CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

New Product Development (NPD) is a complex and creative process, which is inherently difficult to manage and improve. Having a great design is one thing, bringing that design effectively to market is another. The ability to deliver innovative products to the market on time, at the right cost and quality is a good indicator of a company’s NPD capability. The significance of NPD in the business value chain must not be underestimated, gone are the days where companies can simply compete on quality and cost.

Developing successful product requires the ability to predict, early in the product development process, the life cycle impact of design decisions. Any misjudges can leads to poor product designs that may cause unforeseen problems and excessive costs. Cost to redesign at this late stage can be prohibitive. Sometimes companies must simply accept higher manufacturing costs and reduced product effectiveness resulting from early design errors.

In this chapter, an overview of the background, objectives and scope of this project are reviewed. Basically, the objective of this study is to redesign a new selected product for a better design and lower production cost. Here, the DFA Method was applied to analyze the original product (children tricycle). Lastly, in this chapter, the overall thesis outlines are reviewed and discussed in general.
1.2 PROJECT BACKGROUND

Design for assembly (DFA) is a way to improve assembly ease and reduce assembly time. It can also reduce product costs by reducing the number of parts, optimizing manufacturing processes, simplifying parts handling and improving product assembly. Furthermore, the implementation of DFA can encourage the design of products to be produced at minimum cost with maximum quality and reliability. Many leading companies such as Ford, Kodak, General Motors, IBM, NCR, Xerox and more have saved millions of money when using DFA analysis in their designs.

Three of the better-known quantitative evaluation techniques has been used in industry are Boothroyd-Dewhurst (USA), Lucas (UK) and Hitachi (Japan). However, this project only focuses on design for assembly using Boothroyd Dewhurst method and Hitachi Assembleability Evaluation Method (AEM)

1.3 PROBLEM STATEMENTS

Each new product is a good design to be commercialized. However, before releasing to the market, the product has to be cheap and good quality. Therefore, to achieve this goal, design for manufacture and assembly methodologies are used to evaluate the design of the product. Specifically, DFA, which is Boothroyd-Dewhurst Method and Hitachi method are used to evaluate the product in this project. The results for both analyses are compared to look for any variation in term of parts to be eliminated and combined.

1.4 OBJECTIVE OF STUDIES

The aim of this project are to:

1) To design and improve existing design by using DFA method
2) Comparing 2 method DFA and choice the best evaluation method
1.5 **SCOPE OF STUDIES**

In order to achieve the objectives the following scope of studies are performed:

1) Information contents gathering
   a. Find out part function for each component.
   b. Dimensioning the current design using manual measured.
   c. Modeling the CAD drawing of current design by using Solid works software.

2) Product select
   a. original design analysis
   b. new design analysis

3) Evaluate the product (children tricycle) based on Hitachi Assembleability Method and Boothroyd Dewhurst.