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Direct Torque Field Oriented Control for Electronic Differential

Sagar Kale[1], Prof. Kiran M. Kimmatkar[2], Prof. Manjeet Sakhare[3]
Student, Department of Electrical Engineering[1]
Assistant Professor, Department of Electrical Engineering[2,3]
Vidarbha Institute of Technology, Nagpur, India

Abstract: *This paper deals with the design, implementation and evaluation of an electronic differential system intended for light electric vehicles. This system utilizes a dual-motor configuration that consists of a pair of DC motors installed on the same axis of a vehicle and connected to the wheels. When the vehicle moves around a curve, the motors' rotation can vary. Additionally, the technology recognizes and fixes any traction wheel sliding. The main feature of the proposed system is that it does not require specific sensors to measure the steering angle and the speed of the drive wheels. Another important feature is that it is implemented using field-oriented controllers and a general-purpose Arduino nano platform. These components are very inexpensive and are available almost anywhere in the world.*

Keywords: BLDC motors, Steering, Arduino nano, Field Oriented Control

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