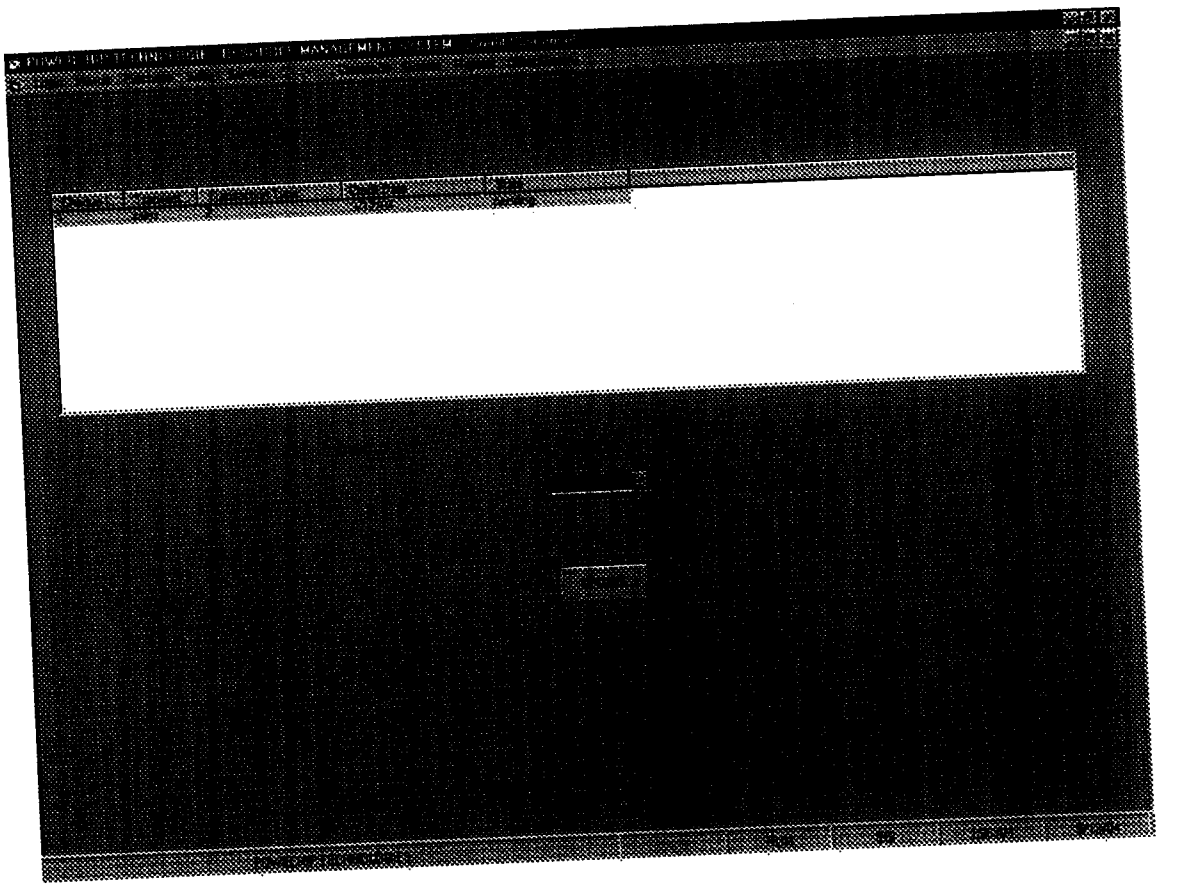


4.5. Report:

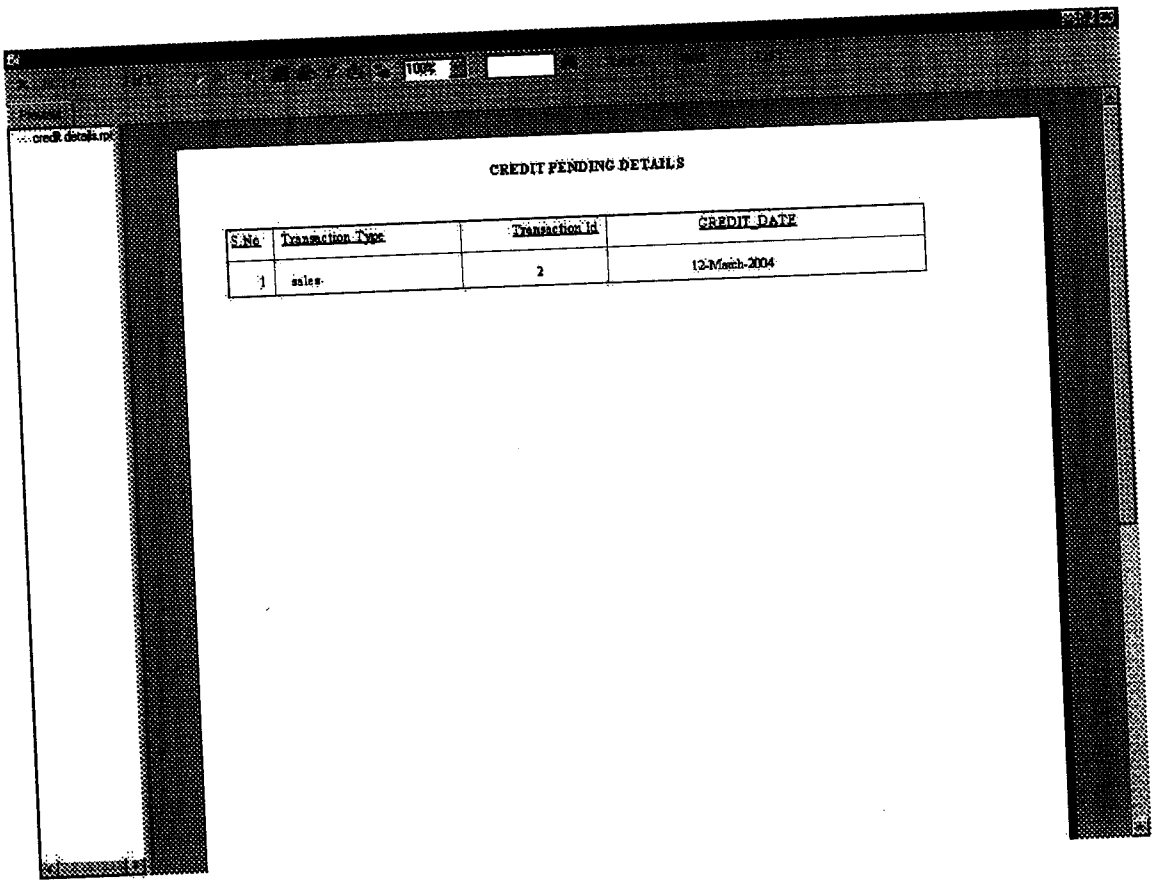

User
Report Details, Report Type
Report
Report Generator
Report Details, Report
Report
Report

