

ENHANCEMENT OF ENTERPRISE RESOURCE PLANNING (ERP) FOR CONSTRUCTION IMPLEMENTATION

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Abstract - This project is aimed at developing a sales and marketing for building constructions. This system can be used to store the details of the inventory, update the inventory based on the sales details, produce receipts for sales, generate sales and inventory reports. The goal of this project is to support one time entry of information at the point where it is created and to make it available to all the engineers/contractors. This will be very useful for the engineers/contractors to have the details at the needed time.

- . To keep investment in inventory at optimum level.
- . To reduce the losses of theft, obsolescence & wastage etc.
- . To make arrangements for sale of slow moving items.
- . To minimize inventory ordering costs.

1. INTRODUCTION

Company which does not have inventory management system will get problem when check whether the products known from the brand are available or not. Besides that, in the day to day activity, without inventory management system, sometimes employee needs to check the warehouse especially if the products are out of stock in all the departments and remember it. Checking the warehouse will take longer time so it would not be efficient at all. For this purpose we have created a system using open ERP that would keep the track of all the stocks in the inventory.

1.1 PROBLEM DEFINITION

Activities employed in maintaining the optimum number or amount of each inventory item. The objective of inventory management is to provide uninterrupted production, sales, and customer-service at the minimum cost. Since for many companies inventory is the largest item in the current assets category, inventory problems can and do contribute to losses or even business failures. A database used for storing and administering all types of data required for efficient and accurate warehouse inventory management. This may include modules or fields for keeping track of all items and locations, requisitions, back orders, required levels of inventory on hand, reorder points, lead times, inventory error tracking, and more. This type of system may interface with an ERP and other applications.

1.2 PROBLEM OBJECTIVE

The objective of the project is:

- . To ensure that the supply of raw material & finished goods will remain continuous so that production process is not halted and demands of customers are duly met.
- . To minimize carrying cost of inventory.

2. EXISTING SYSTEM & PROPOSED SYSTEM

2.1 EXISTING SYSTEM

SAP ERP is one of the software developed by German company which is a small but expensive organization. It is a complex software for the engineers/contractors since it needs experts' guidance to make use of it.

Microsoft Dynamics is a line of ERP and Customer Relationship Management (CRM) software applications which is compatible only with software products. It is inefficient for small business organizations. The software does not support any mobile application functions. Software can be confusing without proper system training.

Drawbacks of Existing System

- It does not update the inventory details based on sales.
- There is no automatic request to the inventory (or) warehouse.
- It does not communicate with the material & equipment suppliers, vendors, subcontractors & clients.

2.2 PROPOSED SYSTEM

This system is mainly designed to maintain all the items that are purchased and sold department wise in an integrated manner. It can be used to store the details of the inventory, update the inventory based on the sales details. Purchase module is tightly integrated with the inventory control and production planning modules. Since this system supports the one time entry information where it is created which means the data entered is approved and it can be modified but it cannot be deleted. Moreover, extra stocks in the warehouse can be sold out.

3. EXPERIMENT

3.1 OVERVIEW OF THE PROBLEM

The Construction ERP Implementation System provides a complete set of methods to support sales and inventory handling. All users of the Construction ERP Implementation System need the same functionality to complete their varied tasks.

The Inventory System allows users to:

1. Remove the items from inventory.
2. Notify the store of a customer's intent to purchase an item that is not currently in stock. (backorder).
3. Notify the store of a customer's intent to purchase an item that has never been in stock. (preorder).

The administrator of the inventory system allows users to:

1. Place a specific number of items on a shelf for customers to purchase, backorder, or preorder.
2. Decrease the number of items available for purchase, backorder, or preorder, perhaps because of an error in stocking the item.
3. Determine the number of items available for purchase, backorder, or preorder.
4. Determine when a specific item will be back in stock.

The following are the 4 main phases involved in this paper.

Project Module

An employee login into the system and enter the project details in a project master. After the details are verified the project will get approved. Once the project is approved it cannot be deleted. The entire details of the project are stored in the project module.

Sales Module

In a sales module the flat is allotted for a particular customer. It provides the features to transfer or cancel the allotted flats. If customer want to cancel allotted flat they can also cancel it in the flat cancellation entry. And they can transfer allotted flat to other customer in the flat transfer entry. Finally, the receipt is generated.

Purchase Module

In this purchase module the products required to build the project are entered in the product master entry. A required material is given in the material request indent then it converted into purchase order to purchase those items from suppliers. Purchase Order contains all the important information like the billing address, the shipping address, shipping date, all terms and conditions relevant to the product.

Warehouse Module

This module is used to store the stock details. Goods Receipt Note or GRN is a note or receipt used by the customer to check or validate the delivered goods. It is a verification note filled up by the customer at his end. To some extent, GRN is a type of Pay Order before the order confirmation is sent. A purchase order bill is a commercial document and first official offer issued by a buyer to a seller, indicating types, quantities, and agreed prices for products or services. It is used to control the purchasing of products and services from external suppliers.

4. DATAFLOW DIAGRAM

Data flow diagram is used to describe how the information is processed and stored and identifies how the information flows through the processes. Data flow diagram illustrates how the data is processed by a system in terms of inputs and outputs.

DFD Level 0:

The user of the Construction ERP system is administrator. The output of the system is reports. The user store and retrieve data from the database.

