Study on the Numerical Control Programming Using NURBS Interpolation

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ABSTRACT

Owing to demanding for higher quality of life, people are more concerned about not only the smooth shape and attractive appearance but also the speed of new-made products, such as the daily appliances, automobiles, aerospace and 3C industry. For the manufacture, the competition is more fierce. The manufactures put more emphasis on the raising speed than on the quality of products. In a word, pursuing the high speed and high accuracy of manufacturing mode is the goal for the manufacturer. The method of traditional CNC manufacturing is to fit the curve to generate manufacturing path file (NC file) of G M code by many line segments which are designed as a curve and a cutter path by CAD/CAM system curve. However, in the modern complicated manufacturing curve, this method will occupy too much memory capacity, throw down the speed of manufacturing transit and increase the frequency of plus-and-minus speed, which is difficult to meet the requirement of high-speed and accurate manufacture. Therefore, this thesis proposes a method of postprocessor with window interface. In this method, it will transform the cutter path of CAD/CAM into the NURBS curve format of the manufacturing NC code. In order to improve the drawbacks of traditional manufacturing and achieve the high speed and high precision of manufacturing. And through the physical simulation of cutting software, it will improve the accuracy of the manufacturing program in NURBS format after transformation.

Keywords : Numerical Control ; NURBS ; Postprocessor

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