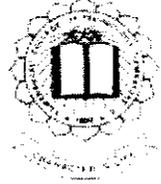P-1482

PRODUCTION CONTROL SYSTEM

By

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A PROJECT REPORT

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of

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BONAFIDE CERTIFICATE

Certified that this project report titled

PRODUCTION CONTROL SYSTEM

Is bonafide work of

Mr. M.SIVAKUMAR (Reg. No: 71202621044)

Who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Project Guide

Head of the Department

We examined the Candidate with University Register No. 71202621044 in the project Viva-Voce examination held on _____ 23/6/09 _____

Internal Examiner

External Examiner 23/6/09

ABSTRACT

The Project Titled "Production Control System" is Code Named as PCS, is a Application Software developed for a Casting organization for monitoring the Transaction from Bill of Material to Production.

The Production Control System is used maintain the data's of all the departments of a casting organization. Production Control System provides services for Bill of Material, Sales & Marketing, Purchase, Stores and Production for performing effective maintenance of the details and graceful transaction between them for the industrial growth. Production Control System enables department managers to perfectly know the current information about the transactions.

The major goal of the system is used to perfectly maintain the details of Customer information and make analysis over the orders given by them for making Products. The Raw Materials, Costs and other resources will be analyzed for performing particular product. Production Control System provides much user convenience for performing task in computerized way. The design has made in the way very attractive and interactive to the users. The implementation provides users to realize their mistakes through helps if any missing of input process happened. More over transactions between departments by the system is very useful to know the amendments happening in them.

ACKNOWLEDGEMENT

At this pleasing moment of having successfully completed the project work, I wish to acknowledge my sincere gratitude and heartfelt thanks to our beloved Principal **Dr.K.K.Padmanabhan B.Sc., (Engg), M.Tech, Ph.D.,** for having given me the adequate support and opportunity for completing this project work successfully.

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CHAPTER 1

INTRODUCTION

1.1 PROJECT OVERVIEW

1.1.1 Production Control System

Production Control System provide facilities for storing all the department details and customer details of a casting organization and make production

Major Modules in Production Control System are

- Bill of Material
- Sales & Marketing
- Purchase
- Stores
- Production

1.1.2 Project Scope

- Product Cost has been decided before the production by considering material cost and process cost.
- Quotation and Replies are noted up for the considerations.
- Acceptance of Order has been performed and sample product has been delivered before the actual product.

- Requisition of material over various departments has been evaluated for purchase.
- Enquiry has been done over the purchase intend to purchase the best products to the concern.
- Goods Receipt note has been produced for purchase.
- Goods issue entry and returns have been noted.
- Planning over production of types daily or monthly or weekly has been performed
- Quality verification over the finished product has been performed.

1.2 ORGANIZATION PROFILE

Pearl Soft is the strategic partner of the SCG Chennai, which is one of the leading providers of Windows-based software solutions for the Organizations.

Vision

Right Products with Right Views

Focus

The company has been totally focused on software development for the Organizations, Hotels and Restaurants. It has all along been a leading provider of integrated software system for Organization services. They are committed to provide error free software through continual improvement. They maintain highly competent human resources so that the customer's requirements are always met.

Services

The Company is currently providing software product developments and researches and development services to their Principal SCG. The future plan will include offering services across the entire spectrum of technology-based services.

They improve the relationship among the department transactions internal to the organizations and provide best products with effective cost.

Products

Pearl Soft solutions are designed to eliminate fragmentation of information management through a revolutionary systems architecture that accommodates financial and administrative business processes.

Pearl Soft software suites include:

a.   **InfoOrg** solutions comprised of long term problem solution for the growing organizations.

b.   **EzyMarket** provides high technology for transactions in electronic based system.

c.   **NiceNest** applications comprised of providing effective technologies for Hotels and Restaurants.

CHAPTER 2

SYSTEM REQUIREMENT AND SPECIFICATION

The Software Requirements Specification is a technical specification of requirements for the software product. The goal of software requirements definition is to completely and consistently specify the technical requirements for the software products in a concise and unambiguous manner.

The Software Requirements Specification is based on the system definition high-level requirements specified during initial planning are elaborated and more specific in order to characterize the features that the software product will incorporate .the requirement specification is primarily concerned with functional and a performance aspect of the software product and emphasis is placed on specifying product characteristics is placed on specifying product characteristics without implying how the product will provide those characteristics.

Desirable properties of a Software Requirement Specification
- Correct
- Complete
- Consistent
- Unambiguous
- Functional
- Verifiable
- Traceable

2.1 HARDWARE REQUIREMENTS

- Processor   : Intel Pentium
- Processor   : 500 MHZ
- Memory   : 96 MB RAM
- Hard Disk   : 10 GB

2.2 SOFTWARE REQUIREMENTS

- Operating System   : Windows 2000/xp/NT Server
- Programming Language   : VB.NET
- Database Server   : Microsoft SQL Server 2000

2.3 SOFTWARE OVERVIEW

What Is Microsoft .NET?

Microsoft .NET is software that connects information, people, systems, and devices. It spans clients, servers, and developer tools, and consists of:

- The .NET Framework used for building and running all kinds of software, including Web-based applications, smart client applications, and XML Web services—components that facilitate integration by sharing data and functionality over a network through standard, platform-independent protocols such as XML (Extensible Markup Language), SOAP, and HTTP.

- Developer tools, such as Microsoft Visual Studio® .NET 2003 which provides an integrated development environment (IDE) for maximizing developer productivity with the .NET Framework.

- A set of servers, including Microsoft Windows® Server 2003, Microsoft SQL Server™, and Microsoft BizTalk® Server, that integrates, runs, operates, and manages Web services and Web-based applications.

- Client software, such as Windows XP, Windows CE, and Microsoft Office XP, that helps developers deliver a deep and compelling user experience across a family of devices and existing products.

What is the .NET Framework?

The .NET Framework is a development and execution environment that allows different programming languages & libraries to work together seamlessly to create Windows-based applications that are easier to build, manage, deploy, and integrate with other networked systems.

The .NET Framework consists of:

- **The Common Language Runtime (CLR)**

The common language runtime (CLR) is responsible for run-time services such as language integration, security enforcement, and memory, process, and thread management. In addition, the CLR has a role at development time when features such as life-cycle management, strong type naming, cross-language exception handling, and dynamic binding reduce the amount of code that a developer must write to turn business logic into a reusable component.

