

Design of LED Based Lighting Device for Residential Applications



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Keywords: LED Lighting Device, Residential Areas, Concept Generation, Model Making

Abstract:

The project topic taken is “Design of LED based Lighting Device for Residential Applications”. Lighting consideration is an essential part in designing an environmental friendly structure. Proper lighting is the key factor to get a good visual signal. In residential area, lighting energy consumption has been increased very highly with the popularity of halogen lighting devices and improper lighting design. So, the design of a good lighting device is a very essential part to save energy, environment and our health. It is a relevant topic in the present scenario to come up with an innovative lighting device for the residential purpose to save the world and to make eco-friendly designs.

The LED based lighting device for residential purpose, which has relevant scope and future in the present world. The LEDs has been become the symbol of energy saving and eco-friendly product. The LED are used in different areas and products for more efficiency. So it is very clear that the LEDs will be the next generation light which gives more efficiency and considerably save the energy for the coming generations. To come up with the best LED lighting device, the research and data collection has been done in the LED lighting devices for residential applications. After the research analysis, QFD and PDS are prepared. Based on the product study and PDS, doodles and concepts are generated. The digital modelling and rendering are created for the concepts using Autodesk Alias, Solidworks, Photoshop and Keyshot. Final concept has been selected using weighted ranking method. The full scale working model has been made with teak wood and fiber sheet.

The full scale working model, which has been fabricated is a combination of day lighting and ambiance lighting and can be used as ceiling, table, portable, side wall lighting in different scenarios of residential applications. Feedback has been taken from the different users for validation of final product. Major user needs such as for usability, aesthetics, ergonomics and functionality were satisfied by the final design. User response on final design was positive and satisfying.



LED lighting device



Different uses of product



Working model LED based lighting device