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A general approach to optimize disassembly sequence planning based on disassembly network: A case study from automotive industry

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ABSTRACT

Disassembly sequences is a key element of products recycling or remanufacturing, and related with the recycling quality or maintenance cost. In order to improve the performance of the disassembly operation, this paper analyzes the disassembly information on automobile parts and draws the disassembly network graph by using evolution rules of the AND/OR graph. Then a disassembly model of automobile parts is established. Considering the mapping between the Floyd-Warshall algorithm and the automobile disassembly mode, we obtain the optimal disassembly sequence by solving the weighted disassembly model. Finally, a case study on automotive silicone oil fan clutch is given to illustrate the procedure. This approach could be used to obtain optimum disassembly routes of products containing complex AND/OR hierarchical relationships.

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