Abstract

One of the most difficult combinatorial optimization problems in the developed research at this time is job shop scheduling. Job shop scheduling which also holds the key to the company's profitability is a crucial problem faced by many manufacturing companies. Well-structured scheduling has the potential to reduce operating costs and increase profits.

Artificial Fish Swarm Algorithm (AFSA) is one of optimization algorithms to solve combinatorial problems. Therefore, in this Final Project, AFSA will be implemented in the case of job shop scheduling to produce an optimal solution schedules, ie schedules with a total time of completion of the entire job (makespan) which is minimum.

The results showed that the AFSA which is designed for job shop scheduling problem optimization is able to provide solutions with the best efficiency value ever achieved was 75%. This figure is still considered unsatisfactory, seen from the resulting makespan. However, the ability of AFSA in the search for solutions is quite good considering that level of efficiency is achieved by generating only 10000 artificial fishes at 100 generations in the 3,72e+41 solution spaces..

***Key words**: artificial fish, Artificial Fish Swarm Algorithm, AFSA, job shop, makespan*