

ABSTRACT

In this study, the automation of computer vision-based inspection process proposed in the Department of Quality Control of Incoming Leather (QCIL) in PT.Karyamitra Budisentosa, a manufacturing company that produces shoes with leather as the main raw material products. PT.Karyamitra Budisentosa, implement strict quality control, especially in the incoming leather inspection that takes place in the Department QCIL. Strict inspection applied to prevent any defect materials comes to further processing. One of the major concern in the inspection process is the surface quality of the incoming leather. The leather surface for further processing must be free from defects. Defects that occurs on the leather surface are documented and categorized by the company is a leather flaws that is generally caused by environmental factors growth of livestock as a source of skin, and many founds that flaws with relatively small dimensions and shapes vary that is relatively difficult to find by simply relying on the human bare-eyes alone. The opinion was corroborated by the large number of mismatches in PT.Karyamitra Budisentosa inspection results. This study proposes a computer vision-based inspection systems using K-Nearest Neighbour (K-NN) as an artificial intelligence applied. Application of Computer Vision by utilizing K-NN as the machine learning, is proposed for leather, where the objects have morphology and relatively random geometrical compared with other objects that can apply computer vision recognition feature traditional. The study concluded that the average yield rate of error between the proposed system and the existing system that is 38.332%, while for the time efficiency of the process of reaching 53.953% with the existing system, the time required for the detection and classification is an average of 90 seconds.

Keywords: *Visual Inspection, Computer Vision, K - Nearest Neighbour*