

## Design and Construction brushless DC Motor control for small electric vehicles

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### Abstract

This research article presents the design and construction of a brushless DC motor controller. At present, the brushless DC motor has high efficiency and is widely popular in the electric automotive industry but the brushless DC motor control unit must still be imported from most countries. The results in expensive and difficult repairs the research team therefore designed and built a brushless DC motor control unit with a rated power of 1 kW, rated input voltage between 12-50 Vdc and 20 A rated current. It can also adjust the rotation direction of the electric motor and stop. The operation of brushless DC motors with a motor speed display screen after the construction of the brushless DC motor control unit has been completed have tested the efficiency of the control unit by testing the brushless DC motor with mechanical load start testing from 0.5 kilograms load weight, 0.5 kilogram load to 10 kilograms of load, test both brushless DC motor, turn clockwise and counter-clockwise rotation at full power. The results from the test efficiency of the brushless DC motor control unit is 90.98%, which is considered to have the efficiency close to that of a brushless DC motor control unit, which is commercially available but has a lower price and can be repaired.

**Keywords :** Speed Control motor, Brushless dc motor, Vehicle Electric