

Abstract

Cutting Stock Problem is a combinatorial problem where we must place the objects of order in a stock and get the minimum trim loss. There are several specific kind of Cutting Stock Problem, and in this Final Project, we will use the Two Dimensional Cutting Stock for rectangular shape and with non guillotine non oriented cutting technique. The main key of this Cutting Stock Problem is the method that used for mapping the order and searching the best solution of combination on mapping the orders. Cutting Stock Problem, as we all know, has been examined and being compared with many methods.

In this Final Project the methods that will be use is Hybrid Genetic Algorithm and Particle Swarm Optimization, which is an algorithm that mixing both the positive side of Genetic Algorithm that perform really good in a combinatorial problem and Particle Swarm Optimization that has an ability to saving the best solution's memory. Aside from those two algorithm, we also use Bottom Up Fill algorithm to mapping the orders to the stock. The output of this system will also be compared to Particle Swarm Optimization to see the improvement output.

Keywords: two dimensional cutting stock problem, genetic algorithm, particle swarm optimization, hybrid genetic algorithm and particle swarm optimization, bottom up fill.