

To Design and Develop a Portable Mechanized Mopping Device for Commercial Applications



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Abstract:

The primary goal of this project work was to design a portable mechanized mopping device by changing the form, material and color schemes, to improve the comfort range for the product user and Improving the human interaction with the product for better satisfaction by understanding the customer need and usage of portable mechanized mopping device for commercial applications. Poor design of cleaning machine and work organization are all areas where relatively simple interventions can significantly tilt the selling. This is the main reason, why this product was taken up for research.

Research was carried out by product observation, market study and the existing product study of mechanized mopping devices, working environment and psychosocial aspects amongst cleaners and different user studies were carried out. A comprehensive literature review on floor mopping device, evaluation of working, environment, redesign of device, and psychological aspects of cleaners was also carried out. With reviewed aspects the Quality Functional Deployment [QFD] was carried out to derive the value/product design specifications that have to be improved. This was followed by detailed ergonomic study. Based on the studies, Product Design Specifications [PDS] were finalized with the support of literature review. Then with the PDS, the concepts were generated. The concepts were modeled and redesigned in catia tools for realistic rendering.

From the generated concepts, one concept was finalized. The final concept of a portable mechanized mopping device was materialized as 1:1 working model in order to validate the concept. The validations pertaining to ergonomic handle, aesthetics and human interaction factors were recorded the feedback results for the user groups were positive and satisfactory.