E-Tracking Software on Cost Study and Casting Models for Manufacturing Units

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ABSTRACT
The application is mainly ERP based software (Enterprise Resource Planning) which is mainly used for the business real time application. The main goal of ERP is to utilize the Resources very tactically.ERP can be used in organization in which the software is mainly used to track, manage and interpret the data from many activities like product planning, cost estimation etc.

The basic task of this ERP based application is Product, Order Managements, customer Relationship, E-Commerce, finance and accounts, Reports etc. plays an important role in maintaining the communication with clients, And hence this software application is suitable for real time applications.

General Terms
ERP (Enterprise Resource Planning), E-Commerce, Real Time Application.

Keywords
Product Planning, Cost Estimation,RawMaterials,Graph.

1. INTRODUCTION
This project is an ERP (Enterprise Resource Planning) application developed using ASP.net which is used for estimating the actual resource usage for any manufacturing units and to estimate the time required with the graph representing the actual usage of the resource and the estimated resource for any building construction. In this application the user can create the parent product and divides the product into sub categories and creating estimated raw materials need and estimated time required etc. This software is programmed to get actual value and graph will be generated according to the entries. The goal of this project is estimate the resources or the raw materials need to construct the particular building before the construction starts and

Hence, this software can avoid the misuse of the raw materials and any theft that could happen which leads to loss of the particular construction company.

2. PURPOSE OF THE PROJECT
- This ERP application is Time and cost effective.
- It urges the quality of the organization.
- It is more beneficial than the traditional manual based system of estimating the data.
- It helps to spend the time, resources and the labor wisely.
- The loss of the organization can be reduced which results in growth of the organization.

3. ARCHITECTURE OF THE PROJECT

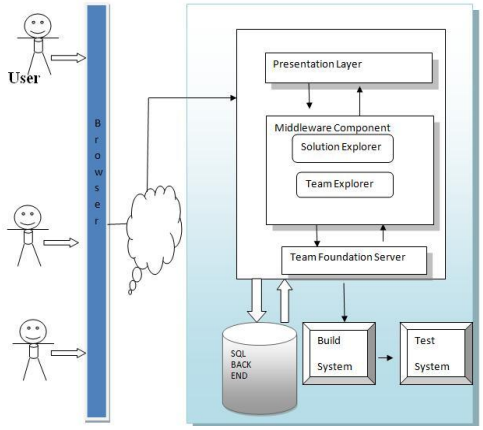

Figure1: Representation of architecture of the project

3.1 Implementation
The above architecture represents the ASP.Net three tier architecture implemented for our application. The architecture has mainly three layers and also called as multi-tier architecture which has presentation layer, Business layer and Data Base layer. The Presentation layer holds the forms and has the interaction between the client and the software. Next the business layer, the business layer holds all the calculations part and the logical part.

The last layer is Data Base layer the Data base layer performs all the data operations and holds or stores the data which can be accessed anytime, anywhere.

Our project mainly contains five Modules, They are
1. Admin Module
2. Parent Module
3. Child Module
4. Purchase Module and
5. Account Module

- **Admin module**
  - Creating the user and authorizing the user.
  - Creating the raw materials.
- **Create Parent product**
  - Main requirements of the project
  - Description of the project.
- **Create Child Product**
  - Estimating the raw materials needed for the project

- **Purchase Module**
  - Tracking the progress of the work of the particular project by selecting the child product number

- **Accounts Module**
  - Accounts Module has the accounts details and the banking information.

3.1 Features

Before starting the work the sub product details has to be created with the following features.

- Estimated labors required.
- Estimated cost required.
- Estimated raw materials required etc.

4. LITERATURE SURVEY

The Activity Based Costing (ABC) method of estimating the cost accounting is used to overcome the traditional based method of estimating the cost i.e. Traditional cost accounting (TCA).ABC method is used to estimating the manufacturing cost of the construction companies. The engineering procedures were introduced in ABC concept to estimate the cost rates analysis for different departments. All consumable resources were constructed by using Mathematical model called cost estimating relationship model. The work process will be managed and Work-in-process method to flow across the various production departments later the resources costs were allocated for all the departments.

The cons and pros are identified between the ABC and TCA methods and finally based on the result the related further work is being carried out. [1]

In the initial stages of product life cycle, maintaining the estimated cost was a major risk due to the world competition and hence the solution to overcome this problem is found by using the cost entity concept which is related to the different product activities and this approach will highly upholds the enterprise modeling difficulties. [2]

The Enterprise Resource Planning is business category management programming software mainly for the real time business applications so that an organization or the company can use the software to store, manage and interpret the data from many activities like product planning, cost estimation etc.

