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Solving Facility Layout Problem with safety consideration of Reconfigurable Manufacturing and Assembly Systems

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Abstract

Reconfigurable Manufacturing Systems (RMS) are designed to cope with mass customization problem. Reconfigurable Assembly Systems (RAS) are a variant of this RMS concept in the assembly field. One of the most crucial issues in designing the RAS is the layout problem with human safety considerations. This paper's main motivation is to propose a methodology to determine the most efficient and safe arrangement of facilities in a workshop. The objective is twofold: (i) to minimize the Material Handling Cost and (ii) to ensure human safety by applying "safety bubble". An implementation of the approach and an illustrative case study are presented.

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