5.0. Sample Forms

5.1. Credit Clearance:



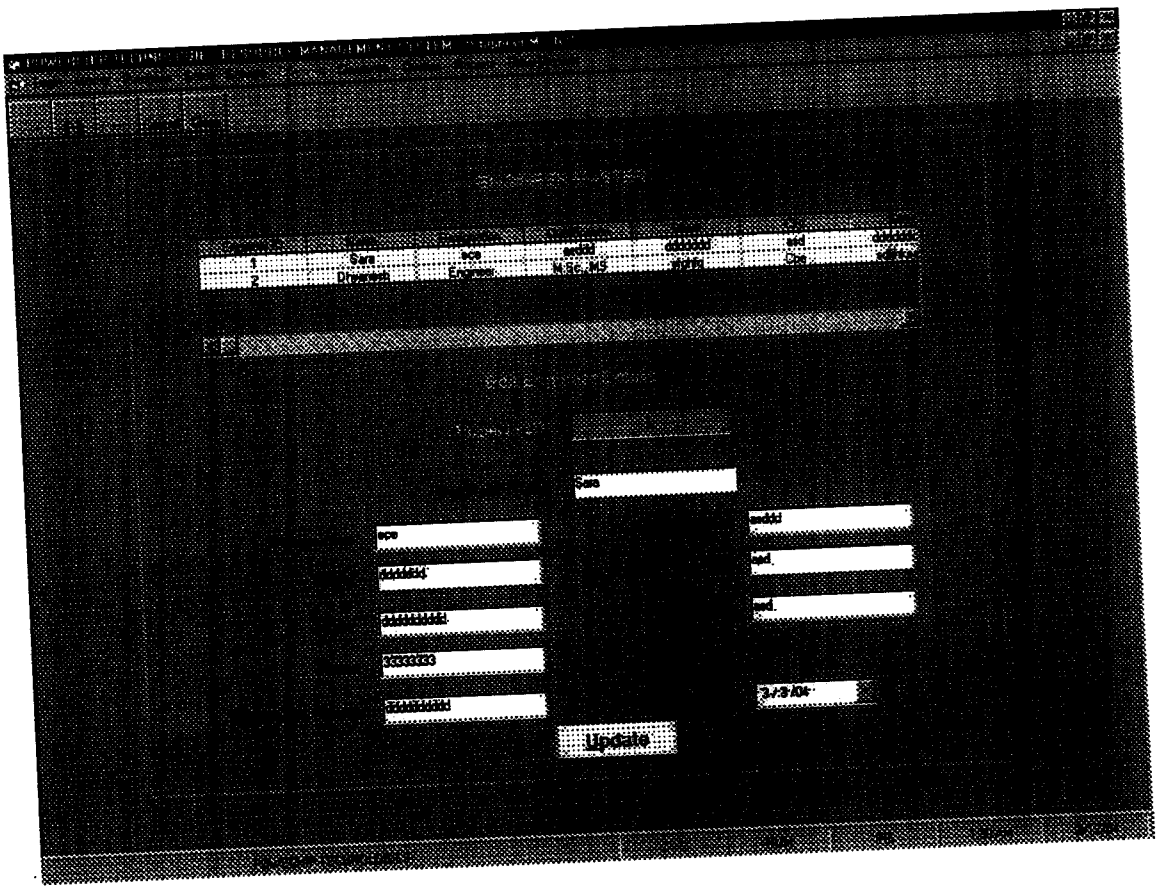
5.2. Credit Pending Details:



