ABSTRACT

In technological developments especially in the world of microelectronics, we often encounter using microcontrollers in various equipment. Microcontrollers are used in several applications including control, industrial automation, data acquisition. One application of the microcontroller is on a mobile robot used to load reflectors that are rotated and move the robot's speed linearly.

The design of the rotating reflector is carried out using a micro-Doppler-based PWM system microcontroller. A microcontroller with Pulse Width Modulation (PWM) system will issue a signal to control the rotational speed so that it is constant which can be held with several levels of rotational speed. In this research, a rotating reflector will be built above the microcontroller-based mobile robot which will be moved in a rotating manner and the robot's speed movement is linear.

From the results of research and data analysis on mobile robots that work constantly, the battery affects the resulting PWM value, when the battery is fully charged the performance of the resulting PWM value is still maximum, but seen in the 25th to 60th minute the battery condition starts to decline due to power battery is low. The constant value when the batter is fully changed averages 12.04 rad/s.

Keywords: Reflector, Microcontroller, Pulse Width Modulation (PWM)