



# STUDY OF BUILDING PLANNING AND SCHEDULING USING MICROSOFT PROJECT

<sup>1</sup>Nimisha Pawar, <sup>2</sup>Prof.Pranjali Kulkarni

<sup>1</sup>PG Student, <sup>2</sup> Assi. Prof  
MIT MITCOM ADT UNIVERSITY  
Pune India

**Abstract:** The application of information, tools, techniques, and skills to any project activity to achieve project requirements is known as project management. In India, many the construction sectors typically misuse project management. Inadequate project management typically costs all parties involved a great deal, both financially and mentally as it takes a lot of time. This article uses MSP to plan and schedule the many tasks required in a building project. The work that is being displayed was completed on a Pune residential structure, and it amply demonstrates how using MSP software may expedite construction while maintaining cost effectiveness.

**Keywords—***Project Management, Scheduling, Planning Microsoft project.*

## I. INTRODUCTION

The planning, scheduling, and monitoring of all project-related activities, together with the encouragement of all project participants to meet deadlines and meet predetermined standards for quality, cost, and performance, constitute project management. The art and science of construction project management involves overseeing every facet of the project to meet predetermined quality standards, budgetary constraints, time and cost constraints, and project mission objectives. It also involves operating effectively and efficiently in a dynamic project environment while taking worker safety and health into consideration. The primary goal of project management is to create a final product that will benefit the organization that initiated the project by bringing about some change. It is the beginning, organizing, and management of the tasks necessary to give. The process of planning and scheduling of the construction activities helps engineers to complete the project in time and within budget. Project management aid the project in better efficiency to deliver service.

## II. MICROSOFT PROJECT

Microsoft created and marketed a project management software program called Microsoft Project. It is intended to help a project manager with planning, allocating resources to projects, monitoring advancement, controlling spending, and workload analysis. MS Project is a tool that may be used alone to monitor project progress, or it can be used to monitor complicated projects that are handled by several project managers and spread across multiple geographic locations. Microsoft project is

designed to assist a project manager in Developing a plan, assigning resources to tasks, tracking progress managing budget etc.

### III. LITERATURE REVIEW

1. **Manish S Darekar, Dr. Navnath V Khadake (2020) “Construction Management Multi-Storeyed Building by MS Project” A Case Study**, The aim of this project is to complete the project within a given time and a budget, and to achieve the other objectives. The constraints that are observed in every project is time overrun and cost overrun. With a proper sequence of activities with assigned durations and resource, scheduled is prepared. In this project critical path and critical activities are studied with the use of MS-Project 2016, so that activities should be properly observed while execution, so that there will be no delay of time in the project and stay focused on the wastage of materials thus lead to the proper optimization of materials and reduction of cost.
2. **Ruta Joshi and Prof. V.Z. Patil** analysed the project management technique by scheduling various construction activities, allocation of resources and resource levelling using Microsoft Project 2013 for residential building. The study was carried out in two phases. In first phase data was collected from site and quantities were calculated as per drawing and required manpower was calculated. In second phase of construction activities was defined in MSP 2013. The result was as resource decreases duration increased by 10.38% and cost by 0.94%.
3. **Rashmi J.V. and Amey A. Kelkar (2017) A. Kelkar (2017)** They analysed the planning and scheduling of multi-storeyed building in two phases by conventional execution approach & again analysis of same building was carried out by applying MSP to compare the result for justification. For their study they considered G+3 with basement and the type of RCC frame structure, to estimate the overall cost and time required to execute a multi-storeyed residential building. The result of their study showed that proper manage of project management skills and technique reduces the time by 23.2% and cost by 3.14%.
4. **Wallance Agyei** The study was aimed at finding the difference between the cost and minimum expected time that will be required \_to complete the project. Both CPM and PERT techniques were used for analysis and from the result it was concluded that schedule proposed by bus provides much shorter completion time as compared to the actual time taken by the process.
5. **Nikhil R. Mahajan and M. V. Bhogone (2017)** The methodology adapted by them was to compare Microsoft Project and Traditional Method. Schedule was prepared for both conventional and prefabrication method. A residential building was taken for comparison. The software used was MSP, the duration required for completion of project was collected from respective company. The comparison was made by comparing the total time required for completion by using critical path method with MSP project.
6. **Rashmi J. y, and Amey A. Kelkar (2017)** They analysed the planning and scheduling of multi-storeyed building in two phase by conventional execution approach & again analysis of same building was carried out by applying MSP to compare the result for justification, For their study they considered G+3 with basement and the type of RCC frame structure, to estimate the overall cost and time required to execute a multi- storeyed residential building, The result of their study showed that proper manage of project management skills and technique reduces the time by 23.2%a and cost by 3,14"%

