A Comparison of 3D-Based Electronic Scanning and Manual Anthropometric Measurement for Indonesian's Women: A Case Study of Fashion Design

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Abstract

A sustainable measurement of human body dimensions is of high interest. With the significant growth of fashion industry, a perfect fit of measurement is highly expected. Though conventional anthropometry is still relevant and convenient, the preciseness and consistency of measurement is challenged. Hence, a more robust and quicker anthropometric measurement has been proposed. It is through 3D-based anthropometric measurement taking into account what the user needs and expects. Basically, numerous common-sense issues emerge within the large-scale utilize of electronic imaging frameworks, such as the choice of filter pose and robotized extraction of exact and reproducible estimations, without causing pointless inconvenience to the users. The essential focus of this work was in this manner to explore a strategy appropriate for large-scale surveying; to highlight particular issues of comparing 3D-based and manual anthropometric strategies; and to present this data within the real practices. This study involved 15 young females, their body dimensions were measured, both by the 3D-based and the traditional hand methods. There were 36 standard body dimensions compared. Statistically, it can be concluded that most body dimensions were deemed to be insignificantly different. Nevertheless, this study underpins a great communication bridge between clients and creators through the 3D virtual clothing process. The engineers and designers can effectively express their plan motivation by making a virtual clothing set so that they do not got to spend a parcel of vitality and cash to realize the physical sets. In terms of long-term orientation, the virtual 3D-based anthropometry supports the principles of sustainability especially the issue on environmentally friendly initiatives. Without a doubt, it underpins the commitment of Indonesian anthropometry updates.

Keywords
3D-based anthropometry, Indonesian, fashion, CLO3D

Biographies

Markus Hartono is a fulltime staff and full Professor at the Department of Industrial Engineering, University of Surabaya. He's got his Ph.D. majoring Industrial & Systems Engineering from National University of Singapore in year 2012. His main research interests are in anthropometry, Kansei Engineering, and service design and innovation. He received many awards and recognitions in national and international levels such as NUS Graduate Research Scholarships 2008, Best Paper Award of Quality in Research (QiR) 2015 & 2017, Outstanding Lecturer Award 2015, Gold Medal for Best Presenter International Mechanical and Industrial Engineering Conference 2018 (IMIEC 2018). He served as a member of Technical Committee in Affective Design – International Ergonomics Association (IEA).

Dian Prianka is a Lecturer on Fashion and Lifestyle Product Design on Faculty of Creative Industries, University of Surabaya, Indonesia. She earned B.Eng in Product Design at Faculty of Engineering, University of Surabaya, Indonesia and Master of Arts from Fu Jen Catholic University, Taipei, Taiwan. She has published journal and conference papers. Her research focused on fashion / creative business, digital marketing, experiential marketing, and product innovations.

Christabel Annora Paramita Parung is a lecturer in Faculty of Creative Industries, University of Surabaya, Indonesia. She earned her B.Eng. in Architecture at Brawijaya University and continued her master study in Fashion and Textile Management at Heriot-Watt University, Scotland. She currently on her doctoral study at Bandung Institute of Technology. She has taught courses in branding, management, and textile for fashion design, and her research is focused on textile pattern, upcycling, and consumer behaviour.

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Viviany is currently working as a lecturer in Faculty of Creative Industry of Surabaya. Graduated from University of Surabaya, in Fashion and Lifestyle Product Design. She is currently on her master's degree study at Bandung Institute of Technology. Her research is focused on patternmaking, sewing techniques, design research.