- **The Framework Class Libraries (FCL)**

A consistent, object-oriented library of prepackaged functionality Base classes provides standard functionality such as input/output, string manipulation, security management, network communications, thread management, text management, and user interface design features.

The ADO.NET classes enable developers to interact with data accessed in the form of XML through the OLE DB, ODBC, Oracle, and SQL Server interfaces. XML classes enable XML manipulation, searching, and translations. The ASP.NET classes support the development of Web-based applications and Web services. The Windows Forms classes support the development of desktop-based smart client applications.

Together, the class libraries provide a common, consistent development interface across all languages supported by the .NET Framework.

Reasons for Using VB.NET

- **Seamless Deployment**. VB .NET promises to end "DLL Hell" and it may. I haven't experimented with it much yet but I've heard mixed reviews. Probably it will be better once we're used to it. It can't be a whole lot worse.
- **More Robust Code**. The features they list here are the real-time background compiler (to check syntax as you type) and the task list. Neither of these is a big step beyond VB 6. They also list strict type checking (which is good) and structured error handling. Structured error handling is really just more like the way it works in C/C++. It has some advantages but also some big disadvantages such as no Resume statements and no On Error Resume Next capabilities.
- **Powerful Windows-base Applications**. This isn't a real big deal. They point to the Form Designer (we've always had that), control anchoring and docking (replaces straightforward code with confusing design time properties), in-place menu editor (the old one was fine), and the tab order

- **Powerful, Flexible Data Access**. They say VB .NET provides ADO and ADO.NET. Actually it looks like Microsoft is trying to dump ADO. ADO.NET does have some nice features, but it's aimed strongly at Web-like program structures where database users never interfere with each other. Record locking doesn't work as it does in ADO so building a traditional desktop application for multiple users requires some trickery.

- **Simplified Component Creation**. The Toolbox now includes more non-visual components (sort of like the Timer control) for things like database connection, Dataset, message queues, etc. It's not hard to create these objects in your code. Putting them on the form lets you do a bit more design-time configuration for them so this isn't a bad thing; it's just no big deal.

- **Enhanced Control Creation**. They don't say much here. It's true that VB .NET lets you build user controls. I haven't seen any big advantages over how it works in VB5/6 but I haven't spent a huge amount of time on this. One BIG disadvantage is the user control object (and the Picture Box and Form for that matter) no longer have an Auto Redraw property. If you want Auto Redraw, you need to implement it yourself with your own bitmap buffers.

- **Complete, Direct Access to the Platform**. This just means VB programmers can use the .NET Framework. That gives access to the registry, event log; performance counters, and files system. What this means in practice is you use new classes to do stuff that you would have done using API calls before. A nice feature but nothing you couldn't live without.

- **Integrated Reporting with Crystal Reports** (Professional edition and above). This lets you manipulate Crystal Reports within the IDE. I suppose you might care if you use Crystal Reports a lot.

Database Design

Production Control System uses Microsoft SQL Server 2000 as its Backend. Microsoft Extends the Performance, reliability, quality and ease- of-use of Microsoft SQL Server version 7.0. Microsoft SQL Server 2000 includes several new features that make it an excellent database platform for large-scale online transactional processing (OLTP), data warehousing, and e-commerce Application.

Fundamentals of SQL Server 2000 Architecture

- Online Transaction Processing (OLTP) systems must be capable of handling thousands of orders placed at the same time.

- Increasing numbers of corporations are implementing large Web sites as a mechanism for their customers to enter orders, contact the service department, get information about products, and for many other tasks that previously required contact with employees. These sites require data storage that is secure, yet tightly integrated with the Web.

- Organizations are implementing off-the-shelf software packages for critical services such as human resources planning, manufacturing resources planning, and inventory control. These systems require databases capable of storing large amounts of data and supporting large numbers of users.

- Organizations have many users who must continue working when they do not have access to the network. Examples are mobile disconnected users, such as traveling sales representatives or regional inspectors. These users must synchronize the data on a notebook or laptop with the current data in the corporate system, disconnect from the network, record the results of their work while in the field, and then finally reconnect with the corporate network and merge the results of their fieldwork into the corporate data store.

- Managers and marketing personnel need increasingly sophisticated analysis of trends recorded in corporate data. They need robust Online Analytical Processing (OLAP) systems easily built from OLTP data and support sophisticated data analysis.

- Independent Software Vendors (ISVs) must be able to distribute data storage capabilities with applications targeted at individuals or small workgroups. This means the data storage mechanism must be transparent to the users who purchase the application. This requires a data storage system that can be configured by the application and then tune itself automatically so that the users do not need to dedicate database administrators to constantly monitor and tune the application.

Database Architecture

Microsoft® SQL Server™ 2000 data is stored in databases. The data in a database is organized into the logical components visible to users. A database is also physically implemented as two or more files on disk.

When using a database, you work primarily with the logical components such as tables, views, procedures, and users. The physical implementation of files is largely transparent. Typically, only the database administrator needs to work with the physical Implementation.

Each instance of SQL Server has four system databases (**master**, **model**, **tempdb**, and **msdb**) and one or more user databases. Some organizations have only one user database, containing all the data for their organization. Some organizations have different databases for each group in their organization, and sometimes a database used by a single application. For example, an organization could have one database for sales, one for payroll, one for a document management application, and so on. Sometimes an application uses only one database; other applications may access several databases.
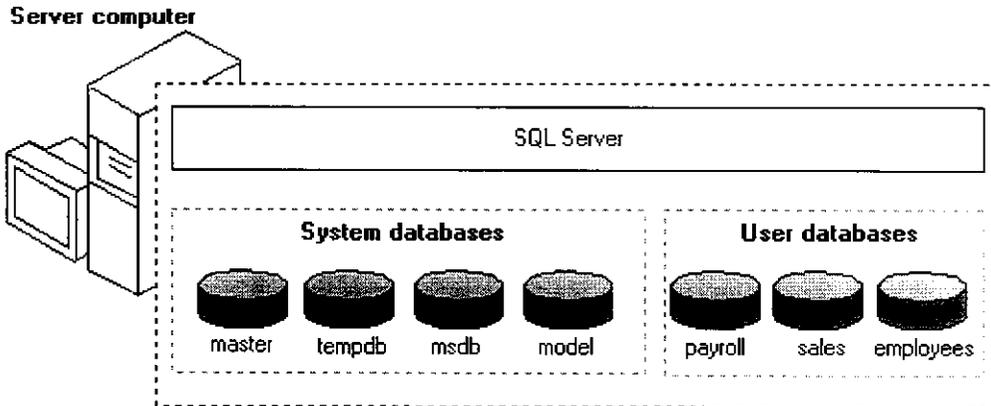
It is not necessary to run multiple copies of the SQL Server database engine to allow multiple users to access the databases on a server. An instance of the SQL Server Standard or Enterprise Edition is capable of handling thousands of users working in multiple databases at the same time. Each instance of SQL Server makes all databases in the instance available to all users that connect to the instance, subject to the defined security permissions.

