

ABSTRACT

A study was carried out to define design guidelines for a product in terms of assembly and manufacturability. These guidelines will help the designer to reduce product cost, assembly time and ease of conversion to automated assembly. Assembly efficiency was defined and several methods of determining it were discussed. The most common method used in industry is Boothroyd's method and it was discussed in greater detail. To supplement the main study, two case studies of product design were reviewed. Boothroyd's methodology using a PC based software was used to calculate the assembly efficiencies. The analysis results were then reviewed and design for assembly (DFA) guidelines were used in the redesign of the product.

The first study on a battery charger showed that the new designed charger using DFA guidelines yielded a four fold increase in assembly efficiency and a three fold reduction in total assembly time. The second study of a module package design also showed very significant improvements in assembly efficiency, assembly time and part count reduction using DFA guidelines.

ACKNOWLEDGEMENTS

I gratefully acknowledge the invaluable guidance and supervision received throughout the course of this work from my Supervisor, Dr. Abu Bakar Mahat of the Mechanical Engineering Dept., Universiti Malaya.

Also grateful thanks to the Management of Motorola (M'sia) Sdn. Bhd. in Penang for allowing me to undertake this course and project and providing the fullest support all the way.

And last but not the least to my wife, Sharon for the encouragement she gave me throughout the course.