

**Paper ID:** 188

**Paper Title:** Dual-Output Buck–Boost Inverter with Optimized Use of Passive and Active Components

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Abd Ullah was born in Pakistan. He received his B.Sc. degree in Electrical Engineering from the University of Engineering and Technology, Peshawar, Pakistan, in 2020, and his M.S. degree in Electrical Engineering from Chosun University, South Korea, in 2024. He is currently pursuing a Ph.D. degree in Electrical Engineering (majoring in Power Electronics) at Chosun University.

Since starting his graduate studies, he has been actively involved in research related to applications of power electronics converters for renewable energy applications. His current research interest includes topologies of grid-connected Photovoltaic (PV) Inverters and power converters.

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**Abstract:**

*This paper proposes a novel dual-output inverter topology with a reduced switches count, and capable of independently supplying power to two AC loads. The proposed structure supports both voltage step-up and step-down operations, offering enhanced flexibility for various applications. A dedicated PWM strategy is developed to enable the generation of output voltages with either identical or distinct frequencies simultaneously. The simulations are performed in PSIM, which verifies the proposed converter functionality under different operating conditions.*