

AUTOMATION IN CNC CODE GENERATION AND DATA AQUISITION FOR CNC MILLING MACHINE

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Abstract:

In the present manufacturing industry, Lead time is a major challenge from design to manufacturing of a product. For the complicated contouring applications, manual part programming became complicated and this lead to errors. In this work an attempt has been made to overcome these problems by utilizing the “Manufacturing” option in NX-CAD software. Here by using this option it automatically generates CNC part programs, when the part geometry is defined. Here a 3D model of Spur Gear is modelled in NX-CAD software with standard dimensions. Once the part model is created, using Manufacturing option CNC Milling tool is selected by specifying the tool diameter, depth of cut etc. Then the tool path is verified, the simulation is done using integrated machine tool and the 3D model is imported to software and by providing cutting parameters like cutter type, size, feed, speed ,depth of cut etc the G-codes and M-codes files are generated from the designed gear model using NX Manufacturing. By using these files the component Spur gear is manufactured on CNC milling machine and the material used for manufacturing the Spur gear is taken as wood. Once the component is manufactured then the dimensions are taken. The main advantage of automated CNC tool path generation, automated NC code generation cut down the product launch time tremendously.

Keywords: *NX-CAD, Spur Gear,Lead-Time, Computer Numerical Control(CNC)*