

Transition 1970 Volkswagen Beetle from Internal Combustion Engine Vehicle to Electric Vehicle, Modeling and Simulation

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Abstract : This paper investigates the transition of a 1970 Volkswagen Beetle from an internal combustion engine (ICE) to an EV using Matlab/Simulink modeling and simulation. The performance of the EV drivetrain system was simulated under various operating conditions, including standard and custom driving cycles in Turkey and Jordan (Amman), respectively. The results of this paper indicate that the transition is viable and that modeling and simulation can help in understanding the performance and efficiency of the electric drivetrain system, including battery pack, power electronics, and brushless direct current (BLDC) Motor.

Keywords : BLDC, buck-boost, inverter, SOC, drive-cycle

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