

Firefly algorithm for path optimization in PCB holes drilling process

Abstract

In PCB holes drilling process, the time taken for a task completion heavily rely on the distance travels by the drill bit of the CNC machine. In order to minimize the distance traveled by the drill bit, Firefly Algorithm can be used. The proposed model applies Firefly Algorithm to search for the optimized path in PCB holes drilling process. Each agent's position represented a possible path that can be taken by the drill bit. The fitness of the agent is inversely proportional to the distance of the path where the shorter the distance, the better the fitness of an agent. Then, the agents compare their fitness with each other. Agent will try to improve its fitness by moving closer towards other agent with better fitness. The process repeated until maximum iteration achieved. Performance of the proposed model is compared with other literatures using a standard case study.

Keywords — Computational intelligence, firefly algorithm, path optimization, printed circuit board.