When connecting to an instance of SQL Server, your connection is associated with a particular database on the server. This database is called the current database. You are usually connected to a database defined as your default database by the system administrator, although you can use connection options in the database APIs to specify another database. You can switch from one database to another using either the Transact-SQL USE database name statement, or an API function that changes your current database context.

SQL Server 2000 allows you to detach databases from an instance of SQL Server, then reattach them to another instance, or even attach the database back to the same instance. If you have a SQL Server database file, you can tell SQL Server when you connect to attach that database file with a specific database name.
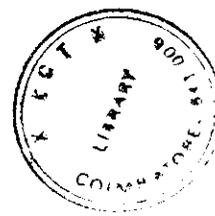
Features of SQL Server 2000

- Internet Integration.

  The SQL Server 2000 database engine includes integrated XML support. It also has the scalability, availability, and security features required to operate as the data storage component of the largest Web sites. The SQL Server 2000 programming model is integrated with the Windows DNA architecture for developing Web applications, and SQL Server 2000 supports features such as English Query and the Microsoft Search Service to incorporate user-friendly queries and powerful search capabilities in Web applications.

- Scalability and Availability.

  The same database engine can be used across platforms ranging from laptop computers running Microsoft Windows® 98 through large, multiprocessor servers running Microsoft Windows 2000 Data Center Edition. SQL Server 2000 Enterprise Edition supports features such as federated servers, indexed views, and large memory support that allow it to scale to the performance levels required by the largest Web sites.

- Enterprise-Level Database Features.

  The SQL Server 2000 relational database engine supports the features required to support demanding data processing environments. The database engine protects data integrity while minimizing the overhead of managing thousands of users concurrently modifying the database. SQL Server 2000 distributed queries allow you to reference data from multiple sources as if it were a part of a SQL Server 2000 database, while at the same time, the distributed transaction support protects the integrity of any updates of the distributed data. Replication allows you to also maintain multiple copies of data, while ensuring that the separate copies remain synchronized. You can replicate a set of data to multiple, mobile, disconnected users, have them work autonomously, and then merge their modifications back to the publisher.

- Ease of installation, deployment, and use.

SQL Server 2000 includes a set of administrative and development tools that improve upon the process of installing, deploying, managing, and using SQL Server across several sites. SQL Server 2000 also supports a standards-based programming model integrated with the Windows DNA, making the use of SQL Server databases and data warehouses a seamless part of building powerful and scalable systems. These features allow you to rapidly deliver SQL Server applications that customers can implement with a minimum of installation and administrative overhead.

- Data warehousing.

SQL Server 2000 includes tools for extracting and analyzing summary data for online analytical processing. SQL Server also includes tools for visually designing databases and analyzing data using English-based questions.

Tables can be created in two ways.

1.SQL Query Analyzer.

2.SQL Enterprise Manager.

Microsoft SQL Server 2000 SQL Query Analyzer is a graphical tool that allows you to:

- Create queries and other SQL scripts and execute them against SQL server databases.
- Quickly create commonly used database object from predefined scripts.
- Quickly copy existing database objects.
- Debug and Execute stored procedures.
- Debug query performance problems.
- Quickly insert, update, or delete rows in a table. (Open Table window)

Microsoft SQL Server Enterprise Manager is the primary administrative tool for Microsoft SQL Server 2000 and provides a Microsoft management

Console (MMC)-Compliant user interface that allows user to:

- Define groups of servers running SQL Server.
- Register Individual servers in a group.
- Configure all SQL Server options for each registered server.
- Create and administer all Server databases, objects, logins, users and permissions in each registered server.
- Define and execute all SQL Server administrative tasks on each registered server.

Design and test SQL statements, batches and scripts interactively by invoking SQL Query Analyzer

2.4 SPECIFICATION

Platform Specification

Operating System

An Operating System is a Collection of Computer program that control, how the computer works. It can also be defined as the software, which acts as a traffic cop, directing requests and information to add from the various devices within a single PC. The OS handles disk requests (read and write) keyboard translations, memory accesses, peripheral accesses and much other function.

Windows 9x

Windows 9x is a desktop operating system. It runs on Intel/Cyrix/AMD processors. It support file system FAT32 (NRWF), VFAT (NRWF). Also integrated with DOS for command line interface and explore for graphical user interface. It supports multimedia applications and Internet applications. Generally it is used as the operating system.

Windows NT

This is a network operating system. This is based on the Client-Server architecture. Benefits of Windows NT are;

- More intuitive interface.
- Better multitasking and multithreading.
- Clients can be attached to workstations.
- Plug-and-play technology.
- Higher level of security.
- NTFS-a powerful NT File System.

Windows 2000/NT Server

Microsoft Windows 2000/NT server 4.0 is a multipurpose server operating system. A multipurpose operating system integrates a variety of network services.

The services it provides are designed to address customer requirements and are managed in a single way. It offers a complete end-to-end solution. It gives the ability to exploit the popularity of compatible third party products and such application as Active Server pages, for dynamic content web pages or Server for specialized database tasks and web server for web services.

CHAPTER 3

SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

The organization performs whole processes in manual way. Every department process needs to meet perfectly for production.

Disadvantages

- Uneasy to know the current progress.
- Every progress should be noted accurately.
- More chances of human error.
- Loss of time and Resources.

3.2 PROPOSED SYSTEM

Proposed system (Production Control System) is dealing with over all department processes in computerized form and promoting effective Productivity.

Production Control System has been developed with VB.NET application and SQLSERVER database.

Advantages

- Automatic generation of predefined details avoid the data replication.
- Automatic data transfer over the departments.
- Progress over the departments is well defined.
- Reports can be generated easily at any instance of time.
- Less chances of Error.
- Effective productivity.

