# ABSTRACT

Planar polygon is a planar object formed by several straight lines meet at a point, form a certain angle, and make a covered area. To detect a planar polygon in an image, first thing that must to do is detected line in an image. When line is detected on an image, the system will determine relation between lines and determine the type of object geometric. This planar polygon detection system is very useful in future robotics applications especially when it detects a polygon n-sided.

Radon transformation is used to detect the lines in an image. If there is a line, it will show a very high value and form peaks in the Radon Transform domain. After line is detected, use gradient method and point method that utilizes line equation to determine the side of object. Next it can be seen from the number of sides and the angles formed. The image input system is an image captured by web-cam. After getting input image of the system, test and analyze the performance of the gradient method and the point method on detecting line in input image.

The results of this research give accuracy of detecting planar polygon n-sided 86.11% for images without noise and 83.33% for images with noise.

Keywords: Line, Geometry, Radon Transform, Gradient, Point