

## **A 3D gluing defect inspection system using shape-based matching application from two cameras**

### **Abstract**

This research is regarding the application of a vision algorithm to identify the operations of a system in order to control the decision making concerning jobs and work pieces recognition that are to be made during system operation in real time. These paper stresses on the vision algorithm used which mainly focus on the shape matching properties to identify defects occur on the product. A new supervised defect detection approach to detect a class of defects in gluing application is proposed. Creating of region of interest in important region of object is discussed. Gaussian smoothing features in determining better image processing and template matching in differentiates between reference and tested image are proposed. This scheme provides high computational savings and results in high defect detection recognition rate. The defects are broadly classified into three classes: 1) gap defect; 2) bumper defect; 3) bubble defect. The defects occur provides with information of height (z-coordinate), length (y-coordinate) and width (xcoordinate). This information gathered from the proposed two camera vision system for conducting 3D transformation. Information gathers used in new correction technique known as Correction of Defect (CoD) where rejected object will be altered to reduce rejected object produced from the system.

### **Keywords**

Gaussian smoothing; Recognition rate; Region of interest; Template matching