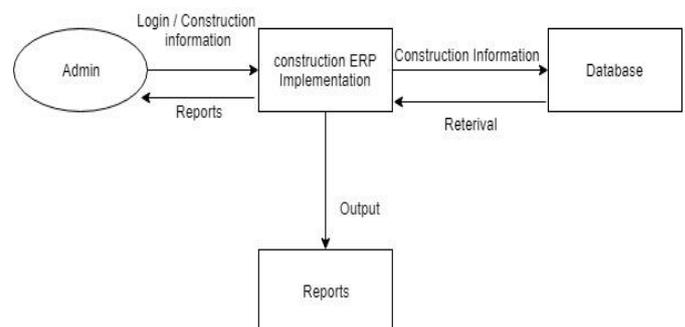


Fig 1. DFD LEVEL 0

DFD Level 1:

Initially the project details are entered in the project master entry. Then the materials required to build the project are requested in the purchase module it will check in the GRN if the products are already available it will be returned or the materials are requested in the material request module.

Then it creates the purchase order report. This acts as a pass. The stocks that are delivered will be updated here. The details of the stocks received are distributed from the main inventory to the sub inventory. Finally it produce sales order for sales module.

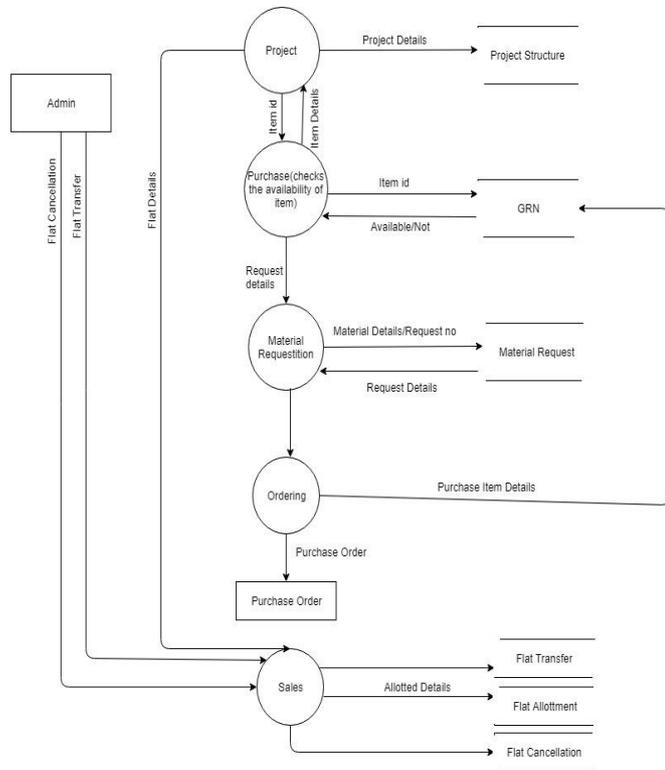


Fig 2. DFD LEVEL 1

4.1 DATABASE DESIGN

The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of as the logical design of the base data structures used to store the data.

Table 1: Project details

S.NO	FIELD NAME	DATATYPE
1	Project_Id	Varchar
2	Project_name	Varchar
3	Land_details	Varchar
4	Flat_no	Varchar
5	Flat_details	Varchar
6	Status	Varchar

Table 2: Flat Allotment

S.NO	FIELD NAME	DATATYPE
1	Project_Id	Varchar
2	Flat_no	Varchar
3	Customer	Varchar
4	Price	Integer

Table 3: Flat Transfer

S.NO	FIELD NAME	DATATYPE
1	Project_Id	Varchar
2	Flat_no	Varchar
3	From_customer	Varchar
4	To_customer	Varchar
5	Price	Integer

Table 4: Flat Cancellation

S.NO	FIELD NAME	DATATYPE
1	Project_Id	Varchar
2	Flat_no	Varchar
3	From_customer	Varchar
4	To_customer	Varchar
5	Price	Integer

Table 5: Material Request

S.NO	FIELD NAME	DATATYPE
1	Project_id	Varchar
2	MRN_No	Varchar
3	Material_name	Varchar
4	Quantity	Integer

Table 6: Purchase Order

S.NO	FIELD NAME	DATATYPE
1	Project_id	Varchar
2	MRN_No	Varchar
3	Required_date	Date
4	Material_name	Varchar
5	Quantity	Integer

Table 7: Goods Received Note (GRN)

S.NO	FIELD NAME	DATATYPE
1	GRN No	Varchar
2	GRN Date	Date
3	Supplier	Varchar
4	MRN_No	Varchar
5	Material_name	Varchar
6	Quantity	Integer

4.2 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged (or) coded?
- The dialog to guide the operating personnel in providing input?
- Methods for preparing input validations and steps to follow when error occur?

4.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

5. CONCLUSIONS

The benefits of Construction ERP system are list the product that are available in database, update the database whether by reducing the number of stock available in database if the product has been sold or adding the number of stock if there were products come from the distributor or producer, and also keep the transaction history in database about what happened in retail. Besides that, inventory management system will help employee in warehouse to

know whether the product in store are available or not, so can help to prevent stock minus of product in warehouse. By using inventory management system, employee will be easier to check required product based on quantity, quality, price, so the activity of employee more effective and more efficient.

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