

# LED BOOK LIGHT PANEL

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## Abstract

In the world of modern technology, product development concept is being flourished day by day in order to achieve customer satisfaction. Multi feature products have brought a tremendous change in modern age. These products are not only a magnificent sign of improvement of product development but also a reliable medium to ease customer's day to day life. Today, customers are more likely to have a product of multi feature elements along with its aesthetic look. Considering customers aspiration as a focal point, this paper will develop a concept of multipurpose table lamp. The improved table lamp will provide a facility of certain number of products. This paper shows the construction of a multipurpose table lamp by gathering knowledge from customers and expert consultations. Various product development tools have been used to implement the desired concepts. Finally an economic analysis has been shown to justify the feasibility of the product in production.

## 1. INTRODUCTION

Product development refers to the process of adaptation of the existing product by modifying its present feature or construction of a completely new product in order to meet changing customer needs. It consists of the activities involving identification of market opportunities, analysis of technical feasibilities, and construction of manufacturing plan and validation of the plan in present market condition [1]. The prime objective of product development is to expand its

market share considering all the customer requirements. It is necessary for a product not only to fulfill customer need but also to cope up with target market specification. In the competitive era of industrialization, companies are focusing more and more to develop the existing product concept so to gain higher market priority [2]. In order to survive with the present market condition, latest technology and market policies are to be updated time to time according to customer need. The more a company will give attention in

product development, the less difficulty will face in the construction of a product. The simplification in existing product development requires a large number of research works. Now a day's product with multi features has created a new dimension in product design and development. Today customers prefer smart products not only satisfying their different requirements in limited price but also utilizing less space along with aesthetic look. As a result the prime focus of the designers is to generate and develop the concept of multipurpose use of a product in order to keep pace with the present world. This paper interprets the design and development process of a multipurpose table lamp. The design simplification along with concept generation, evaluation and selection are performed by utilizing product design and development tools. The paper initiates with customer need identification and emerges in developing the final design solution. The economic analysis is shown lastly on the basis of current

## 2. RELATED WORK

The present world is for the innovation and evaluation of new product design and development. The more the world is moving fast, the greater the change is taking place in designing sector. Nowadays, product is no longer an

outcome of manufacturer's choice. Customer involvement plays a vital role in the initial stages of product development [3]. The research study of Kaulio displays the correlation between the users and manufacturers during the designing process. Another study of MitsuoNagamach develops a customer-oriented technology while manufacturing a new product [4]. Kansei Engineering combines the customer intuitions with the designing characteristics. The only reason of customer involvement in product designing is to earn their satisfaction. A great number of strategies are being applied in this field to achieve the goal. The research work of Matzler and Hinterhuber links up the Kano Model of customer satisfaction to Quality Function Deployment [5]. The task is to identify consumer's expected and unexpected needs on the basis of Kano Model of customer's satisfaction. According to the publication of Boothroyd in order to attain a successful design, product design for manufacture and assembly problems should be taken care of from the initial stage of design activities [6]. A lot of research has been done in the development of table lamp design. Initially there was a little variation in design but the basic feature was only lighting. An articulated

table lamp publication number US D310886 S is an example of such design [7]. Another example of such design is an adjustable table lamp, publication number US D329098 S [8]. Publication number US D370071 S shows the patent of double stem table lamp [9]. Day by day the designs got further improvement. Now the designers want multipurpose table lamp which is not only limited to lightening feature. Example of multi featured table lamp involves with a patent, publication number US 4493011 A, having an aroma disk with traditional table lamp . As long as the lamp is on, aroma disc continues spreading fragrance. Another development in table lamp design is found from US patent, publication number US D518584 S1 . Here table lamp design is modified with a torch system. Patent number US 4581684 A shows portable table lamp along with adjustable controlling in several direction. Rechargeable battery cafe table lamp, publication number US4764853 A, has a lamp structure with one or more rechargeable batteries . This type of book light panel has a great application on food and beverage industry. All this type of progress has emerged a new way to develop today's led book light panel.

### 3. IMPLEMENTATION

led book light panel is a daily need for most of the students and official personals. Earlier industries focus only on its aesthetic look. But now-a-days along with its aesthetic look, multipurpose use of a light has become a vital issue. Today customers are more likely to have a product of different features in a single hand. Also led book light panel: A Functional Improvement of a book light 140cost is a major element in this purpose. Our prime concern is to build a led book light panel in an optimum cost.

#### Methodology

Concept generation is a process of generating different concepts for developing the desired product to fulfill all of the customer needs which is the most vital step of product design and development. This stage consists of numbers of steps which are noted below.

