ABSTRACT

The development of electric vehicles, especially electric cars, has been very rapid. Where there are three most important components in the electric motorbike, namely, Brushless DC (BLDC) as the driving force, controller, and the battery or power supply as the main voltage source. In this research a motor driver will be developed which functions as a controller for electric vehicles which is expected to be able to rotate at a speed of approximately 100-1000 Rpm and use a 24V 10W power supply as the main voltage.

The motor driver created is a three phase BLDC motor driver which is used to adjust the rotational speed of the motor. For the manufacture of this three-phase motor driver using the six-step PWM method, three phase inverter, and STM32 microcontroller and BLDC motor type LK57BL7524 because it requires an IRF540 MOSFET for switching and FAN7388 driver IC as comutation logic and signal amplification for BLDC motors as MOSFET switching and potentiometer as the driver input value that is made.

Because in previous studies the BLDC motor driver that was developed often experienced short circuits in the flow of electric current because the paths on the PCB circuit were not strong enough to accommodate the flowing electricity and could not rotate optimally with the resulting Rpm value of 160 Rpm and using the same voltage source, namely 24V DC.

Therefore the goal is to make this motor driver able to rotate BLDC type LK57BL7524 motors with a 24V DC voltage and obtain rotational speed results that are 100-1000 Rpm greater than in previous studies and depending on the PWM value input to the BLDC motor driver.

Key words: *Driver motor, Motor BLDC LK57BL7524, Six-step PWM, MOSFET IRF540.*