

ABSTRACT

The textile industry is one of the industries that provide high export value by occupying the third position in Indonesia. PT Buana Intan Gemilang is one of the textile industry that produce woven curtain fabric. To maintain the quality of fabric produced by PT. Buana Intan Gemilang required inspection process. The inspection process at the company is still done traditionally by relying on human vision. Traditional inspection at the company takes an average scanning time of 19.87 seconds. Each cloth roll should be inspected twice to avoid missed defects. Based on the inspection data and production data of the company, there is a pile of unfilled fabrics on the inspection work station. One reason is the processing time at the inspection work station. Therefore, it is necessary to design an image processing automation system by utilizing Artificial Neural Network method which is known to be fault tolerant or can recognize received input signal although different from before. Similar research is also undertaken by Lizarifin (2016) on Optimizing Woven Fabric Defect Classification for Inspection Using Image Processing and Artificial Neural Network at CV. Maemunah Majalaya, this study detects two types of defects that are amroll defects and defects in the stomach. The resulting accuracy is 83.9% with an average processing time of 2 seconds, so further research is needed to obtain better accuracy and processing time. Further study was designed using Artificial Neural Network (ANN) using GLCM extraction feature where there are 12 characteristics used as inputs to produce the classification system using Artificial Neural Network (ANN). The ANN system is trained using 120 samples of fabric derived from the company The automation system at the defect inspection resulted in a detection time of 3.52 seconds. The accuracy level obtained in classifying the three types of defects in real time is 88.7%. Implementing an automated inspection system results in faster processing time..

Keywords : Automated fabric inspection, image processing, Artificial Neural Network, GLCM, Feature extraction, MATLAB