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Title:

Fault Diagnose of DC Drive EV Utilizing a New Series Motor Four Quadrants DC Chopper Using an Expert System and Quadratic Solver Running in Embedded: Part 1: During Start Up

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Abstract:

This paper proposes a fault diagnose method in finding problems related to four quadrants DC chopper and the propulsion motor during start up while vehicle is still at standstill. The check is done during start up of the DC drive electric vehicle (EV). If the problems exist and if it is major, the EV will not be allowed to operate. The expert system and quadratic solver are implemented as part of the control algorithm to search for the fault. MATLAB/Simulink is used to test and verify the checking control algorithm. The simulation results using MATLAB/Simulink with the expert system and quadratic solver algorithm techniques show that it can successfully detect if problems exist.