



APPLICATION OF PROJECT EVALUATION AND REVIEW TECHNIQUE (PERT) IN HOUSE CONSTRUCTION PROJECTS USING MODIFIED DIJKSTRA'S ALGORITHM

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Abstract:

Due to the growing effects of the globalization in various business environments, the construction industry is expected to be effective and more efficient. The study revealed that the application of Project Evaluation and Review Technique (PERT) in house construction is an essential management approach that tends to achieve specified objectives within specific time and budget limits through optimum use of resources. A program evaluation review technique (PERT) chart is a graphical representation of a project's timeline that displays all of the individual tasks necessary to complete the project. Network analysis provides an effective practical system for planning and controlling large projects in construction and many other fields. Dijkstra's algorithm used for finding shortest path from a vertex to any other vertex. The purpose of the PERT to evaluate Critical Path Method (CPM) is to identify critical activities on the critical path so that resources may be concentrated on these activities in order to reduce project length time. To identify the critical path, three parameters such as earliest event time, latest event time and slack time for each of its activities are determined. This paper presents modified Dijkstra's algorithm to find earliest event time, latest event time and slack time for each of its activities of CPM & PERT in a project network.

Keyword : Dijkstra's algorithm, PERT method, Critical path method, project network, slack time.

1. Introduction:

The construction development in India is growth. The growth of construction sector has significantly driven by the rapid growth of the domestic property market, private investment, and government spending on infrastructure projects. In the field of construction, scheduling is important because it sets the time and sequence of the various stages, the linkage between one activity to another. Infrastructure development activities includes some activities, starting from planning, execution, along with supervision. Scheduling is structured to become a reference in the implementation of the project as well as the basic for supervision of the project implementation. The primary reason for project scheduling is to ensure that the deadline can be achieved. Although the time planning of a project has been carefully made by consider all the obstacles factors, sometimes the implementation is not represent the plan.

There are two basic techniques used in network planning, the Critical Path Method (CPM) and Program Evaluation Review and Technique (PERT). PERT is a project management technique, whereby planning, scheduling, organising, coordinating and controlling uncertain activities are done. CPM is a statistical technique of project management in which planning, scheduling, organising, coordination and control of well-defined activities take place. PERT is a technique of planning and control of time. Unlike CPM, which is a method to control costs and time. While PERT is evolved as a