ROBUST DESIGN STRATEGIC IN THE CONCEPT SELECTION OF NEW PRODUCT DEVELOPMENT; CASE STUDY PEDESTAL GUIDE DESIGN

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ABSTRACT

In the concept selection of new product development is not uncommon for more than one design team to be involved. Often these teams are formed along disciplinary lines, each responsible for the design of a single part (sub-system) of the overall system.

Generally, the problem off the concept selection of new product development, quit possibly, each subsystem has its own goals and constraints that must be satisfied along with the system-level goals and constraints. The goals of the individual subsystems might be contradictory. This paper will be solved the problems modification of pedestal guide design. There are many disciplinary in the modification of pedestal guide design; structure, material, cost, manufacturing process, strength, and maintenance. Actually that disciplinary will be contradiction. That problem will be solved with Robust Design Strategic especially in the concept selection of new product development. In addition, this paper concerned with minimizing the effect of uncertainty or variation in design parameters in the concept selection.

The strategy developed in this study can be used to help designer team in the concept selection process with minimizing effect of uncertainty or variation in design parameters.

Keyword: robust, design, concept, selection

1. INTRODUCTION

Design concept selection or selection of design concept is one of the important activities for a new product development process. Design concept selection is the decision making phase of concept design, where designers evaluate concepts with respect to customer needs and the designers’ intention (Xiao et al., 2007).

The determination of the best design concepts at the conceptual design stage is a crucial decision. The selection of the most appropriate design concepts is important because a poor design concept can never be compensated for by a good detailed design and will incur great expense of redesign cost (Hsu and Woon, 1998) and. (Zhang et al. 2006). Design concept selection is also considered as a multi-criteria decision making problem due to many factors affecting the selection process that has to be considered. Therefore, selecting the best design concepts is not the easy task and the most critical stage in product design development due to many factors influencing the selection need to be considered.

The right decision at the design concept selection of product development is very important. The result of that stage is conceptual design. Conceptual design is an early stage of the product development process which involves the generation of solution concepts to satisfy the functional or design requirements of a design problem. Generally, the main goal of conceptual design stage is to select the most suitable concept from a number of possible options. The main concern of conceptual design is the generation of physical solutions to meet the design specification (Hsu and Woon, 1998).

Therefore, conceptual design stage has become one of the most important activities in the development of a new product. It is also indicated that the importance of the correct decisions made at the conceptual design stage. In order to support the efficiency in selecting the optimum design concepts at conceptual design stage, an appropriate evaluation and decision tools need to be considered.

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