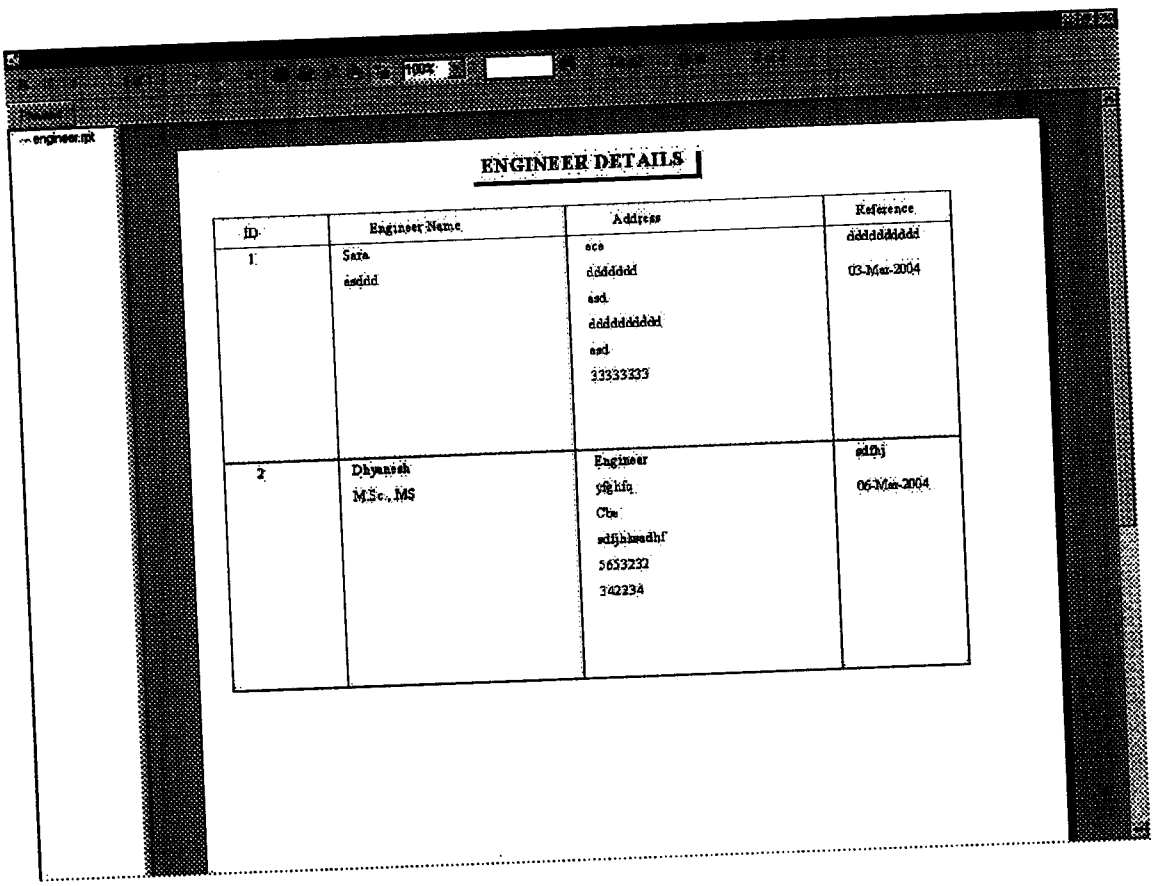
CREDIT PENDING DETAILS

S.No	Transaction Type	Transaction Id	CREDIT_DATE
1	sales	2	12-March-2004

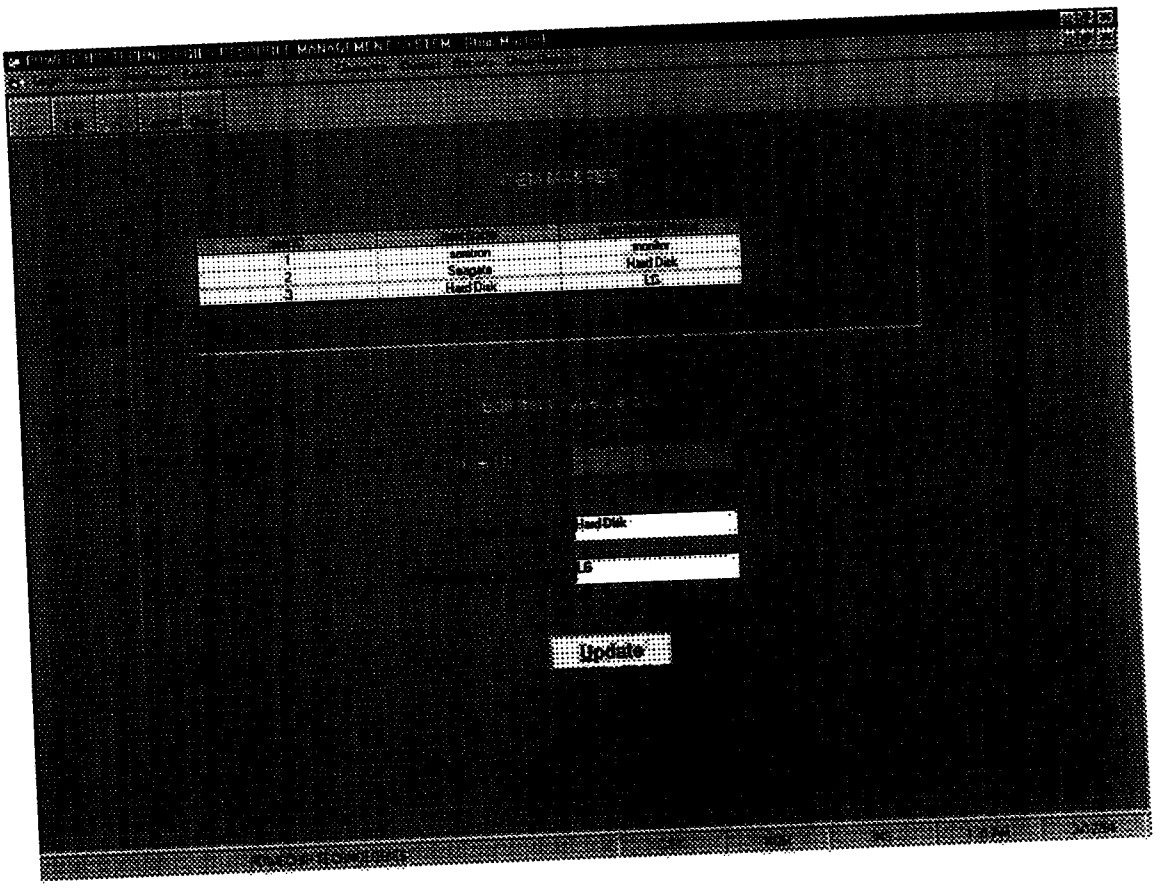
5.3. Engineer Master:



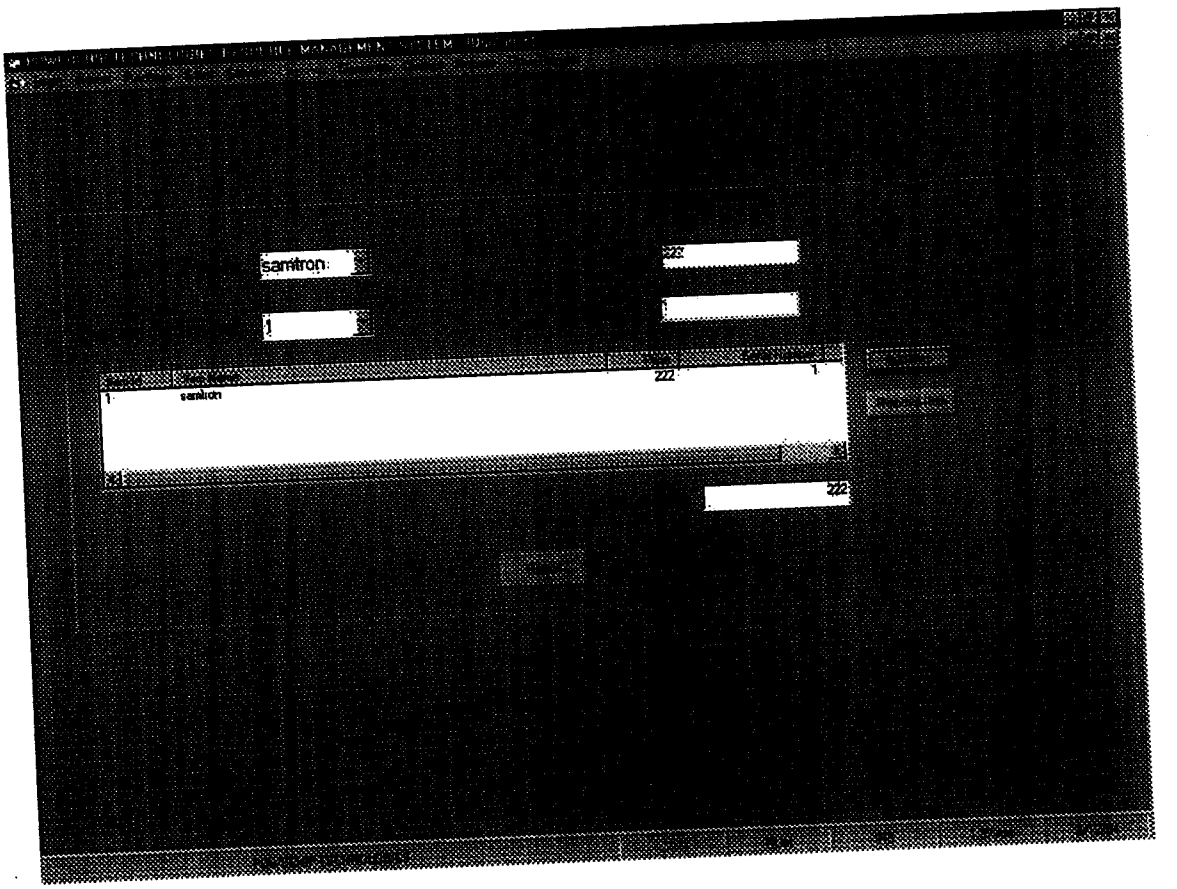
5.4. Engineer Details:



