Implementation of Squeaky Wheel Optimization Algorithm for Project Scheduling Plan in Hull construction Ship Building Process with Resource Constraints

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ABSTRACT

Project scheduling problem is very common in industry especially, for job order system company such as Ship Yard Company. The limited number of resources and predecessor constraint in project scheduling are key factors that determine duration of the whole project. This problem is known as Resource-Constrained Project Scheduling Problem (RCPSP).

In this research, we try to optimize the project scheduling of new ship building construction and emphasize in a hull construction process by using Squeaky Wheel Optimization (SWO) method. SWO is a heuristic method that implements iterative searching and greedy algorithm to optimize the scheduling of scalable project. We also include resource constraint and predecessor constrain into our consideration.

This method can predict the total duration of whole project with the limited number of resources that possible to accomplish the project.

Key words: SWO, RCPSP, job order system, resource constraint