As our software is ERP based application the basic task maintained is product Management, order Management, customer Relationship Management, E-commerce, Finance and Accounts, Reports and etc. plays an important role in maintaing the communication with the clients.

4.1 Existing System

In Existing the System the cost of the product for any building construction will be given only after the fully completion of the project. And hence it is difficult to analyze the cost or the amount of raw materials need and it may leads to misuse the raw materials and theft may happen which may leads to the loss of the particular building construction organizations.

The time required for implementing the ERP in the non-fixed raw material management is highly consumable. There is no proper method to challenge the day to day changing customer requirements. The ERP application is highly useful for the production of manufacturing units which runs with fixed raw materials. The software can be created for the domain where the resource and other capital planning which are pre-defined quantities of raw materials

4.2 Proposed System

In the proposed system the new domain for managing the non fixed raw materials is introduced. That is implementatin of ERP where the raw material requirement cannot be predicted. When we already manufacture furniture next time we can predict the quantity of raw materils and the man power to manufacture a similar product. But in case of building constructions we can not predict the usage since the customer requrement for the product will differ through the variouse develpement progress.

This ERP software application helps us to track the usage of the resources in any manufacturing units preventing from the misuse of the resources of ant building construction and also helps to estimate the labors, time, cost and raw materials needed. And our ERP software is programmed to get actual value and the graph will be generated according to the entries. When the work is programming the user in charge or supervisor update the status regularly.

The security feature has been improved by replacing traditional method by session view state to pass the information through the server. The values which are passed through the session will be stored in the server side where in early stages these values will be stored in client and browser respectively.

5. EXAMPLE

Concept to understand this application with simple example

Figure 2: predictable Resources [14]

The raw materials cost needed for making the pencil can be known before the start of the making it, like we can exactly say how much and exactly what is need to make a pencil i.e. a lead and one wood pencil body and hence the cost can be also predict before the work starts.

Figure 3:Non-Predictable Resources [14]

The raw materials cost for constructing particular building cannot be predict before the work starts as the building construction may vary from one particular building to the other. And the raw materials cost can known only after the completion of the work which may leads in theft or miss use of raw materials may happen in which it inversely have the effect of huge loss to the organization and hence our software will match the estimated entry with the actual used raw material entry and all the entries must be marginal. The variations cannot be too less or too high compare to the estimated plan, so the raw materials and the cost can be predicted by our software.

Our thanks to the experts who have contributed towards development of the template.

6. WORKING OF THE APPLICATION

The Admin first logs in with the ID and the password.

- The work of the Admin is to create the user.
- Adding the raw materials needed upon the clients requirements.

The Admin has to create the parent product, which consists of the following information:

1. **Work order No**-The unique No of the work order
2. **Title**-Brief description about the particular type of construction.
3. **Assign To**-This option is to assign the user for the task.
4. **Status**-The status can be of four types, they are:

- Proposed
- Active –
- **Resolved and**
- **-closed**
- **Proposed status**- For the first time building purpose.
- upon. **Active status**-for already planned.
- **Resolved**-final stage.
- **Closed**-after the completion of the task.

5. Comments- the comments on the type of the construction have tobuild
6. Area-The area is what type of construction is being approached tobuild. For ex: warehouse.
7. Sub Area-subarea is the exact room which is being planned to startin the area. For ex: the room.
8. Risk-Risk might be high or low, high says when it has to start tobuild from the scratch and low says when it is being work on already built stuff. Like risk will be high for flooring when the cement is being put and risk will be low when the marble has to place over.
9. Risk Rank-The Risk Rank may be 10; 20,30or 40 it is based on thetype of the risk.
10. Insert-Finally the insert button to insert the above mentionedvalues.

6.1 Work of the user

User logs in with ID and the password given by the Admin.

- Once the user logs in he has to enter the work order no assigned by the admin.
- After he enters the work order id the values will be filled as auto generated.
- User has to enter the estimated raw materials details.
- First user has to select the raw materials needed for the particular area in which the raw materials will be in the drop down list format.
- After selecting the raw materials the user has to enter the following raw materials details:

1. Estimated cost
2. Estimated quantity
3. Units
4. Comments

Hence press the insert button, when the insert button is pressed the entered information will be displayed in the grid view list.

6.2 Task of the Supervisor

Supervisor logs in with the Id and the password and selects the work order ID.

