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Concurrent Consideration of Assembly and Disassembly Using MTM Standards

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Abstract: This paper presents a design methodology that concurrently considers the process of product assembly as well as disassembly. The processes of product assembly and disassembly are mutually opposing design goals. A product that is easy to assemble may not necessarily be easy to disassemble and vice versa. The degree of ease with which either of the aforementioned processes can be undertaken is a function of the primary design goal. But how can two design goals that are in mutual conflict be seamlessly integrated into one design methodology? A review of literature will reveal that very little research has been conducted on the simultaneous incorporation of assembly and disassembly into one comprehensive design methodology. The methodology presented in this paper is based on MTM standards. This will enable product designers to not only design for ease of assembly but also quickly compute the amount of assembly time as well as disassembly time per component. The total amount of assembly time per product can be computed as well. The methodology also addresses the tradeoffs that must be made in order to ensure seamless inclusion of design goals that are in conflict with each other.

Keywords: Assembly, Design, MTM, Assembly time, Disassembly, Tradeoffs.