3.3 PROTOTYPING

Planning the software development process involves several important considerations. The most important consideration is to define a product life cycle. The software life cycle encompasses all activities required to define, develop, test, deliver, operate, and maintain a software product. Different models emphasize different aspect of the life cycle, and no single life-cycle model is appropriate for all software products. Life-cycle models used are the phased model, the cost model, the prototype model and the successive versions model.

The Prototype Life-cycle Model

Prototype is a mock-up or model of a software product. A prototype incorporates components of the actual product. Typically, a prototype exhibits limited function capabilities, low reliability, and inefficient performance.

There are several reasons for developing a prototype:

- To illustrate input date formats, message, reports, and interactive
- Dialogues for the customer. This is used to explain various processing option to the customer and to gain better understanding of the customer's needs.
- To explore technical issues in the proposed product.

The nature and extent of prototype to be performed on particular software is dependent on the nature of the product. New versions of existing products can most likely be developed using the phased life-cycle model with little or no prototyping. Development of a totally new product will probably involve some prototyping during the planning and analysis phase or iterating through a series of successive designs and implementations may develop the product.

CHAPTER 4

SYSTEM DESIGN

4.1 DESIGN PRINCIPLES

The process of design involves "conceiving and planning out in mind" and "making a drawing, pattern, or sketch of". In software design, there are three distinct types of activities: external design, architectural design detailed design. Architectural design and detailed design are collectively called internal design.

External design of software involves conceiving, planning out, and specifying the externally observable characteristics of a software product. These characteristics include user displays and report formats, external data sources and data sinks, and the functional characteristics, performance requirements and high-level process structure for the product. External design begins during the analysis phase and continues into the design phase. Requirements definition is concerned with specifying the external, functional and performance requirements for a system. External design is concerned with refining those requirements and establishing the high level structural view of the system.

Internal design involves conceiving, planning out and specifying the internal structure and processing details of the software product. The goals of internal design are to specify internal structure and processing details, to record design decisions and indicate why certain alternatives and trade-offs were chosen, to elaborate the test plan, and to provide a blueprint for implementation, testing and maintenance activities. The work products of internal design include a specification of architectural structure, the details of algorithms and data

Design of Production Control System

      The Design of Production Control system is well compatible for Users. It makes well user interaction over the project with loss of confusions. The Textboxes are designed in the form of 3 different colors provides different functionality for the users to interact with it.

- Textboxes of White color shows the compulsion to enter data
- Textboxes of Yellow color provides help to know the previously entered related entries by searching over Database
- Textboxes of Blue color shows the optional entry

Buttons over the form design provides functionalities shown below.

- Add()
- Update()
- Delete()
- Save()
- Erase()
- View()
- Exit ()

      Data Grid is used to show the database connected with the particular form for the user convenience and also to get entries.

4.2 ARCHITECTURAL DESIGN

Architectural Design is concerned with refining the conceptual design of the system, identifying internal processing functions, decomposing high level functions into sub functions, defining internal data streams and data stores and establishing relationships and interconnections among functions, data streams and data stores.

4.2.1 Production Control System-Module Overview

PCS consists of 5 modules

- Bill Of Material Module
- Sales & Marketing Module
- Purchase Module
- Stores Module
- Production Module

Bill Of Material (BOM) Module

Bill of Material module deals with the resources and the processes those performed to make the resources to a finished product. The resources will need to undergone through several stages to become finished product. First the resources will be processed with other resources or semi finished resources to become a semi finished Product. After that the semi finished product processed with other resources to become Finished Product.

- BOM fix the selling cost of the product before production by the notice over resource cost and process cost.
- BOM performs dealing to make quotation with Sales & Marketing module

Sales & Marketing Module

Sales & Marketing module produce quotation with the help of Bill Of Material for product sales. 'Quotation' for ordering is performed here and 'Replies' over each quotation is noted up. In case of particular customer expects some reliable changes over his each ordering then it is recorded and maintain for him for his future orders.

Also Sales & Marketing performs the following process

i)   Acceptance of Order

ii)   Delivery Schedule

Acceptance of order can be performed in two ways.

- New order
- Repeatable order

If the order is new one from a new customer then all the entry for him is gained and new record is created for him in the database.

If the order is repeatable then the customer details is retrieved to the entry by the use of help option to avoid the re-entering of details and replication of data.

Delivering the goods has been taken in two forms.

- Sample Delivering
- Actual Delivering

Sample delivering is provided to make confirmation about the product with the Customer before the Actual delivery going to be done.

Purchase Module

Purchasing the raw materials is done depending upon the request by various departments request. Resources need for various departments is considered first before making purchase order.

Purchase module processes are

- Analysis over the supplier type and stores them in Supplier Master Database.
- The Supplier Master stores all the information about the suppliers.
- Analysis the Purchases intend to perform and makes enquiry over the suppliers for to purchase the products at low cost as well as best suitable for production.
- Makes purchase Quotation.
- Perform amendments over purchase quotation if any.

Stores Module

Store module makes requisition over the purchase module for the resources in demand. Stores perform issuing resources to production and makes demand over purchase module for shortages of resources. Goods Received Voucher (GRV) is produced for purchase order process to make confirmation over gained resources.

Production Module

Production performs the process to make the resources as a finished product. Production is done by getting order from sales and marketing module. Acceptance of order by Sales & Marketing unit produces delivery scheduling which urges production department for planning over production.

Production planning consists of 3 ways.

