ABSTRACT

Control theories commonly used today are classical control theory, modern control theory, and robust control theory. In control theory, transfer functions are usually used to characterize the input-output relationships of components or systems that can be explained by linear time-invariant differential equations. In robot control, kinematic and dynamic are needed to get the transfer function in making robots. Kinematic is obtained from the physical form of the robot and the dynamics of the movement of the robot.

This Final Project research uses trigonometric method to get the distance of the object, using image processing to detect objects and servo motor to get the angle. The controller used is Raspberry Pi 3 with OpenCV and WiringPi libraries.

With testing that has been done, the movement of robots that use kinematic modeling of motion becomes more directed without using kinematics. The stability obtained is still not too stable, so control is needed by searching for robot dynamics. The measurement results will not be easily ideal, because in the manufacture of tools or robots do not match the calculations with the measured In each tool there is a tolerance for knowing close to ideal measurements.

Keywords: kinematic, trigonometry, raspberry pi 3, OpenCV, WiringPi