GLOVE DEFECT DETECTION USING IMAGE PROCESSING

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ABSTRACT

Glove defect detection using image processing is a convenient method to identify failure in glove production industry. This project is designed to identify the defective gloves in the manufacturing line, to help reduce human failure. The glove defect detection can detect three cases which are normal, torn and empty link based on the region of interest (ROI) and the area. The methods used are blob and morphology algorithm to convert the original image to binary image and eliminate noise. A bounding box is obtained to calculate the area of pixel square, in which the resulting area of the normal glove is greater than torn glove. This method is capable of improving and helping the glove industry to enhance their product quality and grow their business.

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INTRODUCTION

1.1   BACKGROUND OF STUDY

It is essential to wear gloves when working with harmful synthetic compounds and different substances as they protect our hands from hazard and impurities. The safety gloves should be selected based on its' endurance. Glove manufacturer produces a variety of product such as Nitrile, elastic rubber, Neoprene gloves, etc. All of these gloves are mostly used in the medical, dental, pharmaceutical and food handling sectors as it acts as a barrier from hazard [1]. For example, elastic rubber gloves protect the wearer against low corrosive substance and protect from bacteria and germs infection. This fact encourages glove manufacturers growth rate in this country. However, product quality is a significant issue that all glove manufacturers have to face since it can affect their business policy and profitability.

Gloves defect during production is very common nowadays. Quality control is very important when it comes to any product or service development. It is crucial to build a successful business that meets customer expectations. Furthermore, quality control leads to efficient business when able to reduce waste at during production. Among the quality control initiatives taken by glove manufacturers is to hire workers to inspect the quality of gloves. Some companies are currently still using manual methods to check the quality of their products such as water-tight test and air-tight test [2]. However, these methods are inaccurate and inefficient since human error can impact the test.