

Utilizing of virtual simulation to fitting the industrial pattern, Prototyping section, in Garment Factories “Case Study”

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Abstract:

3D technology is considered one of the Pattern digital technologies that help this technology to increase, ease and speed of completion of industrial processes. This study deals with how to take advantage of 3D technology in developing the performance of the samples department in the technical department of ready-to-wear factories, in order to solve the problems of the samples section associated with the implementation of the 2D Pattern, as this problem was concluded through field study and practical experiences in ready-to-wear factories in Egypt.

Controlling the fitting Pattern of clothes in the samples section faces many difficulties, the most important of which is the incompatibility of the industrial Pattern drawn with the human body "Pattern". Where defects appeared in the product after conducting and implementing the first sample, which required making adjustments to the industrial Pattern and re-executing the sample a second time until it became free from defects and ready to perform the grading according to the measurements and the "order" of the operation order required to be executed to start production processes, which results in it. In the presence of lost time to implement the sample, as well as wasted effort, and wastes in the raw materials used in the implementation of the sample (fabric/ accessories / threads / and direct and indirect costs) that will be quantified after that.

In order to find a solution to this problem, this research presents a case study using the "CLO5.1" program to improve the industrial Pattern in order to improve the quality of the male industrial Pattern drawing using 3D technology by making adjustments to some areas where the stress and stress ratios are high due to the lack of nan fitting of the Pattern. Industrial, which does not appear clearly even during implementation. The study concluded that the implementation of the CLO5.1 program in the sample section has succeeded in reducing the time wastage for sample production and the wastage of raw materials, thus reducing the cost of sample production

Key words:

3Dtechnology , pattern , Prototyping ,Garment Factories ,virtual simulation

Introduction:

The clothing industry is one of the basic commodities, and the state pays special attention to this industry, and the clothing company is usually the second skin of the human body, and the bridge between design and production. table table schedule schedule table table table table

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1. Research problem:

Q1. What is the possibility of developing the "patron" industrial engineering model using "3D" virtual reality technology?

Q2. What is the possibility of accessing scientific solutions for the development of the sampling department using 3D virtual reality techniques?

2. The importance of research:

- This research contributes to laying scientific foundations in the sampling department, using virtual reality technology.

The importance of the research lies in presenting and analyzing the importance of using modern technology for virtual reality in the samples section.

The importance of the research is due to the extent to which virtual reality technology can be used in the clothing industry and its impact on the economic cost of producing the sample.

3. Research objectives:

Adjusting the industrial engineering pattern using virtual reality technology.

- Developing mechanisms for executing the sample in the sampling department using modern technology

- Reduce the economic cost of sample production.

4. Research limits:

□ spatial limits:

- Factory for the production of men's trousers in the industrial zone in Qalyubia Governorate (Obour City) (Shubra El-Kheima).

- A factory producing casual men's clothing in Gharbia Governorate.

□ Time limits: 2019/2020.

Objective limits: Men's casual pants, "denim" materials, Lycra jeans.

5. Research Methodology:

The research follows both (the analytical / experimental method) to describe and apply the research.

6. Research tools:

- CLO5.1 (3D) program was used.

- Field visits were made to the study samples in the various industrial areas specified within the limits of the research.

- Using the stop watch to measure the sample production time in the samples section.

Conclusion:

The researchers presented a case study to improve the quality of the industrial model of men's trousers made of "denim" jeans, as well as the development of the samples section in ready-made garment factories, through the use of 3D technology, simulating virtual reality using the CLO5.1 program, in order to obtain a good tuning of the basic model of the trouser model. Men's jeans and reducing sample production time in the samples section, as well as reducing waste of fabrics and auxiliary materials in ready-made garment factories. The men's trousers made of denim jeans were used as a model for the sample. Through the research, it was concluded that the sample production time using 3D technology is less than the traditional method, as shown in Table (6). The number of iterations of the sample in the traditional method was three times. Compared to one time using 3D technology, and the cost of fabric consumption to implement the sample in the traditional way was twice as much as it was consumed by the 3D technology method. Accordingly, the study concluded the necessity and importance of using 3D virtual reality technology in drawing sample models in ready-made garment factories, which helps in obtaining an engineering model and good control of the model, as well as reducing time, effort and waste rates within the samples section in ready-made garment factories.

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