

# Development Of Induction Motor Torque Control Algorithm for Electric Vehicles on Inclined Roads

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**Abstract**— Direct torque control using space vector modulation (DTC-SVM) is one of the most popular control methods of induction motor for electric vehicle (EV). This paper proposes DTC-SVM with improved deadbeat control. During uphill and downhill, instant torque changes is problem for drivers. The principle of the developed method is a solution to overcome the torque need on unexpected road conditions. In this case; PI controllers and space vector modulator are replaced by deadbeat controller to maintain flux in the controller boundary while reducing torque error. EV's motor propulsion system is influenced by vehicle dynamics and road conditions. For this reason, EV dynamics analysis are done. Simulations are implemented in the MATLAB/Simulink.

**Keywords**— electrical vehicle; deadbeat control; space vector modulation; direct torque control; vehicle dynamics.

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