Abstract

Most of the shoe racks available in market are required to be in tune with ergonomic criteria to enhance their usability. Keeping this fact in mind, an attempt was initiated to design an ergonomic multi-purpose shoe rack for a small family with 5-6 members of varying age group starting from kids to grandparents to suit present day apartment model residential dwellings. Following a small user survey and brain storming, it was decided that the intended design should be usable for all family members and all shoes in each rack to be visible for someone standing in front, easy to move, simplicity in use (taking shoes/socks, put on shoes, tying lace etc.), compact and aesthetically appealing. Protection from dust, availability of proper
clearance dimensions and inclusion of safety aspects were also considered as added features. Following development of 3D-CAD model of desired shoe rack from concept sketching, various human factor aspects were evaluated in DELMIA software with digital manikins representing Indian anthropometric data to justify the design for Indian users. Present paper demonstrates virtual ergonomic evaluation process to confirm whether design of shoe rack would really be acceptable to targeted users and satisfy their need in real scenario. Readers are expected to visualize the simplicity of using digital human modeling tools for virtual ergonomic evaluations and thus advocate its use as and when required for diverse applications.

References

Designing and Ergonomic Evaluation of a Shoe-Rack in CAD Environment


Index Terms

Computer Science Design
Keywords
shoe rack  ergonomics  CAD  DHM  human factors  product design