

**DEVELOPMENT OF A CAD TOOL FOR DESIGNER GARMENTS****Shalini Singh***

*Centre of Fashion Design, Institute of Professional Studies, University of Allahabad, Allahabad-211002(U.P)-India

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Keywords: CAD tool, C++, Pattern design, Designer garment**Abstract**

According to Cooklin, Pattern making is an art. It is the art of manipulating and shaping a flat piece of fabric to conform to one or more curves of the human figure. Pattern making is a bridge function between design and production. A sketch can be turned into a garment via a pattern which interprets the design in the form of the garment components[1]. This study aims to develop a pattern draft for designer garment through CAD software as well as through C++ programming. The pattern made in tools available in industry is compared and analyzed with the developed tool. Designer dress used in apparel industry has been designed analyzed and compared. This study provides an insight for development in 2D virtual fit simulation technology for effective prototyping and quality assessment in the fashion industry..

Introduction

According to MacDonald [2] Clothing patterns are used to sew stylish garments that fit well. Individual pattern pieces are used to cut fabric pieces, which are then assembled and sewn to create wearable garments. Aldrich[3] indicates that some garment patterns, particularly in couture design, are constructed by draping on the dress stand. The development of a garment comprises of different process. Fit is the most important factor leading to the final acceptance or rejection of a garment. Good customized fit is dependent on the pattern drafting incorporating various shapes and proportions of the individual customer. With the onset of the Industrial Revolution, standardized patterns were essential to the success of ready-to-wear clothing.

A patternmaker typically makes a pattern from a flat sketch with measurements. The basic pattern is the very foundation upon which pattern making, fit and design are based. The basic pattern is the starting point for flat pattern designing. Pattern making has now reached to the advanced level and digital platform is playing an important role in this area. Pattern making is being done manually in maximum cases. The garment manufacturing comprises of numerous stages such as product development, spreading, cutting, sewing, finishing and packing. Product development is the most critical of the garment manufacturing as if the garment is made correctly in terms of fit, style, color and design at this stage, half the battle is win. Pattern making is the most critical of all the product development processes. A nice perfect fit contributes to the success of any style. Pattern making process has evolved as skilled technical art through the years which requires a proper thoughtfulness [4]. Consequently fit approval takes the major time of the lead-time. This industry is completely dependent on the skilled pattern master who knows drafting very well [5]. Buyers may be placed at distant places and in most of the cases approval needs to be done by the buyer so sending the samples to the buyer takes long time and then getting approval will take time.

This fashion world is a fast changing where quick response is the main key for success. By accepting Computer Aided Design technology, industrialists can cut cost and increase profits and set an example for their competitors [6]. Through CAD, the pattern can be made easily and correction can be done as many times as required [7]. These systems will provide great advantages in responding quickly to multi-piece, multi-size orders in small quantities. Moreover, these will provide substantial savings as far as fabric costs are concerned. Pattern making consist of the design and creation of templates from which clothing and craft items can be sewn. Patterns are made of pieces of paper shapes that are traced onto the fabric need to be cut, with each pattern piece serving as a form for an individual part of the garment or item to be sewn. Generally the pattern masters create pattern as per buyer's specifications and the first fit sample is made. It's very rare to fit sample gets approved in first go [8]. If not approved the whole process need to be redone and sample has to be rectified as per buyer's comments. These revised samples need to be



INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

sent to the buyer till it get approved.

In today's scenario, garment is not only the basic necessity but it stands for the status. People want stylish garments to match their status [4]. Due to seasonal variations, the product development time is very tight and strict to the seasonal fashion calendar. Textile and apparel product development is normally planned one year in advance. Frequent planning and product development is required to overcome the shorter lead times. Flexible manufacturing technology enables to respond quickly any variation in style.

In this paper we present a new tool for draft/pattern making of designer garments. The tool has been developed using C++ programming by developing its algorithm and writing the source code in C++ language.

Results And Discussion

Algorithms for pattern designing of various designer garments have been developed. The pattern for designer draft for example is presented below:

Designer Garment I



Fig. 1 Designer garment

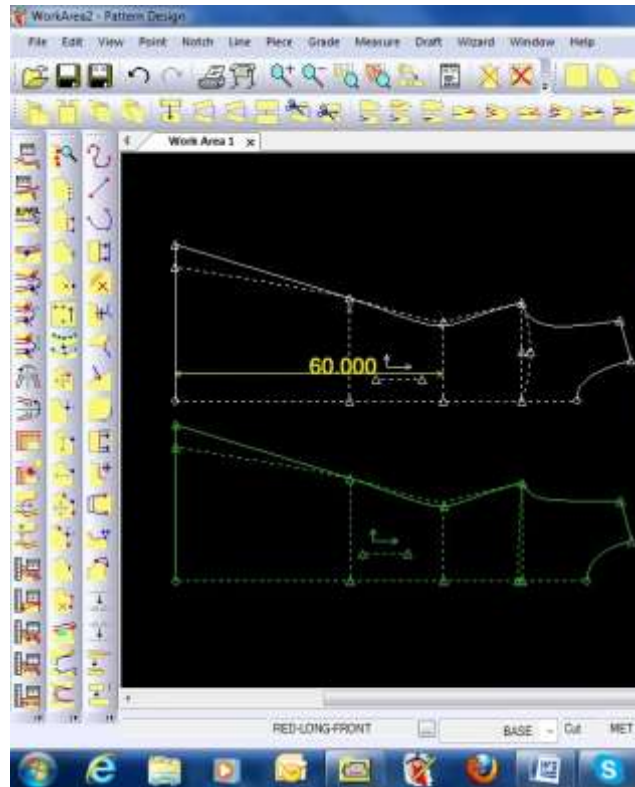


Fig. 2 Pattern draft of a designer garment created in Gerber software

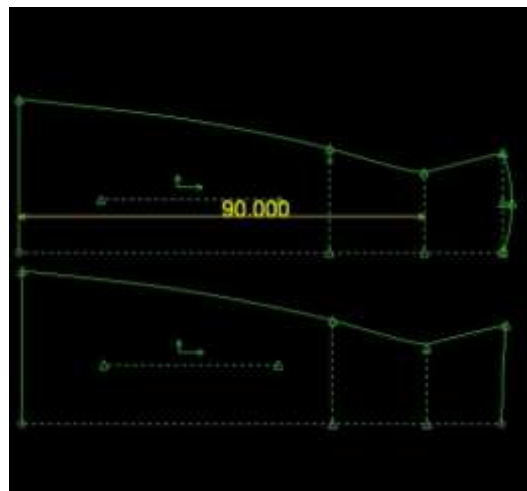


Fig. 3 Pattern draft of designer garment developed by using C++ programming

As shown in figure 2 draft pattern of designer garment is generated using the algorithm and flowchart. The specifications taken in the algorithm and program are clearly visible in fig. 2. A designer garment using the same specifications as used in the program is drawn using commercially available Gerber Software and the results are shown in fig. 2 & fig. 3. A perusal of the results of fig. 2 and 3 it can be safely concluded that the output generated by the program developed in the present work is better in visualization and also the specifications of measurements are visible in the present work whereas it is not visible in the Gerber software.



INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

Draft pattern of second designer garment is shown in fig.6 whereas the output generated by Gerber Software is shown in fig.5. The specifications taken in the algorithm and program are clearly visible in fig.6. The output generated from Gerber software (cf. fig. 5) appears to be primitive and less clear in visualization.

Designer garment II



Fig. 4 Designer garment II

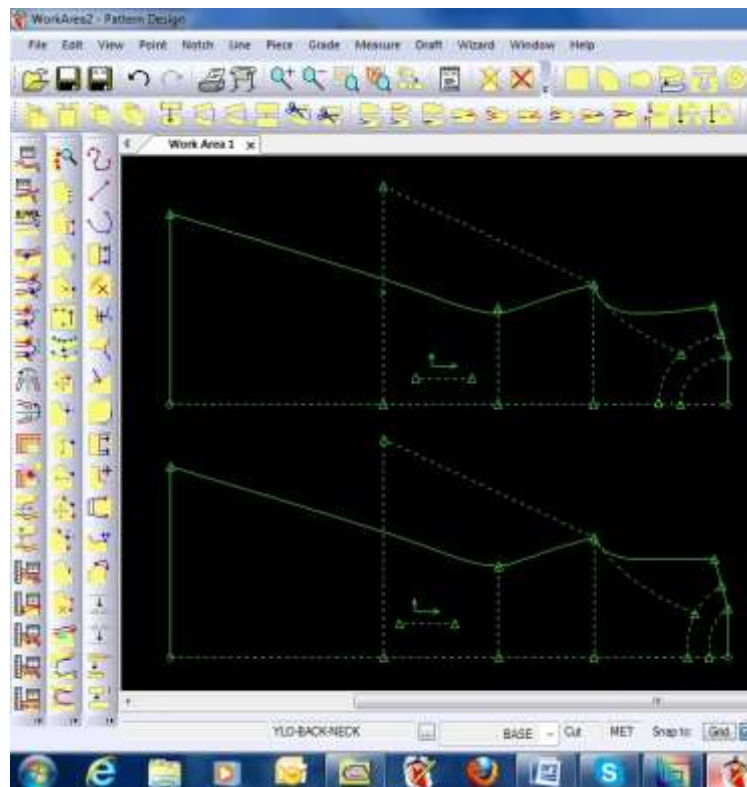


Fig. 5 Pattern draft of a designer garment created in Gerber software

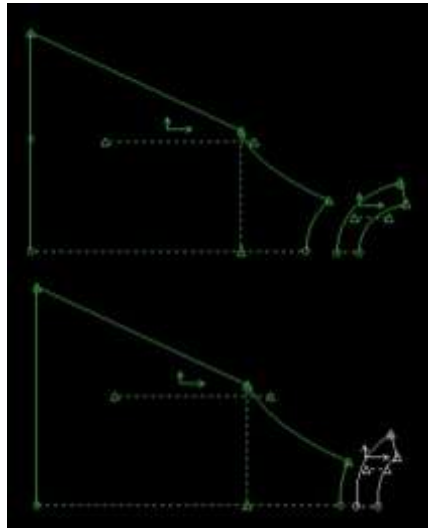


Fig. 6. Pattern draft of a designer garment developed by using C++ programming

Conclusions

In today's scenario, many software's are available in the market for pattern making, yet the program developed here has many advantages over the given gerber software and many other commercially available software's. The advantages of this program have been illustrated in figures comparing it with other software's available in the market.

All the patterns are generated using C++ programming taking into account dummy body size measurement. Dummy body size measurement pattern are pattern from which patterns for many different styles can be created. Patterns that are made for dummy's measurements are checked for accuracy by cutting out in sample fabrics and the resulting garments are fit tested for accuracy. Using this type of patterns increases productivity and makes work easier for the dressmaker. Its use does not change the nature of the design process but as the name states it aids the product designer. The user can nearly view the actual product on screen, can make modifications in it, and present his/her ideas without any prototype, especially during the early stages of the design process.

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