ABSTRACT

The development of textile industry which 3rd position in the largest export values in Indonesia. This proves that the quality of textile is one important factor that must be considered for all textile companies. PT.Buana Intan Gemilang is one of the companies that produce curtains woven fabric. Inspection process found in PT.Buana Intan Gemilang still done manually and takes an average time of 19.87 seconds for the process of identifying defects and as well as the uncertainty factor of the operator during the inspection. This leads to an imbalance of production volumes with inspection volume at the company and causing a staking of unfilled woven fabrics at the inspection work station. Therefore, it is necessary to design the defect detection automation system for the inspection process of curtain woven fabric using image processing by Fuzzy Logic method. The fuzzy logic method used to overcome the uncertainty of the operator during the inspection process. Similar research has also been conducted by Irfan Ferdiansyah (2016) on Optimizing Woven Fabric Defect For Inspection Using Image Processing and Fuzzy Logic at CV. Maemunah Majalaya, which in this research resulted in an accuracy of 82.26% with an average process time of 2.528 seconds so that required further research to get better accuracy and processing time. Advanced research is designed based on improvements from subsequent research using GLCM as feature extraction with three parameters: cluster shade, cluster prominance, and number of objects. This study aims to apply Fuzzy Logic model implemented with MATLAB in order to provide better results in identifying fabric defects and optimize processing time.This research using 120 training data, 80 offline test data, and 80 automatic identification fabrict defect detetction test data. Identification automation defect of woven fabric test data can produce accuracy 97.5% and averaging process time 1.15 second. This result is better than manually inspection process that took 19,87 second for scanning defect of woven fabric.

Keywords: Automated fabric inspection, Image processing, Fuzzy logic model, GLCM, MATLAB.