Design and Development of Knockdown Furniture using Eco-friendly Material

Student's Name	K. J. Sijo	PD (FT-2012)
Academic Supervisor(s)	Chiranjith Barui and Srinivasa	
Industrial Supervisor(s)		

K. J. Sijo
Sijo.kaviyiljoseph@gmail.com
Ph. No: 0 77954 77074

Keywords: Multipurpose, Ergonomics, Eco-Friendly, Furniture, Knockdown Dining Table

Abstract:

Furniture industry in India is growing very fast and globally also. Indian furniture industry is making 3500 crore rupees turnover and it is fragmented as well. Around 85% of national production comes from unrecognized furniture firms and only remaining 15% comes from well known industries. World Bank expects 20% growth of furniture industry in coming years in India. Wood is the main material used in industry for majority of the products produced in the industry. Due to the shortage of timber Indian industry very often imports timber from neighboring countries especially from China and Thailand. Other materials used are bamboo, cane, steel and Plastic to manufacture furniture. All these furniture are usually preferred by consumers according to the particular function of the furniture. Bamboo is the best naturally sustainable material and easily available material in Indian market. Bamboo panels are available in market, which is used for knockdown furniture because it is too difficult to get accuracy with raw bamboo.

Data collection was the preliminary stage of the design process and started with literature survey. Research gap has been identified followed by literature review and it continued till the finalization of the concept. Next data collection method was market survey and following that, questionnaire survey and ethnography study conducted next to understand the problem faced by the users from existing products. Ergonomic study was conducted for deciding product parameters and user interface. QFD and PDS were generated based upon data analysis. Concepts were generated and identified issues, essential requirements and some hidden needs found through data collection have been taken care in concept generation and tried to solve those with different concepts. Final concept was selected by weighted ranking method.

A 1:1 prototype had been made to validate the final concept and feedback was collected from users. Major user needs such as comfort, multipurpose application, knockdown features, aesthetics and ergonomics were satisfied by the final design. User response on final design was positive and satisfying.

Various concepts of knockdown dinning table

Final concepts

Finalised concept and mock-up model of knockdown dinning table