7. **Suresh Kumar and S. Krishnamoorthi (2015)** In their study they focused on the scheduling using MSP for an apartment building. Thereby time required for the process of cost overrun is avoided. Project schedule is considered as core of the project plan, and the purpose of the project schedule is to show the organization how the work will be performed to uncover the mistakes. After completion of project, it has been observed that there is more difference between budget cost and actual cost, cost increases as the material price increases.

#### IV. METHODOLOGY

1. Plan A - Conventional approach for execution.

The data obtained from the construction site was analysed, obtain a detailed result of the cost and duration planned for construction of the G+4 building.

As a result, A duration of 459 days and cost 3,20,51,600/- has been estimated for executing activities by conventional approach.

2. Plan B – Project management approach.

By using a traditional execution strategy, we gather construction data, analyse it, and then create a new plan in MS Project using project management techniques and skills to achieve an accurate estimate of how long it will take to build the building and how much it will cost.

This approach was being carried out to present an idea about, accurate planning and scheduling of project by prevailing over the problems that occurred during actual conventional construction execution practices like:

- construction activities were not planned and scheduled accurately which resulted in extension of project date and increase in cost.
- The activities were not executed as per the prepared plan due to various unplanned sources and non-consideration of uncertainties, which resulted in delay.
- Over allocation of various resources due to improper resource management, which resulted in delay for completion of project.
- Labour fatigue owing to over time of the work causing labour inefficiency.
- Improper identification of parallel activities which would have been started simultaneously.
- Slack time and non-critical activities were not recognized.

As a result, a duration of 418 days and cost of Rs. 29835360 has been estimated for executing activities by project management approach which is shown in fig below:

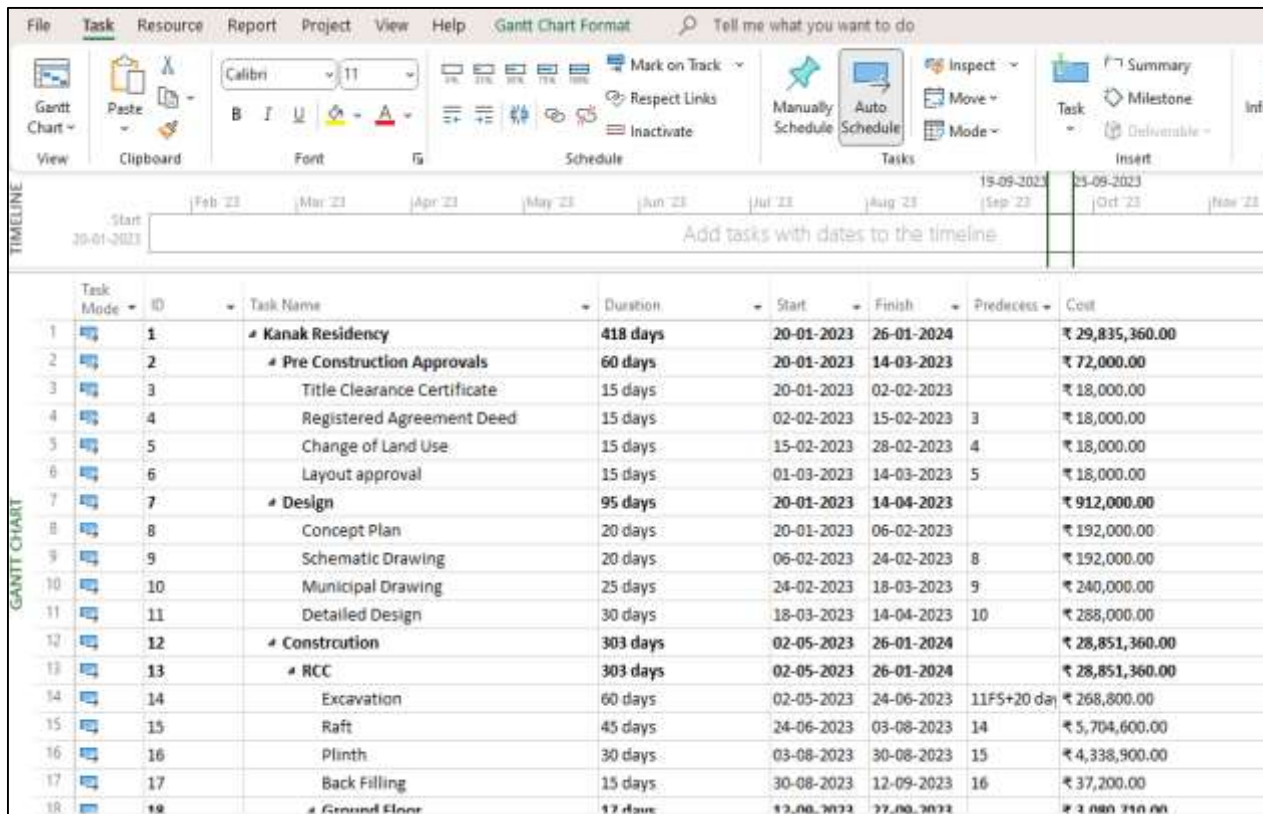
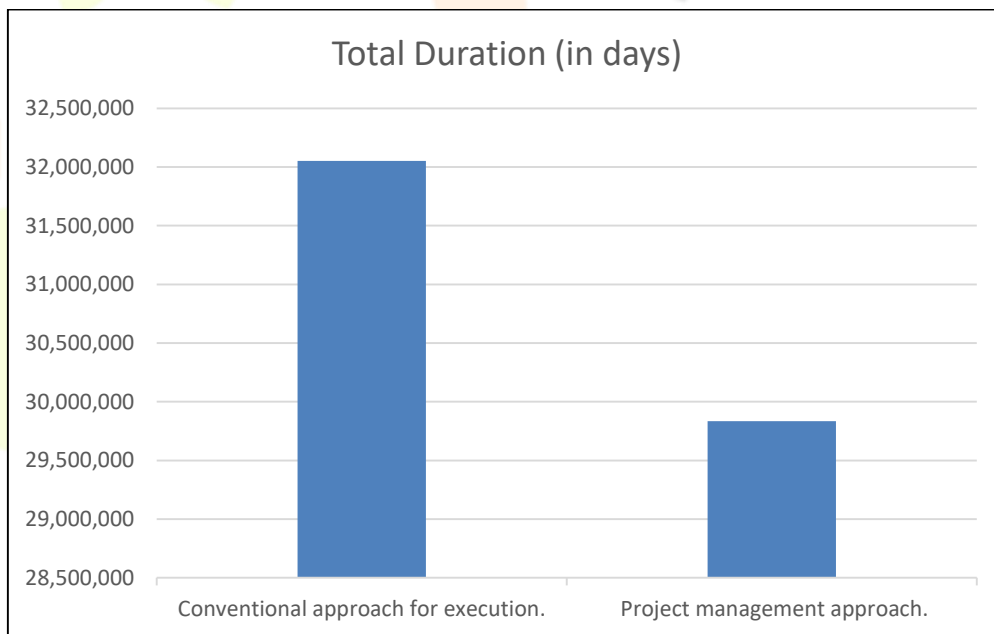
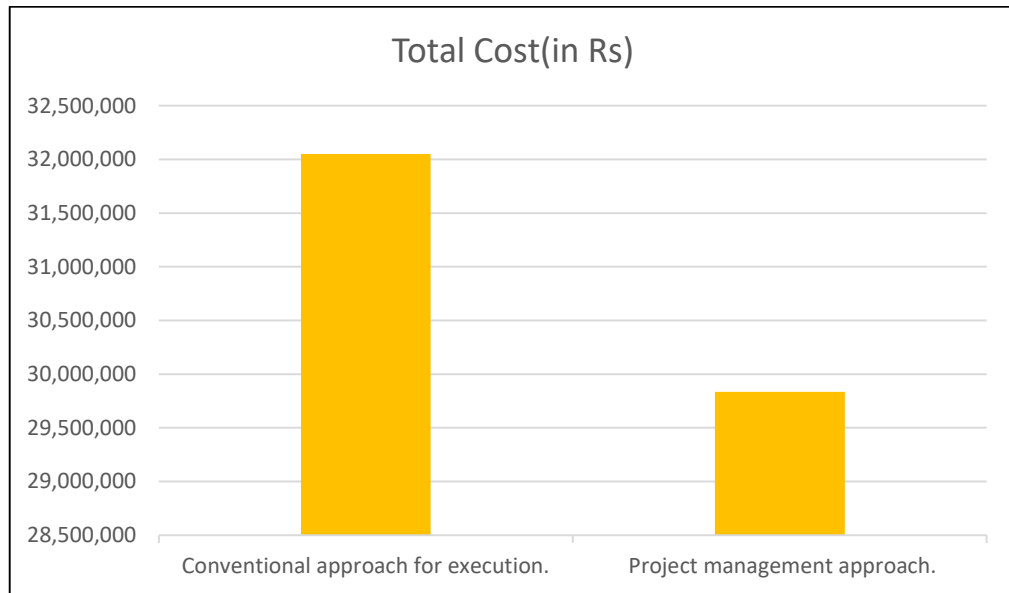


