Fashion pattern maker of software application development

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Abstract. This paper presents the software used to make patterns in making fashion patterns. The design was accepted in the form of literature reviews, journals related to pattern making software collected using search engines such as Elsevier, Sciencedirect, Google Scholar and Crossref. The purpose of this study is to collect and analyze articles relating to pattern making using software, which are expected to be able to 1) Facilitate pattern construction, 2) open media development, 3) develop pattern making systems. Based on the articles collected the results obtained from the pattern making system helped the fashion industry to improve fashion designs for pattern development as well as human models were introduced to rebuild 3D humans in computer systems. A surface leveling algorithm was developed to transform 3D designed fabrics into 2D supported patterns for production. The hope for the future rules that match the style in the design discipline.

1. Introduction
Clothing does not come entirely from the designer but requires a relationship with one another. The point is that in essence the clothes are not only limited to sketch drawings, to realize it to be a fashion but also to focus on technical designs such as making patterns and sewing the clothes. Creating a pattern is the responsibility of a pattern maker and the task of a pattern maker is to make a draft of the shape size specified on paper or work on a computer clothing pattern using a software application. Fashion pattern maker software application is the development of techniques for making patterns that are done by computerization using software applications. Research in the design of assisted clothing applications on computers has been developing since the late 80s [1]. Making computer-aided fashion patterns is a technique that has been developed to make production patterns that accelerate the process of making clothing in the fashion industry [2,3]. The main purpose of making patterns using software applications is to increase time efficiency in pattern making, clothing patterns are more accurate and the use of paper or cardboard materials because pattern files are stored in digital form, while also facilitating the pattern grading. Thus the fashion patterns that will be used in large scale production can be realized in a relatively short time according to the standards set.

There are so many types of fashion pattern making software applications, among others, CAD / CAM, Optitex, Gerber, Lectra, Gemini, Clo3d but of the various types of application software most often used and better known are CAD / CAM applications and research papers which discusses the application of CAD / CAM very much.

This paper presents a paper that discusses the application of software used to create clothing patterns. The purpose of this paper is to review how many papers discuss the application of fashion pattern making software from 2014 to 2019 and from the results of these research papers on how the development, process, benefits, and effectiveness of using pattern maker software applications.
2. Method
The writing design in this research is a systematic literature review, which discusses journals related to software applications for fashion patterns collected based on data sources using search engines such as Elsevier, ScienceDirect, Google Scholar and Crossref from 2014 to 2019.

Keywords used for looking for journals related to the application of fashion pattern making software is, "Pattern Maker" which gave rise to various kinds of papers on the technique of making fashion patterns as well as applications that CAD / CAM used to make fashion patterns. The second keyword is "Fashion Pattern" which gave rise to a paper about fashion patterns. The third key "3D and 2D Software" which brings up various software applications is used to create 2D and 3D image designs, and the final keyword is "fashion pattern maker application" which raises various applications used to create good fashion patterns in the form 2D and 3D as well as ways to use the application.

Analysis of the data used in these papers is by way of R&D (Research and Development) which develops image design applications and is used as a fashion pattern maker application and some use quantitative data analysis techniques that calculate the effectiveness of software applications when used in the fashion industry.

3. Result and discussion
Computer Aided Design software is a computer program for drawing a product or part of a product. The product you want to draw can be represented by lines and symbols that have a certain meaning. CAD can be in the form of 2-dimensional drawings and 3-dimensional drawings [3,4]. The system of pattern making software helps the fashion industry to accelerate the process of fashion design to the development of fashion patterns and the reconstruction of human models introduced to rebuild 3D human bodies in computer systems. [5-8]. The ability is mastered in making computerized fashion patterns, including: installing software, setting up software, making basic patterns of clothing, breaking clothing patterns, grading and pattern markers and knowledge coming from various fields of physical, physiological, mathematical, computing and software [4, 9-12].

A surface leveling algorithm was developed to transform 3D designed fabrics into 2D supported patterns for production [13]. Hopefully in the future the rules are in accordance with the style in the design discipline. As well as being a new tool for creating one of the fashion products by combining personalized prints [14,15].

Table 1.

| No. | Name of Software Application | Advantage | Deficiency |
|-----|-------------------------------|-----------|------------|
| 1   | CAD/CAM                       | Fast and efficient depiction, Flexible and practical, Image accuracy and precision accuracy, Wide scope of work | The price of software is expensive, Requires extensive hardware |
| 2   | Optitex                       | Wide scope of work, Can be modified from existing styles | The degree of flexibility of the arch tends to be stiff or less flexible |
| 3   | Gerber                        | Fast and efficient depiction, Flexible and practical, Image accuracy and precision accuracy | The price of software is expensive, Membutuhkan hardware yang luas |
| 4   | Lectra                        | Flexible and practical, Wide scope of work | The price of software is expensive |
| 5   | Gemini                        | Flexible and practical, Image accuracy and precision accuracy | The price of software is expensive, The degree of flexibility of the arch tends to be stiff or less flexible |
| 6   | Clo3d                         | Fast and efficient depiction | The price of software is expensive |
4. Conclusion

Pattern maker software can facilitate the fashion industry, be developed in a variety of forms, adopt several technologies, load several features and support on several operating systems. Pattern maker software in the form of CAD / CAM as a design tool and make patterns in addition to having many benefits, on the other hand there are also some shortcomings.

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