Dr. Ashutosh

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Hardware-focused Power Electronics engineer with doctoral training and hands-on experience in power converter design, PCB development, and experimental validation. Bridges academic research and product engineering through patented, industry-ready innovations.

EXPERIENCE

HAVELLS INDIA LTD. | DEC 2025 – PRESENT

Assistant Manager (Dec 2025 – Present)

- Executed applied R&D experiments for home appliance systems, evaluating new technologies, materials, and processes in coordination with cross-functional engineering, facilities, and EHS teams.
- Collected, processed, and analyzed test data from experiments, simulations, and field trials, generating actionable insights and technical reports for engineering and management teams.
- Created and maintained detailed hardware documentation (schematics, BOMs, specifications, assembly guidelines), ensuring design traceability and PLM compliance.
- Designed and optimized PCB layouts using Altium Designer for power and control electronics, ensuring signal integrity, thermal performance, EMI/EMC compliance, and manufacturability for high-volume SDA products.
- Developed and validated BLDC motor drive electronics, including power stages, gate drives, sensing, and protection circuits, supported by modeling and control design in MATLAB/Simulink.
- Provided hands-on technical support for appliance electronics setup, commissioning, debugging, and validation, while mentoring junior engineers and technicians.
- Drove cost-down and BOM optimization initiatives through component selection, design simplification, and supplier collaboration while meeting performance and reliability targets.
- Performed structural, thermal, and performance analyses to validate hardware reliability, safety, and compliance with industry standards.
- Coordinated with suppliers and vendors for component sourcing, quality assurance, and timely delivery aligned with project schedules.

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, NEW DELHI | JULY 2024 – DEC 2025

Assistant Professor, Electrical and Electronics Engineering Department (July 2024 – Dec 2025)

- Lab In-charge of Electric Vehicle and Battery Management System (Centre of Excellence)
- Faculty In-charge of the ISO Committee.
- Research and development on Electric Vehicle's Power Converters and Chargers.
- Convener in a One-week Short Term (Hybrid Mode) on "Power System Restructuring & Renewable Energy Integration (PSRREI 7.0)", conducted from 4th August 2025 to 8th August 2025.
- Organising Committee member for Short Term Courses / Faculty Development Programs / Workshops organised by the Department.
- Resource Person for Short Term Course on Practical Insights into Process Control, organised by the Department of Instrumentation and Control Engineering, conducted from 27th to 31st January 2025.
- Trained Faculty and students in a One-week Short-term course on Power System Restructuring and Renewable Energy Integration conducted from 15th to 20th July 2024.
- Owned laboratory operations supporting EV & BMS development, including equipment uptime, calibration, inventory management, procurement, and coordination of repairs.

HLS ASIA LIMITED | SEPT 2020 – NOV 2020

Trainee Technical Professional (Sept 2020 – Nov 2020)

- Responsible for LOGIQ A/B Panel Setup in Cased hole and Open hole Wireline logging.
- Conducted Testing, Commissioning, and Maintenance of Wireline logging panels, ensuring preventive measures for tool testing and Health and Safety compliance.
- Contributed to Unit Design for Offshore and Onshore wireline logging, involving terminal design, circuit design, and routing for mini power systems.
- Played a crucial role in testing, debugging, and resolving errors in various panels used in open-hole or cased-hole Wireline logging operations.

LARSEN AND TOUBRO CONSTRUCTION | JUNE 2015 - JAN 2016

Graduate Engineer Trainee (June 2015 – Jan 2016)

- Contributing to the 58 MLD Wastewater treatment plant project on River Ramganga, Moradabad.
- Supervised the Testing and Commissioning of transformers, feeders, Electrical Machines, and Drives, adhering to industrial standards and safety protocols.
- Executed Testing and Commissioning of PLC and SCADA systems for the wastewater treatment plant.
- Controlled equipment and system operations, adapting technology to meet user needs.
- Conducted tests and inspections to assess the quality and performance of products, services, or processes.

