

## Hardware Co-Simulation Based Based Direct Torque Control for Induction Motor Drive

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**Abstract :** This paper presents Proportional-Integral (PI) controller to improve the system performance which gives better torque and flux response. In addition, it reduces the undesirable torque ripple. The conventional DTC controller approach for induction machines, based on an improved torque and stator flux estimator, is implemented using Xilinx System Generator (XSG) for MATLAB/Simulink environment through Xilinx blocksets. The design was achieved in VHDL which is based on a MATLAB/Simulink simulation model. The hardware in the loop results are obtained considering the implementation of the proposed model on the Xilinx NEXYS2 Spartan 3E1200 FG320 Kit.

**Keywords :** induction motor, Direct Torque Control (DTC), Xilinx FPGA, motor drive

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020