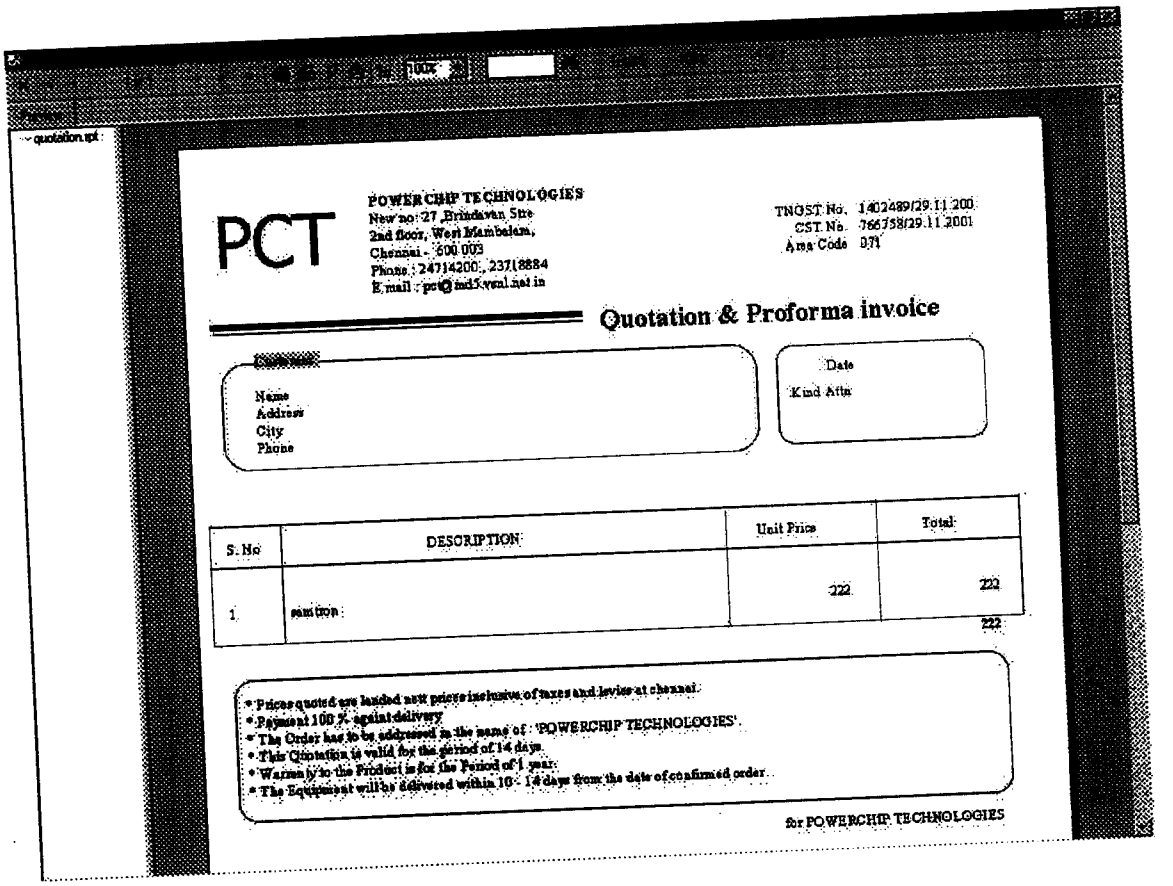
5.5. Item Master:



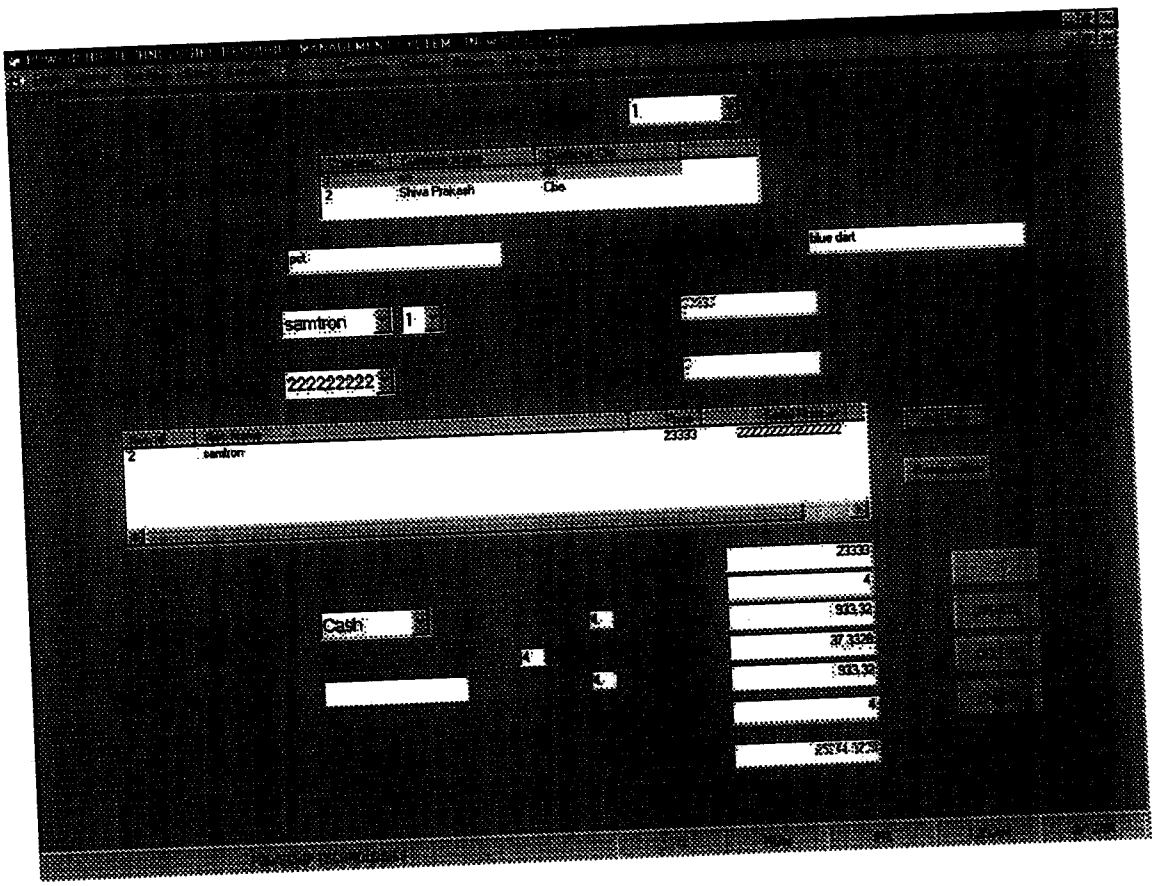
5.6. Quotation:



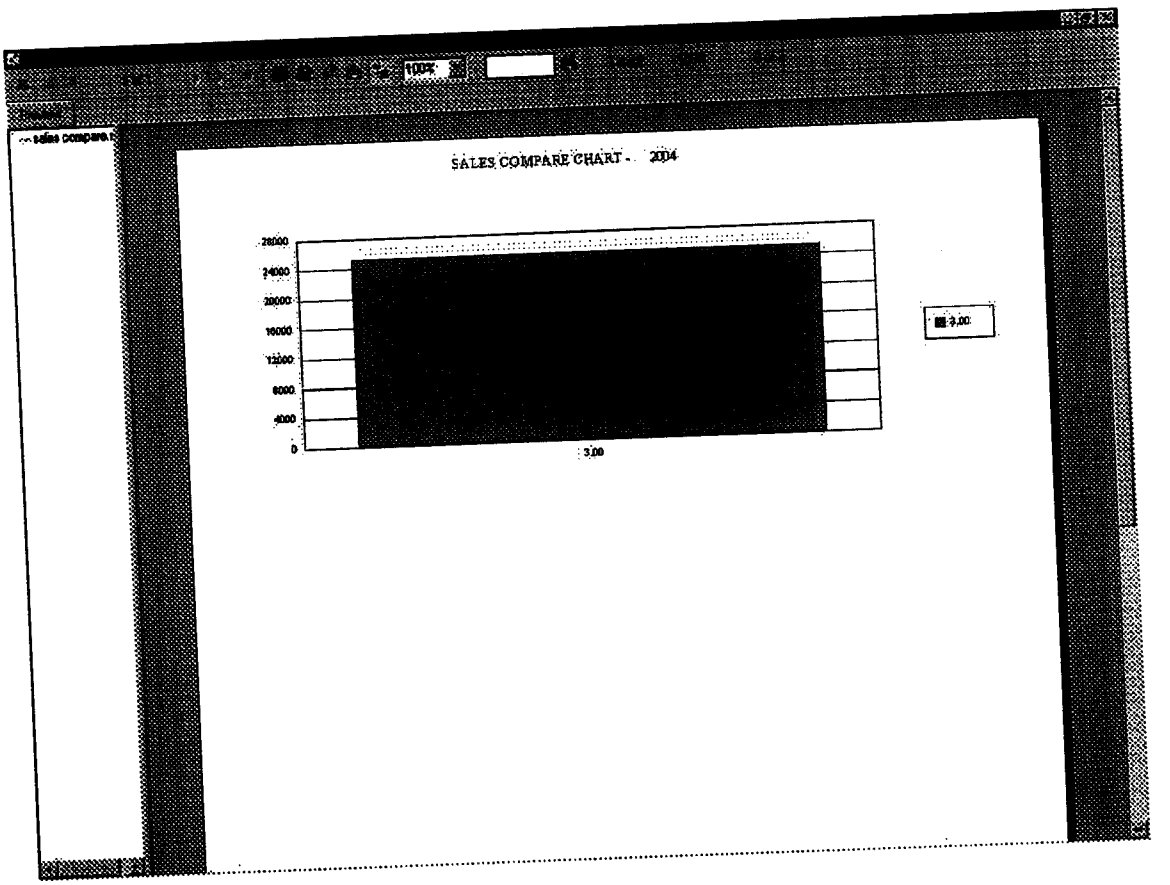
5.7. Quotation & Proforma Invoice:



