ABSTRACT

The three-wheeled vehicle with a Brushless Direct Current (BLDC) motor drive system is an innovative solution to support the transportation needs of Micro, Small, and Medium Enterprises (MSMEs). This study aims to explore the potential of using three-wheeled electric vehicles based on BLDC to improve transportation efficiency for MSMEs while reducing environmental impact. The results of this study indicate that three-wheeled BLDC vehicles have better energy efficiency than Selis Pujasera three-wheeled vehicles. The BLDC motor has lower power consumption, stable torque, and minimal maintenance, making it a more economical and environmentally friendly option. This vehicle is capable of reaching a maximum speed of 34 km/h with a travel range of 30 km per charge and has a maximum load capacity of 300 kg, which is greater than commercial three-wheeled electric vehicles available in the market. Additionally, the modular frame design provides flexibility for users, allowing the vehicle to be used for various MSME transportation needs, including both goods transportation and mobile businesses. With further development, this BLDC-based three-wheeled vehicle is expected to become a sustainable transportation solution for MSMEs, while also supporting government programs on emission reduction and the transition to renewable energy in Indonesia's transportation sector.

Keywords: Brushless Direct Current (BLDC), Three-wheeled vehicle, Electric vehicle, Micro, Small, and Medium Enterprises (MSMEs).