PROJECTS / RESEARCH

Modelling, Design and Stability Analysis of Multi-Input Multi-Output DC-DC Converters to Integrate Renewable Energy Sources (Jan 2021 – Jan 2025)

- **Technologies:** TMS320F28379D, MATLAB, PROTEUS, EasyEDA, STM32, C/C++.
- **Description:** Developed a robust multiport converter (Buck / Boost / Isolated / Inverter) to integrate RESs.
- **Key Contribution:** Integrated Nonlinear control to the MIMO structured DC-DC converter for various consumer applications. Gate driver circuit design to switch IGBTs and MOSFETs for high power converters/inverters.

Renewable Energy System (RES) based Multiport Bidirectional Converter (MBC) for Isolated Applications (Jan 2022 – Jan 2024)

- **Technologies:** TMS320F28379D, MATLAB, PROTEUS, EasyEDA, STM32, Embedded Control.
- **Description:** Developed a robust multiport isolated converter for EV chargers.
- **Key Contribution:** Design of high frequency isolated DC-DC converter for EV charging. 120W lab prototype developed, which is funded by the Deputyship for Research & Innovation, Ministry of Education, Saudi Arabia through the project number RI-44-0274 .

Design, Analysis and Control of Non-Linear Controller Based Second Order Flyback Converter (Aug 2018 – Aug 2020)

- **Technologies:** MATLAB, PROTEUS, EasyEDA, C/C++.
- **Description:** Modelling and Design of a Flyback Converter with multi-output for SMPS.
- **Key Contribution:** Liner controller-based high-frequency isolated flyback converter for SMPS. Gate driver circuit design to switch IGBTs and MOSFETs for high power converters/inverters.

Batteries charger using TRIAC firing angle control (Aug 2014 – Aug 2015)

- **Technologies:** MATLAB, PSIM, Embedded Control, Power Electronics, C/C++.
- **Description:** AC voltage controller for variable supply.
- **Key Contribution:** Zero-crossing detector to identify the firing pulse for the TRIAC. 8051 microcontroller is programmed to control the firing pulse for the switch.

SKILLS

TECHNICAL SKILLS

- C, C++ programming, AUTOSAR, RTOS Firmware
- Debugging, Oscilloscope, Signal Tracing, In-Circuit Debugging
- Development Environments: Visual Studio Code, CCS, STM32 CubeIDE
- Version Control: Git, GitHub
- Data Analysis: MATLAB, Excel
- Hardware Design Tools: Altium Designer, EasyEDA

CORE ENGINEERING

- Electric Vehicles, Power Electronics, Electric Drives, Electrical Systems, Instrumentation and Control

PROFESIONAL SKILLS

- Research Analyst, Leadership, Communication, Adaptability, English Proficiency, Team Collaboration, Problem Solving.

PUBLICATIONS

PATENTS

- Indian Grant Patents - 5
- Indian Design Registration -2
- Indian Published Patents - 2
- Indian Filed Patents - 1

CONFERENCES

- International Conferences - 11

JOURNALS

- SCIE Transaction - 1
- SCIE Journal - 5

BOOKS

- Book Chapters - 1

EDUCATION

DELHI TECHNOLOGICAL UNIVERSITY, DELHI | JAN 2021 – OCT 2025 — **9.00**
Ph.D. in Electrical Engineering

DELHI TECHNOLOGICAL UNIVERSITY, DELHI | AUG 2018 – AUG 2020 — **8.61**
M.Tech in Control and Instrumentation Engineering

NATIONAL INSTITUTE OF TECHNOLOGY, MEGHALAYA | AUG 2011 – AUG 2015 — **8.32**
B.Tech in Electrical and Electronics Engineering

MODERN ACADEMY, LUCKNOW | APR 2009 – APR 2010 — **72.00%**
Intermediate (I.S.C. Board)

ST. DOMINIC SAVIO COLLEGE, LUCKNOW | APR 2007 – APR 2008 — **78.00%**
High School (I.C.S.E. Board)

PERSONAL INFORMATION

Father's Name:	Mr. Ranjeet Prasad Gupta
Mother's Name:	Mrs. Mamta Gupta
Date of Birth:	11th of February 1993
Sex & Marital Status:	Male & Married
Nationality:	Indian
Current Address:	203 Fourth Floor, Bhera Enclave, Paschim Vihar, New Delhi-110087
Permanent Address:	41 Shivaji Enclave C Block Indiranagar Lucknow-226016, U.P.