ABSTRACT

Today, Indonesian robotics technology has grown rapidly and widely. Indonesia Intelligent Robot Contests (as known as KRCI) is a national forum for those interested in robots. In this robot contest, contested a robot that can put out the fire with a few rules. But there are several obstacles often faced by the participants of KRCI, one of them is the driver motor voltage response are not optimal. This affects the performance of robots, especially when the road is uphill.

Because of that reason this Final Project were designed, which is circuit called Dual Processor to control the speed of DC motors on the robot wheels. In where the speed controls on this type of motor is required variation of the DC voltage source using the aid of PWM signals (Pulse Width Modulation). In its design, the wheel robot mounted a rotary encoder which has an optocoupler to read the pulse signals that has been instaled before. Motor speed depend on the width of PWM signal. If the pulse width of PWM signal greater than set point, dual processor makes the pulse width of PWM signal is decreased. The Dual Processor to control the speed of DC motors on the robot wheels based on the rotary encoder information use AT89C2051 microcontroller.

From the results of the design that has been made, obtained that the speed of robots is better used Dual Processor than not using it. As well as execute the program, the robot's performance remains constant, while the arena flat and go up.

Keywords: Driver Motor, Dual Processor, Pulse Width Modulation (PWM), Rotary Encoder, Microcontroller AT89C2051.