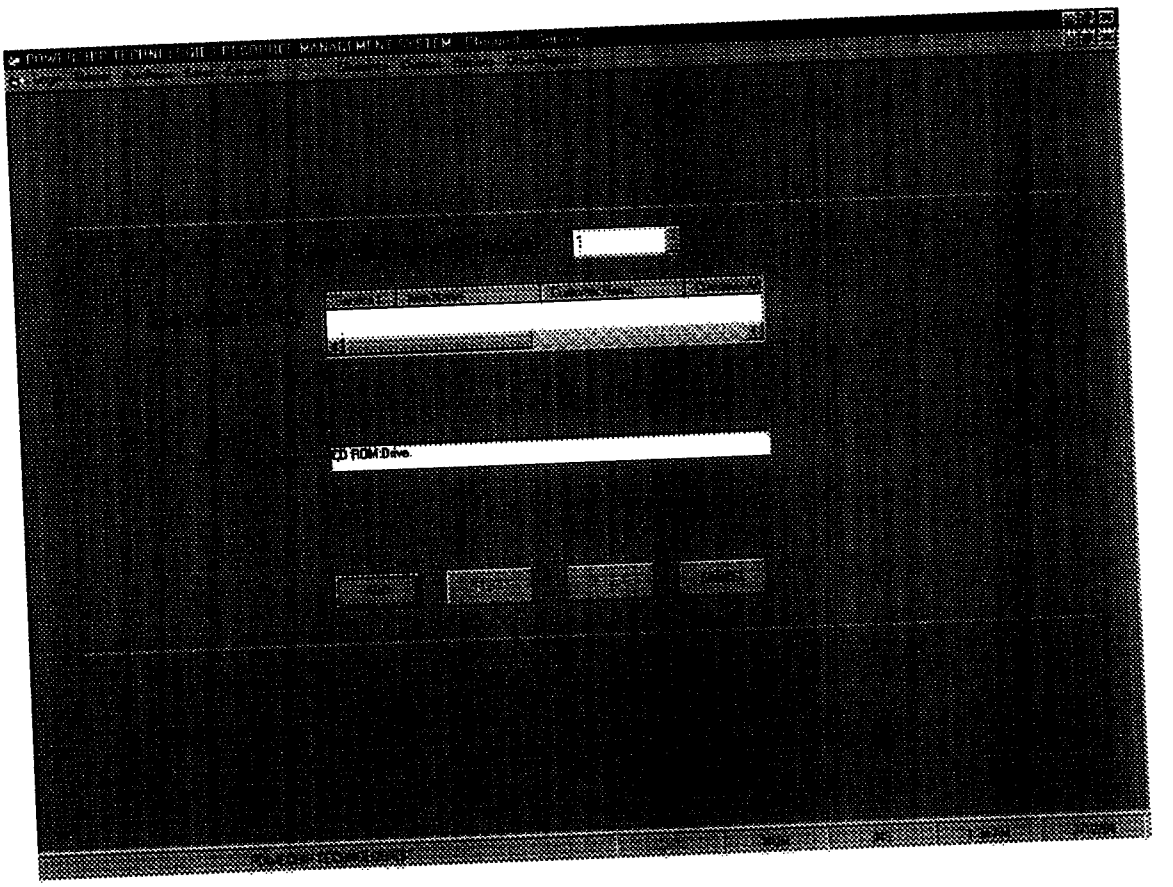
5.8. Sales Entry:



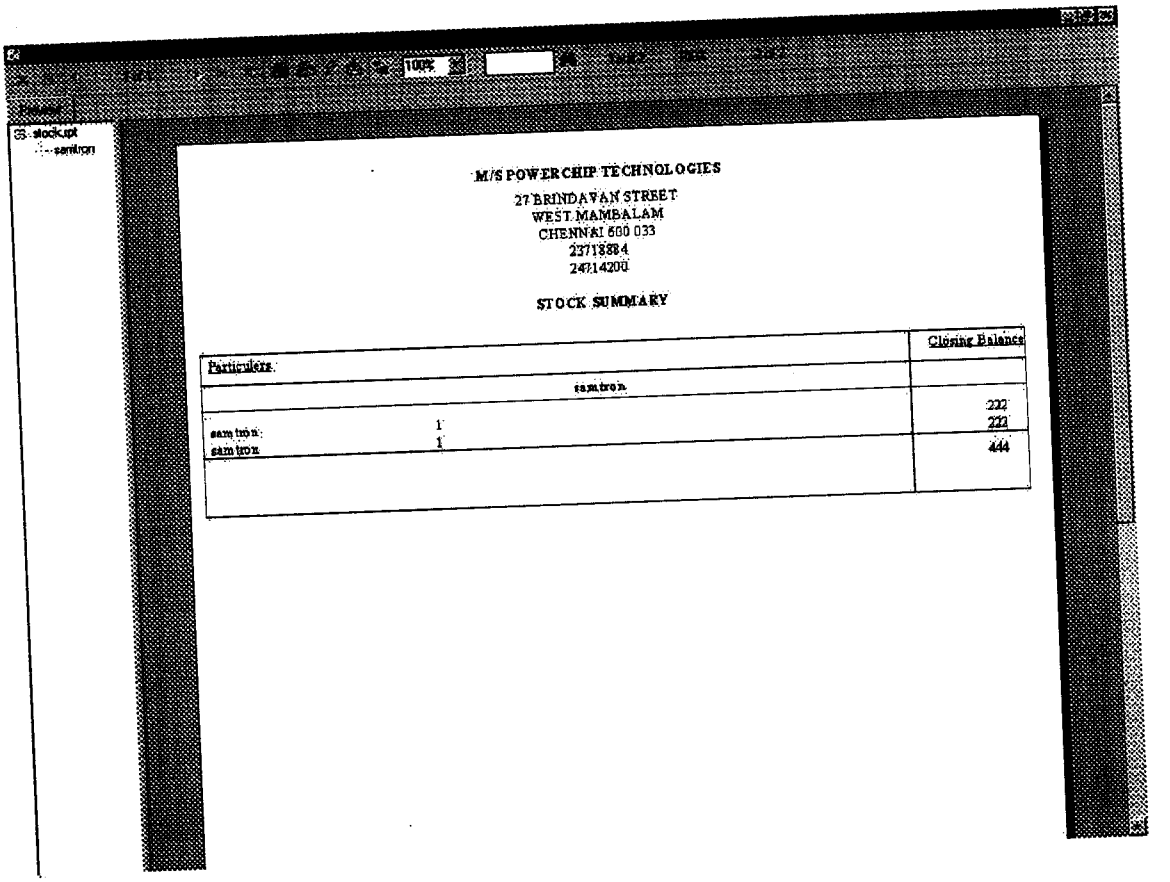
5.9. Sales Compare Chart:



5.10. Service Request:



5.11. Stock Summary:



M/S POWERCHIP TECHNOLOGIES

27 BRINDAVAN STREET
WEST MAMBALAM
CHENNAI 600 033
23713884
24914200

STOCK SUMMARY

Particulars		Closing Balance
samtron		
samtron	1	222
samtron	1	222
		444

6.0 Table Structure and Description

Customer master:

