ABSTRACT

The development of robots is currently a trend in the IT field, more and more development and innovation carried out by the inventors to create the perfect robot and human capabilities approach. In this study the authors make a wheeled robot that uses the camera as Image processing to support detection feature geometry object.

Input in the realization of this robot is a colored geometric object that will be detected through Image processing based on hough transform method, because this method is used to detect objects or terms-N curve with good accuracy. Technology computing used in this robot is a mini-computer "Raspberry Pi 2" which is focused to process the Image with the camera "Pi Camera" captured in real time, to move the robot used two wheels controlled by the sistem minium microcontroller based "Arduino UNO ", based on the orders of the Raspberry Pi to mententukan coordinates of the object and perform a simple navigation scheme using the lane closest to the object to near object at a certain distance.

Hough transformation with the application and selection of Image processing work focus on Raspberry Pi 2 + Pi Camera with a resolution of 320 x 240, this robot has an accuracy of 96.23% on 50-60 fps, accuracy to determinate coordinate pixel X-axis 98.825 %, and accuracy to determinate radius of object 96.91 %.

Keywords: robot, object detection, hough transform, raspberry pi 2, arduino uno