



US005264763A

United States Patent [19]

[11] Patent Number: **5,264,763**

Avitan

[45] Date of Patent: **Nov. 23, 1993**

[54] OPTIMIZING SYSTEM FOR VEHICLE TRACTION MOTORS

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[21] Appl. No.: **968,127**

[22] Filed: **Oct. 29, 1992**

[51] Int. Cl.⁵ **H02P 5/17**

[52] U.S. Cl. **318/139; 388/801; 388/803; 388/804**

[58] Field of Search 318/139; 388/800, 801, 388/803, 804, 806, 811, 815; 180/65.1, 65.5, 65.8

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[57] ABSTRACT

The present invention features a system for optimizing control of separately excited shunt-wound dc motors, where optimization is achieved through microprocessor-based independent PWM control of a chopper (armature) and an H-bridge (field). Connected to the armature is an armature voltage amplifier for varying the applied armature voltage. A field voltage amplifier is also provided for determining the direction of motor rotation and varying the voltage applied to the field winding. A first sensor is connected to the driven wheel(s) of the vehicle in order to determine the wheel rotational speed. A second sensor is connected to the armature circuit in order to determine the armature current. A third sensor is connected to the field circuit in order to determine the field current. A decoupling controller uses the wheel speed and armature current information, and adjusts the armature voltage and the field voltage. An optimal controller uses the wheel speed, field current and armature current information, and adjusts the armature voltage and the field current.

8 Claims, 5 Drawing Sheets