- Monthly
- Weekly
- Daily

Products are produced according to the planning types. Quantity of Product will be produced according to monthly or weekly or daily basis or the combination of all. Also amendments over production planning can be done if

4.3 TABLE DESIGN

4.3.1 BOM Table

Field Name	Key	Data Type
Company_cd	Primary Key	Numeric
Parent_cd	Primary Key	Char
Child_cd	Primary Key	Char
Child_sno	Primary Key	Numeric
Uom_cd		Numeric
Qty		Numeric
Percentage		Numeric
Update_by		Char
Update_dt		Char

4.3.2 Costing Master

Field Name	Key	Data Type
Company_cd	Primary Key	Numeric
Item_cd	Primary Key	Char
Uom_cd		Numeric
Base_charges		Numeric
Extra_charges		Numeric
Net_cost		Numeric
Update_by		Char
Update_dt		Char

4.3.3 Acceptance Of Order Schedule

Field Name	Key	Data Type
Company_cd	Primary Key	Numeric
Fin_year_cd	Primary Key	Numeric
Ao_no	Primary Key	Numeric
Ao_sno	Primary Key	Numeric
Item_cd		Char
Item_sno		Numeric
Schd_dt		Datetime
Schd_qty		Numeric
Piece_wt		Numeric
Piece_qty		Numeric

4.3.4 Purchase order Indent Detail

Field Name	Key	Data Type
Company_cd	Primary Key	Numeric
Fin_year_cd	Primary Key	Numeric
Po_indent_no	Primary Key	Numeric
Po_indent_sno	Primary Key	Numeric
Item_cd		Char
Po_indent_qty		Numeric
Rate		Numeric
Disc_amt		Numeric
Total		Numeric
Conv_fact		Numeric

4.3.5 Issue Detail

Field Name	Key	Data Type
Company_cd	Primary Key	Numeric
Fin_year_cd	Primary Key	Numeric
Issue_no	Primary Key	Numeric
Issue_sno	Primary Key	Numeric
Item_cd		Char
Uom		Numeric
Iss_qty		Numeric
Rate		Numeric
Amount		Numeric
Wt		Numeric

4.3.6 Process Detail

Field Name	Key	Data Type
Process_cd	Primary Key	Numeric
Process_nm		Varchar
Rate		Numeric
Update_by		Char
Update_dt		Datetime

4.4 DATA FLOW DIAGRAM

Data flow diagram is commonly used during problem analysis and design. A DFD shows the flow of data through a system. It views the system as a function that transforms the inputs into desired outputs. A DFD aims to capture the transformation that takes place within a system into output data so that eventually the output data is produced. The agent that performs the transformation of data from one state to another is called a process (Bubble). Named circles show the processes and dataflow are represented by named arrows. A square defines a source or destination of system data. An open rectangle is a data source.

4.4.1.BILL OF MATERIAL DETAILS
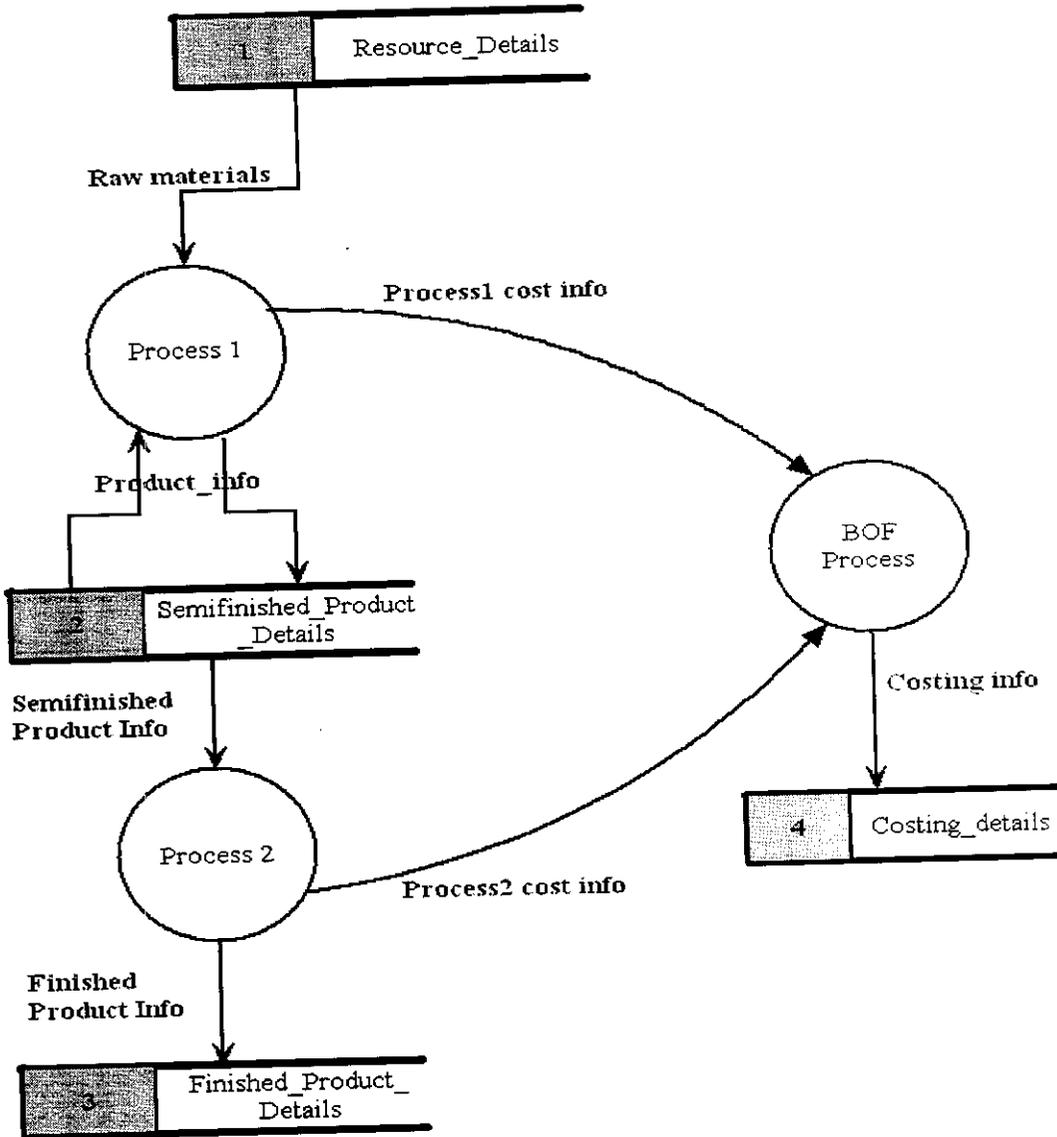
FIG 4.4.1 Bill of Material Details

