Building Construction Estimator

Bhabad Priyanka Nana, Datir Mayuri Bhausaheb, Antre Sejal Shamrao,
Gunjal Anushka Nanasaheb, Tormal Maya Ramesh, Prof. Dongare A. S.
Department of Computer Technology
Amrutvahini Polytechnic, Sangamner, Maharashtra, India

Abstract: *Before the construction begins budgeting is very important. Once the construction starts it is more important to keep a check on timely manner. A feasible budget is vital for the success of any project. When faced with the question of the budget the company has to determine and analyze whether the approved budget is sufficient to turn their vision into reality, which can only happen with an accurate and well researched construction estimate. Comparing bids, working with estimators can help construction companies greatly while estimating. It is also crucial that clients and other stakeholders in construction projects understand that estimates are subject to change. Simply put, estimates are an essential step in the construction process but can be affected by unforeseeable factors. If the projects go beyond the scope of the estimate, clients will often have to provide for the additional costs or sacrifice certain design elements. To avoid these mishaps, it is vital for the clients to look for more than costs and duration while reviewing bids and also to spend the necessary amount of time during the estimation period. Every project is meant to be created for achieving its desired result. It is important to do the accurate budgeting but it needs to be done by selecting what is the best for the project. It can be only done by selecting best quality construction materials. Bricks, Sand, Steel Bar, Cement etc. are the component with which there cannot be any compromise. It can lead to a poor construction followed by fatal accidents in future. Therefore, research and analysis is important before selecting the components. In the end the essential part of any project is profitability. Thus, using qualified cost estimators and appropriate construction cost estimating services is equally needed.*

Keywords: Estimation, Building, Cost estimation, Material estimation, Construction, Total estimation, Automatic calculation, Labor calculation, Day calculation, Database, Excel shee

I. INTRODUCTION

The project construction estimator is made especially for builders and developers to estimate the raw materials and labor required to make a construction project (building, society, mall.etc). The main difficulty arises during construction is to decide the quantity of raw materials, labors and resources required in future.

The construction estimator system works as follows:

The system is fed with an estimate of the raw materials and other estimates that help a builder to estimate the amount of materials that are required to construct a building.

The system is also fed with the cost of various raw materials, so it automatically calculates the cost of those materials.

The system also consists of an estimate of the labor power needed to make the project.

It is also capable of calculating the number of days needed in project completion.

Construction estimator then calculates the labor per day cost with the number of days to calculate the labor cost estimate.

Thus the system then gives a final excel sheet that helps the builder to estimate the total project cost within minutes.

II. LITERATURE SURVEY

Prediction of construction cost estimation involves so lots of multivariate statistical methods. Linear regression models and artificial neural network models are used to predict the cost in construction projects such as apartments [4], buildings [1], [3], [6]-[7] androads [5], [9]. Kim et al. [5] experimented three algorithms namely regression, neural network and case based reasoning for cost estimation of road construction projects. Best results are obtained by NN model with 12-25-1(0.6-0.6), where 12, 25, 1, 0.6 and 0.6 are the input neurons, hidden neurons, output neurons,

learning rate and momentum respectively. Kim et al. [9] developed multiple and linear regression for cost prediction of road construction projects. The model is based on road length (km), pavement width (km), pavement thickness after compaction, haul distances, pavement area as input parameters and total cost of asphalt works, the second is the cost/m, and the last one is the cost/m2 as output parameter. Proposed multiple linear regression model are measured using coefficients of determination (r2), p-value and F value. Best results of multiple and linear regression model with coefficient of determination ranging from 0.57 to 0.96 and p-value for each model is less than 0.05 which means that the use of dependent variable in the model is significant.
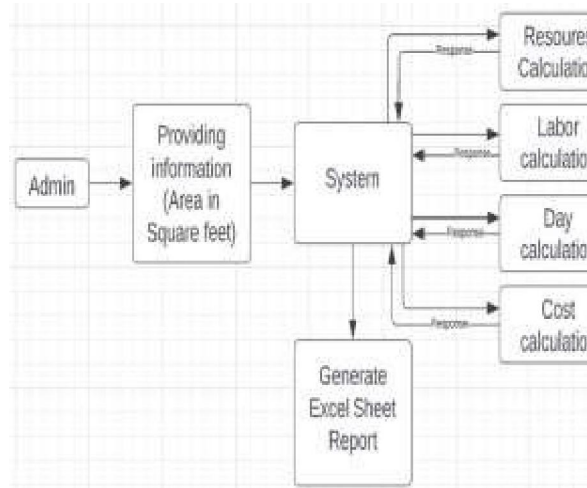
III. SYSTEM ARCHITECTURE

Fig 1. System Architecture

IV. PROPOSED SYSTEM

Currently, builders have to do a lot of estimation manually for construction, for that we are providing them Building Construction Estimator these application.

So in this application we are dynamically providing total cost, total requirement material, labor cost and required days in excel sheet
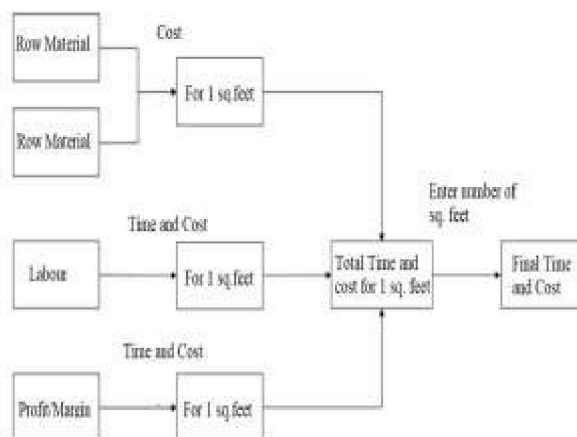

Fig 2. Proposed System DFD

- **Admin login:** The developers would be provided with system login. They can then access the system for finding out total expenses needed during construction. Admin has to provide some inputs into the system regarding building and premises information such as the number of floors, lifts, gym, swimming pool and other facilities that would be constructed.

