

Design and Development of Mechanised Floor Cleaning Device for Institutional Applications



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Abstract:

Hygiene is most important aspect of a healthy life. Cleanliness may be gifted with a moral quality as indicated by the saying “cleanliness is next to godliness”, and is regarded as contributing to good health and beauty. So it is important to keep the surroundings neat and clean. On a practical level it can be said that cleanliness is related to hygiene and disease prevention. Cleaning the floor and ground surfaces is one method of achieving cleanliness, which is usually performed with water and soap or water, mixed with soap. There are many types of equipment which reduces the efforts of humans in cleaning. There are equipment to clean, but the presently available ones are heavy in weight, big in size and unusable in cleaning the corners. Offering scope for the development of floor cleaning equipment for institutional usage. The project is to design and fabricate a mechanized floor cleaning machine at low cost for usage in educational institutes.

The data of user needs were collected through literature review, product study, market study, ethnography and interaction through social media. Data analysis was done through which PDS and QFD were generated. On the basis of analysis the concepts were generated through methods of mind mapping and brain storming. The concepts were shortlisted and user feedback was obtained for changes and better result of design using weighted ranking method. The final concept was modeled and rendered using digital modeling tools like Catia, Pro- E, Photoshop and Key shot.

A full scale prototype of floor cleaning machine was fabricated with some of the readily available parts in the market. User feedback was obtained to validate the design and the results were positive and satisfactory



Finalised concept of mechanised floor cleaning device