4.4.2 SALES & MARKETING
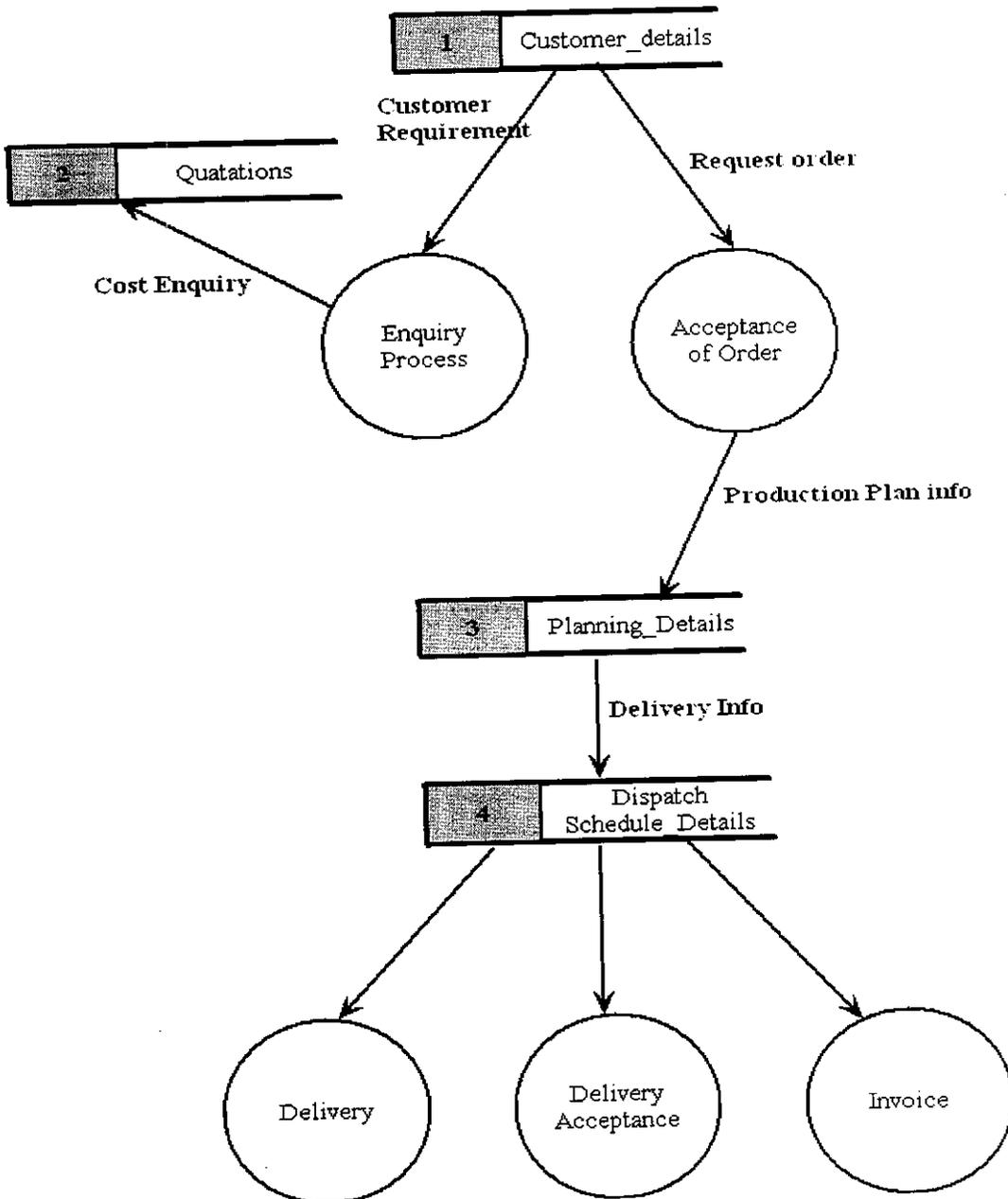
Fig 4.4.1 Sale & Marketing Details

4.4.3. PURCHASE DETAILS
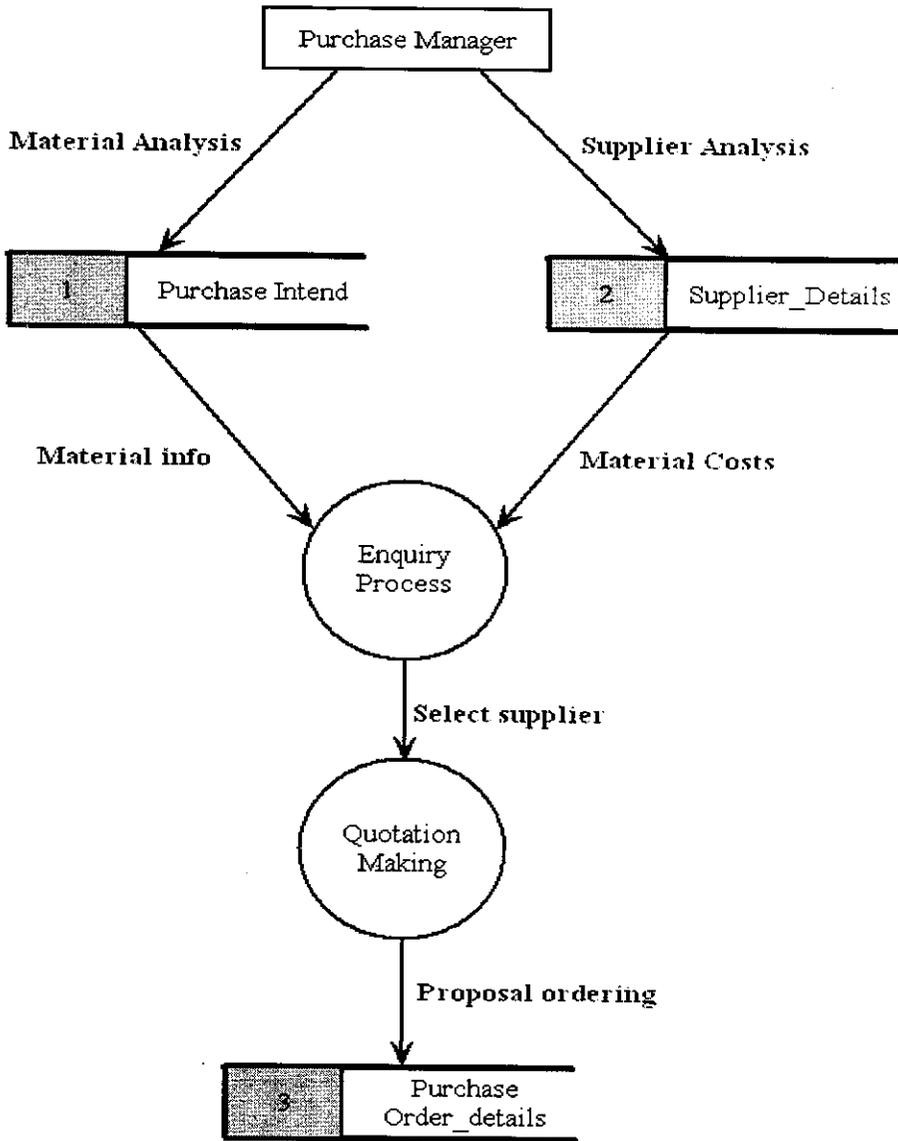
FIG 4.4.1 Purchase Details

4.4.4 STORES DETAILS
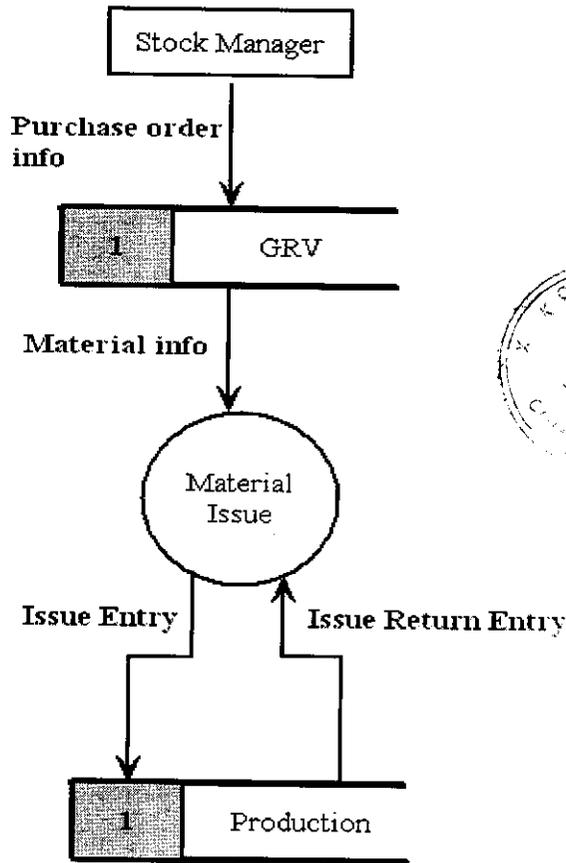
FIG 4.4.1 Storage Details

4.4.5 PRODUCTION DETAILS
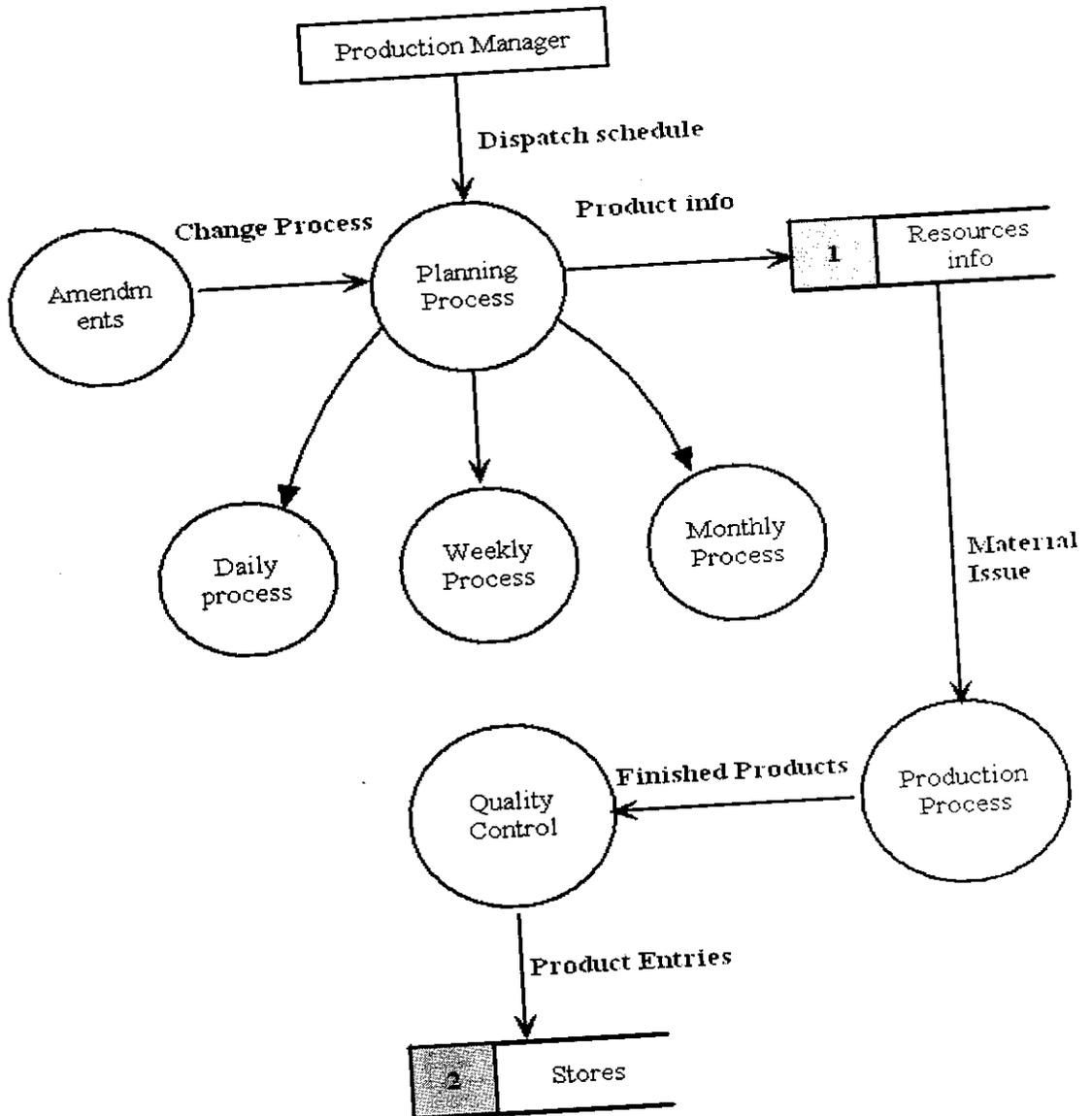
FIG 4.4.1 Production Details

CHAPTER 5

SYSTEM TESTING AND IMPLEMENTATION

The system testing deals with the process of testing the system as a whole. This is done after the integration process. Moving through each module from top to bottom tests the entire system. The verification and validation processes are then carried out. The errors that occur at testing phase are eliminated and a well functioning system is developed.

