

Design and Development of an Adjustable Office Chair



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Abstract:

Product design is the concept of systematic approach in understanding the user requirement, existing deficits, possible improvement and inventing new designs through idea generation, concept development, and concept realization thereby bringing newer products and solutions for the better quality of life. Most people spend fifty percent of their lives within indoor environments, which greatly influence their mental status, actions, abilities and performance. Better outcomes and increased productivity is assumed to be the result of better workplace environment. Employees in different organizations have different office designs. Every office has unique furniture and spatial arrangements, lighting and heating arrangements and different levels of noise. In any offices productivity can be conceptualized and showed.

Design process started with primary research and an identification need of adjustable office chair in offices in India. Data collection was carried out by adopting methodologies such as literature review, product study, market study and product environment study. Users of the adjustable office chairs in the offices like Finance, Insurance and multimedia companies are interviewed during the ethnography and personal interviews to understand their needs and problems. Ergonomic study was conducted for deciding product size and the user interface. Quality Functional Deployment (QFD) and Product Design Specification (PDS) were generated based on the data analysis. Concepts were generated with respect to the derived PDS and shortlisted. Considering the factors like Ergonomics, Functionality, Usability and Safety the concepts are rated through weighted ranking method and selection of final concept is done.

The final concept of the adjustable office chair was taken up for further design and detailing using digital software like Alias, Solidworks, CATIA. A full scaled working model was fabricated using material like Mild-steel, Sponge, Plywood, for the validation of the proposed design. Feedback from the user group was obtained and the result where positive and satisfied.



Various concept of adjustable office chair



Working model



Range of product