

## **Automated visual inspection: position identification of object for industrial robot application based on colour and shape**

### **Abstract**

Inspection task is traditionally carried out by human. However, Automated Visual Inspection (AVI) has gradually become more popular than human inspection due to the advantageous in the aspect of high precision and short processing time. Therefore, this paper proposed a system which identifies the object's position for industrial robot based on colors and shapes where, red, green, blue and circle, square, triangle are recognizable. The proposed system is capable to identify the object's position in three modes, either based on color, shape or both color and shape of the desired objects. During the image processing, RGB color space is utilized by the proposed system while winner take all approach is used to classify the color of the object through the evaluation of the pixel's intensity value of the R, G and B channel. Meanwhile, the shapes and position of the objects are determined based on the compactness and the centroid of the region respectively. Camera settings, such as brightness, contrast and exposure is another important factor which can affect the performance of the proposed system. Lastly, a Graphical User Interface was developed. The experimental result shows that the developed system is highly efficient when implemented in the selected database