Test case design focuses on a set of techniques, which meets all testing objectives, which are mentioned below.

1. Testing is a process of executing a program with the intent of finding an error.
2. A successful test is one that uncovers an as yet undiscovered error.

Testing demonstrates that software functions work according to specifications. In addition data collected from testing provides a good indication of software reliability and some indication of software quality as a whole.

Testing results are used for detecting errors. Critical modules are tested as early as possible. The following tests are carried out.

5.1 TESTING METHODS

5.1.1Unit Testing

It focuses verification efforts on the smallest unit of software design, the module. This is also known as **Module Testing.** The modules are tested separately. This testing is carried out during programming stage itself.

5.1.2 Validation Testing

Validation testing can be defined in many ways but a simple definition is that validation succeeds when the software functions in a manner that can be reasonably expected by the users.

After validation test has been conducted one of the two possible conditions exist

1. The function or the performance characteristics confirm to specification and are accepted
2. A derivation from specification is uncovered and a deficiency list is created.

5.1.3 Output Testing

After performing the validation testing the next step is output testing of the proposed system since no system is useful if it does not produce the required output in the specific format. Asking the users about the formats required by them tests the outputs generated or displayed by the system under consideration.

5.1.4 User Acceptance Testing

User acceptance of a system is a key factor for the success of any system. The system under consideration is tested for user acceptance by constantly

keeping in touch with prospective system users at the time development and making changes whenever required.

5.2 IMPLEMENTATION

The implementation phase of software development is concerned with translating design specification into source code. The primary goal of implementation is to raise source code and internal documentation so that conformance of the code to its specification can be easily verified, and so that debugging, testing and modification are eased. This goal can be achieved by making the source code as clear and straightforward as possible. Simplicity, clarity and elegance are the hallmarks of good programs; obscurity, cleverness and complexity are indication inadequate design and misdirected thinking.

Source code clarity is enhanced by structured coding techniques, by good coding style, by appropriate supporting documents, by good internal comments and by the features provided in modern programming languages.

The goal structured coding is to liberalize control flow through a computed program so that the execution sequence follows the sequence in which the code is written. The dynamic structure of a program as it executes then resembles the static structure of the written text. This enhances readability of code, which eases understanding, debugging, testing, documentation and modification of programs. It also facilitates formal verification of programs. The structure coding techniques are as follows:

- Single entry, Single exit constructs
- Efficiency considerations
- Data Encapsulation
- Recursion

5.3 MAINTENANCE

Maintenance is the enigma of system development. It holds the software industry captive typing up programming resources. It could be described as the symmetric process of changing the software that is already in operation iq. order to prevent system failures and to improve the performance. Software maintenance involves keeping software interfaces simple and standard, paying particular attention to troublesome modules, replacing faulty components and generally planning to replace components that are ole, obsolete, faulty, or at risk for imminent failure.

There are several factors that require to be maintained. They are

- Hardware platforms change or become obsolete.
- Operating system change.
- Compiler change
- Language standard's change.
- Communication standard's change
- Graphical user interface change.
- Related application software package change.

Maintenance can be classified into

- Adaptive maintenance
- Perceptive maintenance
- Preventive maintenance
- Corrective maintenance

Adaptive Maintenance

It deals with adapting software change in the environment. It does not lead to changes in the system functionality.

Perceptive Maintenance

It mainly deals with accommodating new or changed users requirements. It also includes activities to increase the system performance or to enhance its user interface. The objective of perceptive maintenance should be to prevent failures and optimize the software.

Preventive Maintenance

Preventive maintenance concerns activities aimed at increasing the system's maintainability such as updating documentation adding comments, improving modular structure of the system.

Corrective Maintenance

This deals with the repair of faults found. Some of the major causes of maintenance problems are:

- Unstructured code
- Maintenance programmers having insufficient knowledge of the system and on application domain.

CHAPTER 6

CONCLUSION

Production Control System is successfully providing all the facilities for the casting organization at present. It is now very convenient for performing all the departmental works with at most interaction. Design of this project is well attractive and very user convenient by providing help over the entries and navigation over it.

Further Enhancements

- Provide all the facilities through Online.
- All branches of the concern will be connected through Internet.
- Provide Smart card facilities for money transactions.

APPENDIX – SCREEN LAYOUT

Bill Of Material – Product Costing Entry

Bill of Material-Costing Entry

Sales & Marketing-Customer

Sales & Marketing-Quotation

AMTEK CASTINGS INDIA LIMITED [2004 - 2005] - [Module Name : SALES & MARKETING] - [Logged By :- SYSTEM A...]

File   Masters   Transactions   Report   Tools

Sales Quotation Entry

ADDITION

Header | Terms

General Information

| Quotation # | 1 | | Date | 06/03/2005 |

Customer Informations

Customer	
Address	
Knd Attn	
Designation	
Mobile	Phone
Currency	Ex-Rate	.00

Customer Informations

Fax	
E-Mail	
LST No	Date 00/00/0000
CST No	Date 00/00/0000
Excise No	
PAN No	
Customer Enq. #	Date 00/00/0000
Due Date	00/00/0000

Item Description	UNIT	Qty	WT	Basic / KG	Total	Ma
		.00	.000	.00	.00	

Ready

Purchase-Purchase Indent Entry

AMTEK CASTINGS INDIA LIMITED [2004 - 2005] - [Module Name : PURCHASE] - [Logged By :- SYSTEM ADMINISTRATOR]

File Masters Transactions Report Tools
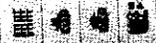
Purchase Indent Entry

ADDITION

General Information

Indent No   4   Indent Date 07/05/2005

Vendor, Delivery Details & Remarks

Department [   ]   **Other Information's**

D. Place [   ]   Ref No [   ]   Ref. Date 00/00/0000

Remarks [   ]

Item Code	Item Description	UOM	Qty	Rate	Total
		▼	.00	.00	.00

Product Value

Ready

Purchase-Purchase Order Entry

Stores-Issue Entry

Stores-Return Entry

Production-Production Entry

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- Inside SQL Server 2000.