- Enters the Actual Quantity used for the particular purpose.
- After entering, the variations will be noticed marked in the red and green color as shown below

Figure 4: Compared raw materials usage

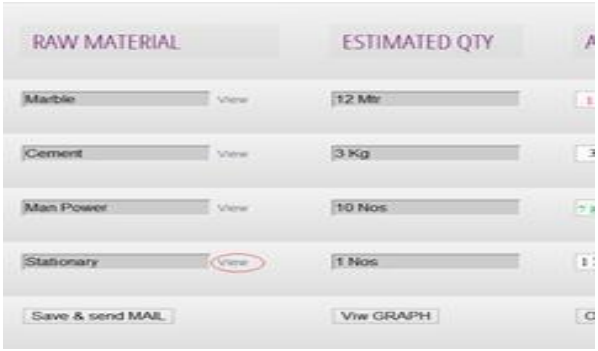

Figure 5. View hyperlink for grouping raw materials

The above figure holds the complete usage of the particularraw materials used .In the above figure after entering the actual quantity the raw material used can be viewed by simple click on the view option as shown.

Figure 6. View details of used Raw materials

The figure above shows the exact usage of the stationaries used for the particular purpose. Its a list of raw materials used for the production which are included in the production type raw material will be displayed with the item, quantity and the rate details.

The View Graph Hyperlink is most important as it holds the graph which could easily understand once the view graph hyperlink is pressed the raw materials usage graph will be represented in a bar graph.

Figure 7.The view Graph hyperlink

Once the view graph link is pressed the below represented bar chart can be viewed as bar chart which shows the estimated and actual used raw materials.

Later the graph can be observes based on the estimated and the actual entries data of the raw materials, which is as shown below:

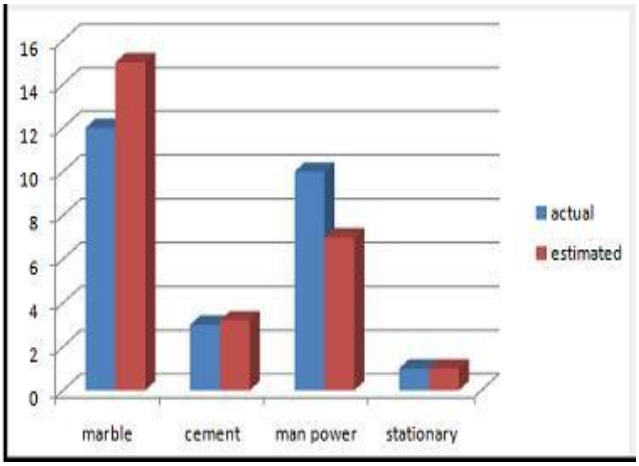

Figure 8: Graph generation on basis of the raw materials (estimated and used)

And finally the total work progress can be viewed on the basis of the starting and ending date of the application.

Figure 9: Total work progress Graph

Finally the message will be sent to the admin to known the work progress.

7. HARDWARE AND SOFTWARE REQUIREMENTS

The minimum hardware and the software requirements needed are as represented in the below table:

7.1 Hardware Requirements

Table 1: Minimum Hardware requirements

RAM	2 GB
Processor	Intel Core I3
CPU	500 MHz
Operating System	Windows 7 and above
Hard disk	250 GB

7.2 Software Requirements

Table 2: Minimum Software requirements

IDE	Visual Studio 2012 Premium
Frame work	.Net Framework 4.5
Testing	Microsoft Test Manager
Back End	SQL Server 2008 R2
Front End and Middleware	ASP.NET
Version control	SUN Tortoise
Team Server	Team Foundation Server

8. CONCLUSION

In this paper we find the solution for the huge loss that could happen for the organization by implementing the ERP Software which could track the raw materials used for the construction company by comparing the actual v/s estimated raw materials which will more beneficial for the cost and time saved effectively. The ERPsystem is very useful software that has different organizational facilitates. It provides information flow between all business functions and manages outside connections with stakeholders. The beauty of the software is that it has common database for applications. Using ERP we can generate all the account related details in much simple and easy way. Generating the required details of the building construction like raw materials which is estimated and actual used, identifying the variation between the estimated and actual used raw materials details and generating the report accordingly has become a lot easier with ERP. The software also helps in managing human resources, manufacturing, order processing, supply chain management, project management, customer relationship management and data services also.

The system has been developed under present requirement and it is found to work in effective and efficient manner but is dynamic and ability to sustain for the future improvement. The software is a flexible, modularized system and it is easy to update and upgrade the feature in the near feature. Every software is not perfect and there is always scope of improvement in the near future. So ERP software can be improved in variety of ways.

We can use data mining concept for the better analysis of the data in each department. From the important data mining concepts we can analysis everything in each and every area so that it will an effective picture of the organization. The amount of the customization in the software can be increased to further extent so that the one that manages the software can enjoy certain amount of flexibility and can customized according to the needs of the time. One area where we can improve is data migration (process of moving, copying, and restructuring data from an existing system to the ERP system.). The graphical look of the software can be enhance in such a way that can caught attention of the stakeholder and performance of the company can be represented in a graphical manner to understand the functionality in a better way.

9. ACKNOWLEDGEMENT

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