Patent Search

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Abstract:

In development of motor drives the key features are Efficiency and Reliability. Traditional motor drive technologies are commonly utilized in household and commerc appliances like ovens, air conditioners and refrigerators. Brushless DC (BLDC) motor drives are notable for their enhanced efficiency, reduced maintenance requirem higher costs. Consequently, the need arises for an economical yet efficient Brush Less DC motor controller. Pulse Width technique is widely adopted in power conver providing a powerful technique for the straightforward management of a systems via digital processor outputs. BLDC motors mitigate numerous issues associated w motors, have been extensively employed across various sectors. Developing a control system for BLDC motor demands reliable operation, exceptional control algorit efficiency, small development cycle. This paper introduces strategy for a speed control method in BLDC motors in EVs, leveraging digital controllers to increase the dr flexibility.

Complete Specification

Description:This paper describes a motor drive control system for a Permanent Magnet Brushless DC (PMBLDC) motor used in electric vehicles (EVs). The system's r function is to regulate the motor's speed using sophisticated Pulse Width Modulation (PWM) techniques. The system is made up of a number of essential parts that to provide dependable and effective motor control.

The PWM-controlled Buck Converter, which is the central component of the system, lowers the input DC voltage to the necessary levels for running the BLDC motor different speeds. To enable continuous speed regulation, the buck converter modulates the input voltage that is sent to the motor's inverter using PWM signals. The powered by the three-phase AC voltage that is created by the inverter from the DC voltage. Additionally, the system includes a three-phase inverter, which drives th transforming the modulated DC voltage into the proper phase voltages according to the position of the rotor. , Claims:A method for controlling the speed of a PMBL in Electric Vehicles using PWM techniques, with a PWM-controlled buck converter to modulate the DC voltage for efficient speed control.

A three-phase inverter that converts the modulated DC voltage into AC voltages, powering the motor with optimized phase voltage modulation.

A feedback control mechanism that continuously monitors and adjusts the motor speed by varying the PWM duty cycle, ensuring accurate speed control.

A simulation interface for real-time monitoring of key system parameters such as speed and voltage, aiding system evaluation and optimization.

A cost-effective, energy-efficient, and scalable motor drive system for Electric Vehicles, contributing to sustainable electric mobility.

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