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Avitan

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- [54] **SPEED-DEPENDENT TRACTION MOTOR CONTROLLER FOR VEHICLES**
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- [52] U.S. Cl. **318/803; 318/599**
- [58] Field of Search **318/803, 599**
- [56] **References Cited**

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[57] ABSTRACT

The invention features a system for controlling sepa-

ately excited shunt-wound dc motors, where control 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 wheel of the vehicle in which the motor resides in order to determine the wheel 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 voltage.

11 Claims, 5 Drawing Sheets

