ABSTRACT

Regenerative brakes are systems that utilize kinetic energy into other energy and are used for vehicle acceleration. By utilizing braking energy which is converted into kinetic energy (kinetic energy) then stored in the battery. In regenerative brakes, the charging process will start when there is braking activity, and will end when the vehicle stops.

In this final project, the author uses the buck boost converter method which functions to increase and decrease the voltage so that the resulting output is stable and in accordance with what the author wants. This buck boost converter system uses a microcontroller as a control which is used to adjust the duty cycle. And the output voltage is maintained to match the battery charging standard and it is assumed that the generator output voltage on the regenerative brake is 0-24 Volts, and the battery is 12 Volts.

Battery charging can run well, with an average voltage reading of about 12.6 Volts and the buck-boost converter will stop working if the voltage is below 8.3 Volts and the resulting charging current is an average of 0.35 Ampere. The charging process will take longer if the initial braking input voltage exceeds the charging output voltage, because the voltage will drop until the voltage on the generator stops.

Keywords: *Regenerative brake, microcontroller, buck boost converter, battery charging*