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A method to solve 2D Facility Layout Problem with equipment inputs/outputs constraints using meta-heuristics algorithms

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Abstract

Dealing with rapidly evolving customer needs, Facility Layout Problem (FLP) is a crucial leverage in industries to control the performance. FLP looks for efficient physical arrangements of pieces of equipment within a given area. The novelty here is to take account of practical aspects, very often neglected such as inputs/outputs and orientation of machines, to model and to solve 2D layout problems. The suggested resolution method allows to compute realistic transportation distances; closer to real-world requirements. An improved and fine-tuned genetic algorithm integrated with A* algorithm is proposed to solve the mathematically defined model. The technique is illustrated through examples.

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