Intelligent controller for electric vehicle

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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 straight forward goal for minimizing the complexities of the existing controllers used in the vehicles. The use of fuzzy logic enables the heuristic rule based technique to be used as an efficient solution. The fuzzy logic controller designed here is a combination of fuzzy decision maker and fuzzy speed controller for the separately excited DC motor. The fuzzy decision maker is designed in such a way that it takes into account the batterypsilas state of charge, speed of the vehicle, type of terrain, road load, brake, acceleration, ultra capacitor state of charge, and operational gear as input parameters which gives the reference speed to the fuzzy speed controller according to the scenarios in Indian road conditions. simulation results would specify the performance of the new proposed fuzzy controller. This controller has also been implemented in the embedded chip, field programmable gate Array (FPGA).

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