Figure (A) Plan B- Project management approach

V. Result -







## VI. Conclusion –

We planned and scheduled both labour and material using MS software, which provides us with a concise overview of the construction project's operations, including start and end times, labour and material requirements, and project length. CPM analysis has been completed for planning. The Outcome of our planning indicates that the project will take 418 days to complete and will cost around 3,20,51,600. It also highlights the essential activities and critical route length that are necessary for certain tasks to be completed, some of which need more time. We have done resource allocation for those labour, material and activities which are delaying the project, then we calculated the time required for completing the project using software. Then the comparison between the result obtained by the software and on actual site was done.

Hence, it was concluded that time required for completing the project as per our planning and scheduling using Microsoft project is 418 day and cost is 29835360/- Hence our method of planning and scheduling is more scientific.

## VII. REFERENCES –

- 1) Manish S Darekar, Dr. Navnath V Khadake (2020) “Construction Management Multi-Storeyed Building by MS Project. International Journal for Research in applied science and engineering technology, Volume 8 Issue V.
- 2) Ruta Joshi and Prof. V.Z. Patil, “Planning, Scheduling and Tracking of Residential Bungalow using MSP”, International Journal of Creative research thoughts. Vol 11. Issue 5.
- 3) Wallance Agyei, “Project Planning and scheduling Using PERT and CPM Techniques with Linear Programming”, International Journal od scientific & Technology Research Vol 4, Issue 08.
- 4) Nikhil R. Mahajan and M. V. Bhogone,” Comparative study of Microsoft Project and Traditional Method. International Journal of Engineering research & Technology.
- 5) Suresh Kumar and S. Krishnamoorthi, “Scheduling and Financial Analysis of a High-Rise Building” Journal of Mechanical and Civil Engineering, Volume 12, Issue 6.