Assembly theory to large part number assembly product : exemplified by the motorcycle''s engine

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ABSTRACT

Rarely thoughts are put on the inspection of works in process and maintainability of the product during its development. Planning out the assembly sequences in advance, we can solve the problem above. Moreover, considering the machining constraints and the geometric features of the product, we can further reduce the production cost. This research deals with the generation of the assembly sequences of a product using portable razor and motorcycle ’ s engine as examples. We first analyze the precedence constraints of the liaisons, then build the liaison diagram and the looping constraints to generate all possible assembly sequences. Due to enormous routes of assembling the product, we further put the unconnected parts constraint to reduce the solution size. The unconnected part constraint is not the only choice to trim down the solution size. We may add more constraints such as machining, production layout and preference of the job site managers to make the production adaptable. Our program is written in JAVA.

Keywords : Liaison ; Geometric Constraints ; Looping Constraints ; Unconnected Parts

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