Delchambre

# Computer-aided Assembly Planning

The assembly sector is one of the least automated in the manufacturing industry. Automation is essential if industrial companies are to be competitive in the future. In assembly, an integrated and flexible approach is needed because 75% of the applications are produced in small and medium batches. The methodologies developed in this book deal with the integration of the assembly process from the initial design of the product to its production. In such an integrated system, assembly planning is one of the most important features. A well-chosen assembly plan will reduce both the number of tool changes and the fixtures within the assembly cell. It will prevent the handling of unstable subassemblies, simplify the design of the robot grippers and reduce production costs. An automatic generator of assembly sequences can be an efficient aid to the designer. Whenever he or she modifies features of the product, the influence of these modifications can immediately be checked on the sequences. For small batch production, the automatic generation of assembly sequences is faster, more reliable and more cost-effective than manual generation. By using this latter method interesting sequences could be missed because of the combinatorial explosion of solutions. The main subjects treated in this book are as follows. 1. Presentation and classification of existing systems of automatic generation of assembly sequences. Automatic assembly planning is, indeed, a very recent research area and, in my experience, no systematic study has been carried out up to now.

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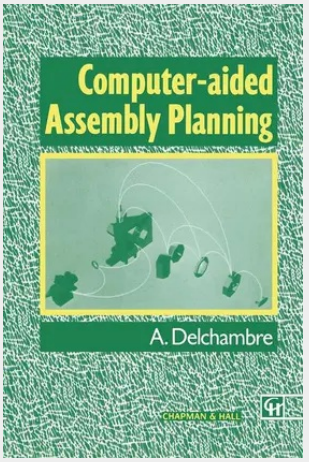


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