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- **Resource calculation:** The system finds out the total raw materials required in construction with respect to the input provided by the admin.
- **Labor calculation:** Based on the number of buildings to be constructed and in a specified time provided by admin, the system gives an estimated labor strength required.
- **Day calculation:** The system even calculates the total number of days required to complete the construction.
- **Cost calculation:** By considering the labors, resources, days required for construction, the system evaluates the total expense needed for construction.
- **Excel sheet report:** At the end the system generates a brief and organized excel sheet report stating all the calculated things required in construction for developers convenience.

V. RESULT

The most obvious benefit of the software is that it makes the estimating process faster.

It is especially helpful when you are working on complex construction projects. The software can produce an estimate that is much more accurate than a human being can do.

Cost information at your fingertips. You can access cost databases, calculate taxes, and work out the costs of labor and materials. It also allows for adjusting prices based on location and features a list of standard- size rooms. The software integrates with accounting software.

Generating Estimates. You can use the software to perform all tasks necessary to generate an estimate. This includes providing measurements and take-offs. It also has the facility to mark-up construction drawings.

All the documentation you need. Estimating software has templates for proposals and cover letters. It also has a suite of templates for generating proposals and cost reports while maintaining a record of past projects.

Few Benefits in GPS Tracking system in transportation:

Developers can get a brief estimation of the materials and labor required instantly.

It reduces confusion and doubt. 3) Provides appropriate and accurate cost. 4) Flexible to use and user-friendly.

5) Saves money and resources.

- It is easy to manage due to the rigidity of the model - each phase has specific deliverables and a review process.
- In this model phases are processed and completed one at a time. Phases do not overlap.
- Waterfall model works well for smaller projects where requirements are very well understood
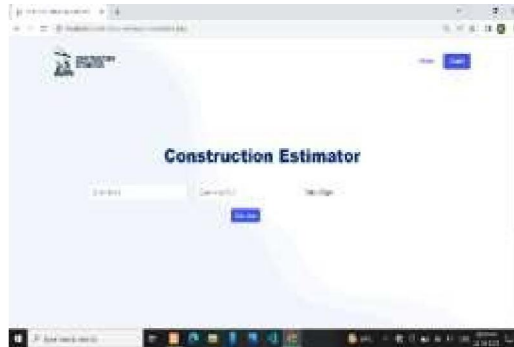
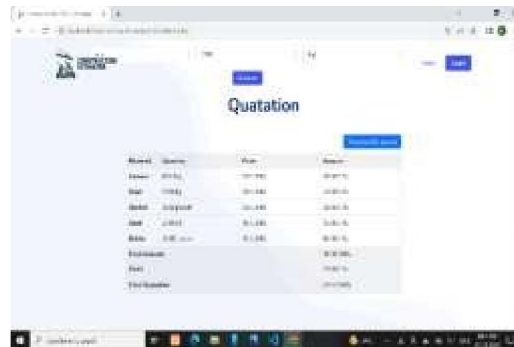

Fig 3. Home Page

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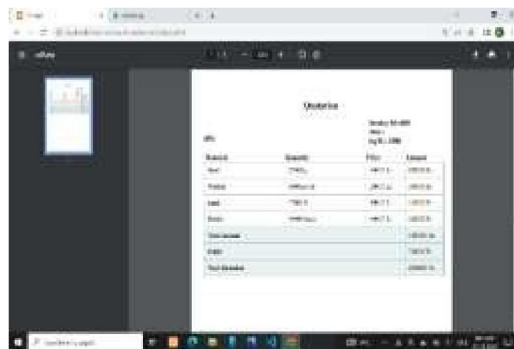Fig 4. Input

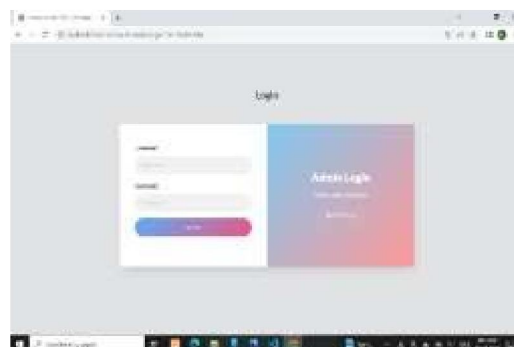Fig 5. Calculation

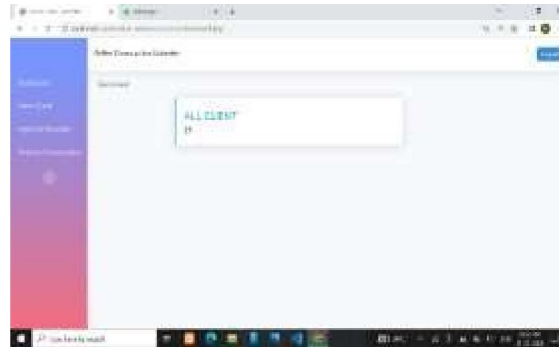Fig 6. Quotation pdf

Fig 7. Admin Page

Fig 8. Admin interface

VI. CONCLUSION

The results of this research and the developed model are very important and can be considered as a powerful tool to predict and improve the expected accuracy of any future construction cost estimate. Creating accurate cost estimations is not an easy task, yet it's vital if you want to successfully manage projects and finish them on time and within budget. Now that you're familiar with construction cost estimate basics, we hope that you'll use this knowledge to increase the number of lucrative projects and grow your business. The system generates a brief and organized excel sheet report stating all the calculated things required in construction for developers convenience

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