# Research In Expert System"s Database For Computer Aided Mechanical Design


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**ABSTRACT**

The structure of an expert system for mechanical design under the PC AutoCAD system is studied via the establishment and management of the knowledge-based database. The research of this system is aimed on achieving the parametric computer- aided graphic drawing and analysis if geometrical parametrers of the mechanical part are given in the database by the user. The main frame of this system utilizes the functions from AutoCAD system ,such as computer-aided graphics、 ADS、 AME、 DCL、 MENU 、 AutoLISP and so on , with the external dBASE III system , and is broken down into three basic parts , namely , (1)man-machine interface system,(2)knowledge-based database , and (3) scheme of design analysis. The man-machine interface system is emphasized on the easy of data retrieve and management from screen during operation by the use of AutoCAD DCL and ADS functions. This also was done by suitabably modifying the AutoCAD pulling- down menu to fit this purpose. The function of the knowledge-based database is designed to provide the data used for parametric drawing and for stress / strain analysis .It is constucted from two parts .The one is graphic database which is managed via ADS and DCL programs , the other is material database which is managed via the ASE program in AutoCAD system and the external dBASE III system. The scheme in analyzing the stress and strain of the designed part by using finite element method programmed by AutoCAD ADS language and linked with the knowledge-based database in this system. Finally , in this paper the characteristics of this expert system are illustrated by the case of the design of a hexagonal bolt screw .



Keywords : Expert System ; Database ; Parametrically Auto Drawing ; Man-


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