Name	Constraint	Type	Description
CUSTOMER_ID	Primary key	NUMBER(15)	Id for Customer
CUSTOMER_NAME		VARCHAR2(50)	Name of Customer
ADD_STREET		VARCHAR2(50)	Street(Customer)
ADD_CITY		VARCHAR2(50)	City(Customer)
ADD_STATE		VARCHAR2(50)	State(Customer)
ADD_PINCODE		VARCHAR2(50)	Pincode(Customer)
CUSTOMER_PHONE		VARCHAR2(50)	Phone(Customer)
CUSTOMER_TYPE		VARCHAR2(50)	Type(Customer)
REFERENCE_PERSON		VARCHAR2(50)	Reference person
REFERENCE_DATE		DATE	Date of Reference
ENGINEER_ID		NUMBER(15)	Id for Engineer

Engineer Master:

Name	Constraint	Type	Description
ENGINEER_ID	Primary key	NUMBER(15)	Id for Engineer
ENGINEER_NAME		VARCHAR2(50)	Name of Engineer
ENGINEER_DESIGNATION		VARCHAR2(50)	Designation of Engineer
ENGINEER_QUALIFICATIO N		VARCHAR2(50)	Qualification of Engineer
ADD_STREET		VARCHAR2(50)	Street(Engineer)
ADD_CITY		VARCHAR2(50)	City(Engineer)
ADD_STATE		VARCHAR2(50)	State(Engineer)

ADD_PINCODE		VARCHAR2(50)	Pincode(Engineer)
ENGINEER_PHONE		VARCHAR2(50)	Phone(Engineer)
REFERENCE_PERSON		VARCHAR2(50)	Person who has Reference
REFERENCE_DATE		DATE	Date of Reference

Service_master:

Name	Constraint	Type	Description
SERVICE_ID	primary key	NUMBER(4)	Id for service
ITEM_NAME		VARCHAR2(50)	Name of the item
SERVICE_TYPE		VARCHAR2(50)	Type of service
CUSTOMER_ID	foreign key refers to customer master	NUMBER(4)	Id for customer
MAX_VISITS		NUMBER	No of visits
ACTUAL_VISITS		NUMBER	Actual visits
SERVICE_FROMDATE		DATE	Date of service to be started
SERVICE_TODATE		DATE	Date of service to be finished
AMOUNT		NUMBER(15,2)	amount
SHIPPING		NUMBER(15,2)	Shipping
SALES_TAX		NUMBER(15,2)	Taxation charcges
SURCHARGE		NUMBER(15,2)	surcharge
TAX2		NUMBER(15,2)	Taxation charcge
FREIGHT_AMOUNT		NUMBER(15,2)	Handling amount

NET_AMOUNT		NUMBER(15,2)	Total amount
PAYMENT_TYPE		VARCHAR2(50)	Mode of payment

User_master:

Name	Constraint	Type	Description
USER_NAME		VARCHAR2(50)	Name of user
USER_TYPE		VARCHAR2(50)	Type of user
PASSWORD		VARCHAR2(50)	passsword
ID		NUMBER(4)	id

Vendor_master:

Name	Constraint	Type	Description
VENDOR_ID	Primary key	NUMBER(15)	Id for vendor
VENDOR_NAME		VARCHAR2(50)	Name for vendor
ADD_STREET		VARCHAR2(50)	Street (vendor)
ADD_CITY		VARCHAR2(50)	city (vendor)
ADD_STATE		VARCHAR2(50)	state (vendor)
ADD_PINCODE		VARCHAR2(50)	pincode (vendor)
VENDOR_PHONE		VARCHAR2(50)	phone (vendor)

TNGST_NUMBER		VARCHAR2(50)	Tngst number
CST_NUMBER		VARCHAR2(50)	Cst number
REFERENCE_PERSON		VARCHAR2(50)	Person who referred
REFERENCE_DATE		DATE	Date of reference

Item Details:

Name	Constraint	Type	Description
ITEM_ID	Foreign key refers to item type master	NUMBER(15)	Id for item
ITEM_TYPE_ID		NUMBER(15)	Type id for item
PURCHASE_ID		NUMBER(15)	Id for purcahse
SERIAL_NUMBER		VARCHAR2(50)	Serial Number for item
WARRANTY_PERIOD		NUMBER(15)	Warranty for item
ITEM_COST		NUMBER(15,2)	Cost for item
SELLING_COST		NUMBER(15,2)	Selling for cost
CURRENT_STATE		VARCHAR2(50)	Current status for item

Item Intake Details:

Name	Constraint	Type	Description
REF_ID	foreign key to service entry	NUMBER(4)	Reference id
SERVICE_ENTRY_REF_ID		NUMBER(4)	Service entry id
INTAKE_DATE		DATE	Date of intake
DELIVERY_DATE		DATE	Date of delivery
ITEM_NAME		VARCHAR2(50)	Name of item

Item type master:

Name	Constraint	Type	Description
ITEM_TYPE_ID	Primary key	NUMBER(15)	Item type id
ITEM_NAME		VARCHAR2(50)	Name of item
ITEM_GENERAL_NAME		VARCHAR2(50)	General name

Ordered_items:

Name	Constraint	Type	Description
REF_ID		NUMBER(15)	Reference id
ITEM_TYPE_ID	Foreign key refers to item type master	NUMBER(15)	Item type id
QUANTITY		NUMBER(15)	Quantity
PURCHASE_ID		NUMBER(15)	Id for purcahse

Purchase_details:

Name	Constraint	Type	Description
PURCHASE_ID	foreign key refers to ordered items	NUMBER(4)	Id for purchase
VENDOR_ID	Foreign key refers to vendor master	NUMBER(4)	Id for vendor
ORDER_DATE		DATE	Date of order
DELIVERY_DATE		DATE	Date of delivery
SHIP_THROUGH		VARCHAR2(50)	Mode of transport
SHIP_THROUGH_ADDRESS		VARCHAR2(50)	Address of transportation
SHIP_THROUGH_CITY		VARCHAR2(50)	Address (city)
SHIP_THROUGH_PHONE		VARCHAR2(50)	Phone number
BILL_TO		VARCHAR2(50)	To whom the bil has to be given
BILL_TO_ADDRESS		VARCHAR2(50)	The bill address
BILL_TO_CITY		VARCHAR2(50)	Bill city
BILL_TO_PHONE		VARCHAR2(50)	phone
PAYMENT_METHOD		VARCHAR2(50)	Mode of payment
SHIPPING_HANDLING		NUMBER(10)	Shipping charges
STATE_TAX		NUMBER(10)	Taxation charges
STATE		VARCHAR2(50)	State city

