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INTRODUCTION

Wood defect detection and sorting system is an AI-driven machine vision solution to automate the inspection and sorting process of wood panel in production line. The system can automatically perform visual inspection of processed wood panel by detecting the defect and sort the wood panel according to the predefined grade. The product is ready and has been deployed in a wood processing factory and proven that the functionality of the system met the industry requirement.

NOVELTY AND INVENTIVENESS

- ▶ An AI-driven machine vision-based solution to automate the visual inspection of wood panel that can replace existing manual inspection
- ▶ Use of properly designed lighting system, camera with lens and mechanical platform to capture high quality of wood panel image
- ▶ Software to detect the defect is internally developed utilizing state of the art AI-based technique

APPLICABILITY & BENEFITS

- ▶ Company can reduce number of manpower from 3 to 0 using the customized solution
- ▶ The system is faster (less than 1 second for a wood panel) and reliable
- ▶ Internally developed AI-based algorithm can be applied to other products such as automotive and electronic parts.

PROBLEM STATEMENT

- ▶ Existing manual inspection of wood panel by human is time-consuming, error-prone and lack of experienced visual inspector
- ▶ SME cannot afford customized automated solution by existing vendor due to it is costly to develop customized solution

RESEARCH ACHIEVEMENT

- ▶ 2 publications (1 Journal and 1 Conference proceeding)
- ▶ Financial support by Dana Inovasi Awal, PPRN grant and Industry grant
- ▶ Talent development: 1 MSc student graduated

INTELLECTUAL PROPERTY STATUS

- ▶ 1 Patent has been filed on 2022 (PI2022006935)

COMMERCIALIZATION POTENTIAL AND INDUSTRIAL PARTNER

- ▶ A start-up company has been formed to commercializemachinevisionsolution (Visionlytics Sdn Bhd)
- ▶ Received two purchase orders (Feb 2022 and June 2022) by SIRIM Berhad to deploy the product at a wood processing factory in Selangor
- ▶ Visionlytics Sdn Bhd (Our own start-up company to commercialize the solution)
- ▶ Standard Wood Product Sdn Bhd (Client)

IMPACT OF INNOVATION

- ▶ Increase adoption rate of Industry 4.0 by local industry
- ▶ Reduce dependency of foreign labor through automation
- ▶ Increase productivity, reduce manpower and increase quality of the product
- ▶ Sorted wood panel can be rework to remove the defect, hence increase utilization of our timber product and reduce deforestation

STATUS OF INVENTION



AN INTEGRATED WOOD DEFECT DETECTION AND SORTING SYSTEM

