Article

Designing and modelling a fuzzy controller for electric vehicles

January 2005

Authors:

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Abstract

This paper presents a novel approach with a rule based acceleration control strategy for electric vehicles. This proposal has a straightforward goal for minimizing the complexities of the existing controllers used in vehicles. The use of fuzzy logic enables the heuristic rule based technique to be used, as an efficient solution. The controller takes into account the battery's state of charge, speed variations, driver command, load conditions, ultra capacitor charge profile and gear as input parameters to determine the vehicle speed for various driving conditions for batteries as well as ultra capacitor respectively. Electrochemical capacitors sometimes referred, as ultra capacitor has been included in the simulation to level the discharge rate of batteries in electric vehicles and thereby increase the systems run time. Simulation results would specify the performance of the fuzzy controller for various membership Junctions specified for the speed control of the vehicle.

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Jan 2010

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November 2013

Khizir Mahmud · Lei Tao

Fuzzy logic can be used to construct a nonlinear controllers by heuristic information which can replace the human intelligence working in a chain to complete a process. So it is a smart option to use the fuzzy logic to construct a controller to control a vehicle. Different DC motors like the shunt motors are prominent and flexible for electric vehicles. To control the vehicle dynamics like ... [Show full abstract]

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In current study, in order to find the control of general uncertain nonlinear systems, a new optimal hybrid control approach called Optimal General Type II Fuzzy Sliding Mode (OGT2FSM) is presented. In order to estimate unknown nonlinear activities in monitoring dynamic uncertainties, the benefits of general type-2 fuzzy logic systems (GT2FLS) is utilized by the suggested controller. The ... [Show full abstract]

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