

ABSTRACT

Wallfollower an intelligent robot that contains a program that can move forward by following the rows of the wall surface (wall) to estimate the distance and speed that has been determined. The development of robotic world in Indonesia began to grow rapidly, which can be seen from many robot contests are held at this time. One of the contests is KRCI (Indonesian Intelligent Robot Contest), which is the national standard robot contest. In this race the robotic faced with some of the maze that is mixed.

In this thesis, making wallfollower using technology-based PID controllers and ultrasonic sensors Ping))). Where the application is connected to the microcontroller that can be programmed using C language. The most important thing in this PID controller design is to determine the parameters controlling or tuning. Where we provide constant feedback form, which will then be processed in the microcontroller and the distance that is read by the sensor, which will then be processed in order to run the motor. So that the robot can pass through the track very well done robot motor speed control using the existing logic.

System output is achieved through the maze robot can run smoothly without any collision against the wall. In this study the optimum PID constants used with $K_p=1$, $K_i=6$ and $K_d=3$. So that the resulting small error is 0.66666667%. So over all the robot can run well.

Keywords: wallfollower, PID controllers, tuning