OPTIMIZATION FOR NUMBERING OF CUT FABRIC LAYERS IN APPAREL INDUSTRY

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ABSTRACT

Productivity and costs become critical due to the increase in pressure of competition on the companies in apparel sector—which is an important sector for our country. Production time and costs are very important for enterprises. In order to improve profitability and competitive edge, optimization of methods are being studied. In this study, it was targeted to investigate and optimize labelling process in the production processes of apparel sector. Positioning of labels on patterns will be explained in accordance with an appropriate process flow via considering all types of clothing patterns.

Key Words: Meto labelling, tone diversity, optimization, efficiency.

1. INTRODUCTION

Turkey’s apparel sector has maintained its competitiveness via short distance advantage to markets such as Europe and Russia, against cheaper products in the world market. Fast fashion, orders in small quantities and short product life cycles, caused a requirement to meet customer’s needs in shorter time. It is more difficult for producers to shorten production time, due to presence of glitches such as delays in supply of raw materials. Therefore ready-made enterprises must work efficiently. For this aim, it is required to evaluate performance of the task in order to determine optimum time and method needed. Apparel industry needs high number of employee, so in order to increase productivity, studies for optimization in terms of time, labour, cost, quality, increasing automation and for reducing dependency to employee continues.

Apparel industry is experiencing a period of change, for more than 150 years, from hand sewing, mechanization, to automation and robotic [1]. Machinery used in the apparel industry was improved compared to the past. Many operations requiring hand work is carried out with apparatus, computers and vending machines. While the investment cost of the garment industry was low before 1980s, but nowadays, the investment cost of industry has increased via automation. Developments in this area cause improvements especially in establishing standards in quality, and also increasing the production rate. In addition the development of the sewing machine, the biggest improvement was application of CAD - CAM systems. When compared to textile sector, many operations in apparel industry are still worker dependant. One of employee dependent operations is labelling process which is the first step in regulation section, is applied to all fabric layers. Since brand of the first device developed was Meto, this process was named as “Metolama” in Turkish literature. Labelling process became obligatory for preventing colour tone difference in serial production. Thus parts are brought together with the same number and precluded from sewing (like subcontractor or embroidery) the wrong parts.

In general, more than one employees work manually with labelling process. In addition to labelling automats for cut fabrics were developed; their research and trials were not fully completed, yet. Beside, automated labelling machine, another automat was integrated to
spreading machine, so labelling could be able to applied during spreading [2, 3, 4]. However, the work on speed and implementation of systems are continuing. Automated labelling machine will fasten labelling period while lowering labour force proportional to company size, but nowadays the use of vending machines in companies that have not been adopted yet.

Manufacturers are required to do time plans by measuring to cutting and sewing times for efficiency in production. Labelling is one of the processes that need to be made more efficient. Other than that, it may cause some errors. For example, there is a risk deficiency in labelling of fine and hardly divergent fabrics. Possible errors are corrected most of the time, because other parts of the garment are also numbered. However at this stage the time spent becomes twice. Labels attached might pose problems during and after sewing process. In some cases, removal of numbers could be forgotten. As a consequence of that, images are distorted especially in light coloured and fine clothes and the products are classified into second quality products. Sometimes to find label while sewing or removal of label from surface, takes unnecessarily long time. In order to prevent these problems, labelling of cloth patterns should be applied via considering sewing positions. In one part of the Kaizen study conducted by Dal V. et al, have been made improvements via changing the type of label and standardization of labelling places [5]. Removal of label at the beginning of sewing operation will be easier, since; label on pattern would catch attention of the sewer. In this research, it was intended to consider production steps in labelling cloth patterns and to apply labelling in the positions close to places that sewing start.

2. MATERIAL AND METHOD

The study material consisted of cut clothing patterns. Information that should be used on the label may be arranged optionally. Information that must be used on the label, are held by request. Body number, model number that pattern belongs, may include information such as the fabric layer. The factors considered in determination of labelling position were; no requirement for extra time to remove label and to maintain labelling in an unforgettable position.

3. RESULTS

In the study, patterns of two product groups (men's pants and men's shirt) are examined. In Figure 1 and Figure 2 can be seen recommended label places of Men’s Pants and shirt pattern.
Figure 1. Recommended Label Places of Men's Pants Pattern [6].
4. CONCLUSION

Before production, detailed and accurate planning will provide advantage in terms of time and labour. Thus steps of the production unit should be evaluated in detail with the philosophy of continuous improvement. Labelling optimization will provide to work more efficiently and overcome the potential problems. Besides accelerating production, removing second quality problem due to forgotten labels in light coloured clothing were targeted. Similar studies should be done for different product groups and models. Several examples of developed automatic labelling machines could be seen, they should be designed –with the help of textile researchers- in a way that able to adapt places of label.

5. REFERENCES

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