

Pattern remaking system using deformable 3D body model

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Abstract

We attempted to establish the pattern remaking system using the three-dimensional data of the shape of clothes being worn, especially based on the knowledge of pattern construction. Moreover we tried to develop the deformable body model which can represent customers' body shape in the screen.

Introduction

With improving computer technology and internet service, apparel manufactures can provide clothes more easily and suitably depending on their individual body shapes and preferences. This new paradigm called mass customization. In order to progress mass customization, clothes pattern system is essential.

Recently, by employing three-dimensional simulation, apparel CAD/CAM and three-dimensional measurement, it increases possibility of interactive clothes pattern making system. However, it has not been possible to create such patterns promptly and automatically that suit individual body shapes silhouettes and three-dimensional characteristics.

Therefore, in this research, we suggest to develop deformable body model for making patterns promptly with three-dimensional adjustments to suit individual body shapes at will.

Deformable Body Model

Body model is based on the three-dimensional scanned data of the lower half of the body. The method of modeling is simple using cross section line model with shape controller and length controller.

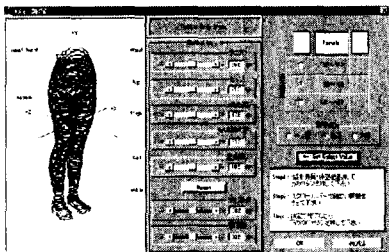


Fig 1. Body model dialog

The deformation of body model is controlled by position where has properties of body shape. Customers can choose their own height and body shape. Therefore their three-dimensional body model appears in the screen. (Fig1)

Pattern Remaking System

Fig2 shows pattern remaking system including deformable body model and interactive cloth model.

At first, we measured the three dimensional shape data of slacks and obtained size information automatically for pattern making.

This system has 3 sections such as three dimensional cloth model, cross section model and section of pattern estimation.

Pattern remaking system can duplicate original pattern using knowledge of traditional pattern construction. Duplicated pattern can be modified and changed to preferable design.

We constructed the pattern remaking system enabling to alter the clothes model interactively using scaling formulae based on the grading method.

Conclusion

Using this system, it may be possible for customers during the buying process, to not only modify the pattern to match the contours of their own body shape on the internet or catalogs, but also for apparel manufacturers to communicate with their customers by describing the clothes and body model to fit on the screen while in the ordering process.

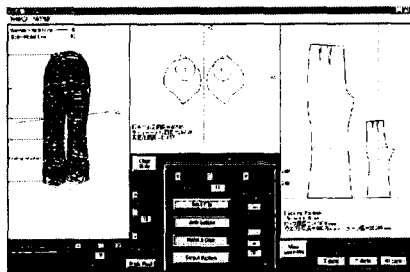


Fig2. Pattern remaking system