Sales_details:

Name	Constraint	Type	Description
SALES_ID	Primary key	NUMBER(4)	Id for sales
CUSTOMER_ID	foreign key refers to customer master	NUMBER(4)	Id for customer
SALES_DATE		DATE	Date of sales
KIND_ATTENTION		VARCHAR2(50)	Contact person
DELIVERY_THROUGH		VARCHAR2(50)	Delivery thro
SHIPPING		NUMBER(15,2)	Shipping thro
SALES_TAX		NUMBER(15,2)	Taxation charges
SURCHARGE		NUMBER(15,2)	surcharges
TAX2		NUMBER(15,2)	Taxation charges
FREIGHT_AMOUNT		NUMBER(15,2)	Loading charges
NET_AMOUNT		NUMBER(15,2)	Total amount
SERVICE_ID		NUMBER(15,2)	Id for service
PAYMENT_TYPE		VARCHAR2(50)	Type of payment

Sales_items_details:

Name	Constraint	Type	Description
REF_ID		NUMBER(4)	Id for reference
SALES_ID	foreign key	NUMBER(4)	Id for sales
ITEM_ID		NUMBER(4)	Item for id

Service_entry:

Name	Constraint	Type	Description
REF_ID	primary key	NUMBER(4)	Id for reference
SERVICE_ID	foreign key refers to service master	NUMBER(4)	Id for service
SERVICE_DATE		DATE	Date of service
PROBLEM		VARCHAR2(200)	Error occurred
SOLUTION		VARCHAR2(200)	Measures taken
STATE		VARCHAR2(200)	status

Credit details:

Name	Constraint	Type	Description
REF_ID		NUMBER(15)	Reference id
TRANSACTION_TYPE		VARCHAR2(15)	Type of transaction
TRANSACTION_ID		NUMBER(15)	Id for transaction
CREDIT_DATE		DATE	Date of credit
STATE		VARCHAR2(15)	State of credit

Cheque details:

Name	Constraint	Type	Description
REF_ID		NUMBER(15)	Reference id
TRANSACTION_TYPE		VARCHAR2(15)	Type of transaction
TRANSACTION_ID		NUMBER(15)	Id for transaction
CHEQUE_DATE		DATE	Date of credit
STATE		VARCHAR2(15)	State of credit

TESTING & IMPLEMENTATION

7.0 System Testing And Implementation

7.1. Testing

Testing is an important phase in development in software development and application development in the world wide web. Testing will lead the error free application to the client.For this Automating Resources Time Scheduling there is a need of six types of testing.

- ✓ They are
- ✓ Unit Testing
- ✓ Validation Testing
- ✓ Integration Testing
- ✓ Output Testing
- ✓ Acceptance Testing
- ✓ User Acceptance Testing

7.1.1. Unit Testing:

Unit testing comprises the set of tests performed by an individual programmer prior to the integration of the unit into the large system. A program unit is usually small enough that the programmer who developed the unit can test it. Then the unit is integrated into the large part of the system. Unit testing is always white-box oriented and the step can be conducted in parallel for modules.

7.1.2. Validation Testing:

Software testing and validation is achieved through a series of black box tests that demonstrate conformity with the requirement. A test plan outlines the classes to test to be conducted and a test procedure defines specific test cases that will be used to demonstrate conformity with the requirements.

Both, the planned the procedures are designed to ensure that all functional requirements are achieved, documentation is correct and other requirements are met. After each validation test case has been conducted, one of the two possible conditions exists.They are the function or performance characteristics conform to the specification and are accepted.

A deviation from specification is uncovered and a deficiency list is created.This project is validated under different test conditions. The requirements as per the specification are met.

7.1.3. Integration Testing:

Bottom-up integration is the traditional strategy to integrate the components of the software system into the functional unit. Bottom-up integration consists of unit testing of the entire system.

Modules are tested in isolation from one another in an artificial environment, known as a **"test hareness"**,which consist of the driver programs and data necessary to exercise the modules.

Moreover Integration testing addresses the issues associated with the dual problem of verification and program construction. After the appplication has been integrated a set of high-order tests were conducted.

7.1.4. Output Testing:

The outputs are thoroughly tested by giving sample data, for which results are known.The outputs from the system are matched with that of the known values and the results are found to be accurate.

7.1.5. Acceptance Testing:

Acceptance testing involves planning and execution of functional tests,performance tests, and stress tests in order to demonstrate that the implemented system satisfies its requirtements.

In addition to the functional performance tests, stress tests are performed to determine the limitations of the system. Tools of special importance during acceptance testing include a test coversge analyzer, a timing analyzer and a coding standard checker.Testing is the process of executing test cases with the intension of exposing the errors.

7.2 System Implementation:

Implementation is the stage where the thoeratical design is converted into working system. It consist of

- ✓ Testing and Debugging
- ✓ Error Correction
- ✓ Training the user
- ✓ Change over

Implementation includes equipments installation and user training. For the system to begin operation, a sufficient number of users have been trained to the system. Several hours were sheduled for a number of users so that they were able to fully understand the new system and had an opportunity to familarize themselves with the various input screens and the generation of output.

The change over is another important aspect of the implementation process and had to be handled carefully.The existing system is changed to the new system and the system is found to meet its objectives. Data from the previous

system, static contend, is ported to the new system and the result produced are compared with that of the previous system. The new system is found to satisfy the user needs.

It allows the result to the new system to be compared with the old system before acceptance by the user, there by promoting the user confidence.

Conclusion:

Resource Management System was successfully designed and developed for the client for their Computer Resource Maintenance activities.

The application is very user-friendly and after successful testing and implementation the feed back was taken from the client users that it works efficiently and the application was fruitful.

RMS can be updated in the future based on the client's requirements.

Thus I conclude that has been developed successfully satisfying the requirements put forth.

References

- VB 6.0 – **Black Book** & www.microsoft.com
- Software Engineering – A practitioner' s Approach

  By Roger Pressman
- Oracle 9i – www.Oracle OCP.com