#### 8.1 Search Externally

External search involves finding the existing solution of the problems defined at problem identification stage. The required time and utilization of resources can be minimized by expand and focus strategy. The available information for multipurpose

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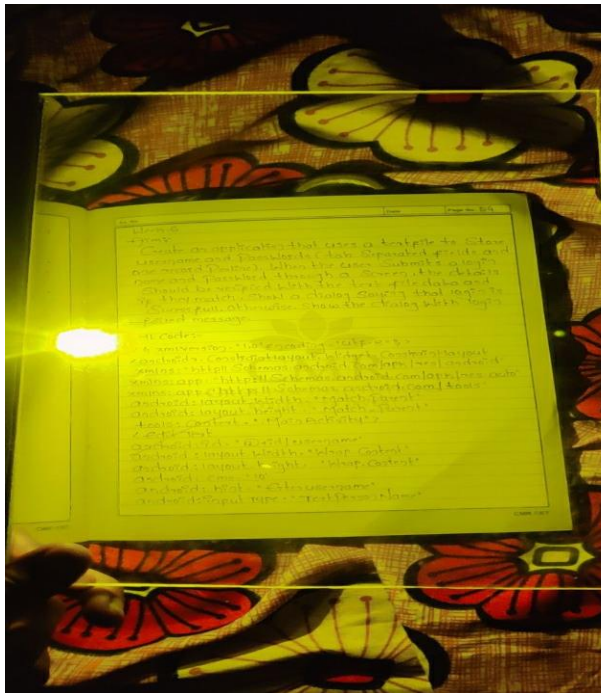
(1) A foldable body is provided;  
(2) A lot of features are integrated on it so it. (c) Ease in movement: (1) Light weight;  
(2) It provides the facility of foldable body;  
(3) It has removable wire.  
(4) It has less complexity in design so easy to move. (d) Provide proper safety to customers: (1) It gives proper balancing of structure; (2) Correct material selection is done. (e) It minimizes the cost: The multipurpose table lamp provides lower cost comparzatively to its features. (f) The multipurpose table lamp provides a mind-

blowing aesthetic appeal. (1) It has chrome-plated shiny surface finish; (2) It has a marvelous structural view; (3) It gives well organized features layout.

#### 4. EXPERIMENTAL RESULTS

In the competitive era of industrialization, companies are focusing more and more to develop the existing product concept so to gain higher market priority [2]. In order to survive with the present market condition, latest technology and market policies are to be updated time to time according to customer need. The more a company will give attention in product development, the less difficulty will face in the construction of a product. The simplification in existing product development requires a large number of research works. Now a day's product with multi features has created a new dimension in product design and development. Today customers prefer smart products not only satisfying their different requirements in limited price but also utilizing less space along with aesthetic look. As a result the prime focus of the designers is to generate and develop the concept of multipurpose use of a product in order to keep pace with the present world. This paper interprets the design and development process of a multipurpose table lamp. The design simplification along with concept

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## 5. CONCLUSION

It is necessary for an organization to identify the customer needs in order to cope up with the present world of competition. The principle of success of an organization is inherent in what customers want and how gracefully they are served. Our aim is to reflect customer's desire. In this paper, the need for multipurpose table lamp has been analyzed. The reason why customers want a product like multipurpose table lamp, how their needs are being served through proper customer analysis has been revealed in this paper.

For this, different stages of product development activities have been discussed here. At the end, economic analysis has been given to show the organizational benefits. Because the prime focus of an organization is to get profit in long run. In order to survive in the present world there is no alternative to keep pace with the changing customer needs. In the paper, we have suggested to develop product features and architecture according to customer will. We conclude with the idea of flexibility in designing to fulfill customer's choice.

## 6. REFERENCE

1. [https://www.researchgate.net/publication/320583914\\_Multipurpose\\_Table\\_Lamp\\_A\\_Functional\\_Improvement\\_of\\_a\\_Table\\_Lamp](https://www.researchgate.net/publication/320583914_Multipurpose_Table_Lamp_A_Functional_Improvement_of_a_Table_Lamp)
2. <https://ecologicmart.com/Best-book-light-for-reading-in-bed-user-manual.htm>.
3. Book of multiple choice question on renewal energy issued by TERI Delhi.
4. Field study and literature collected from field.
5. Suggestion comments received during seminar held on 10.08.2015.
6. Book of solar lighting systems module (Trainers Text book) issued by

Ministry of New and Renewal Energy,

Govt. of India.