Sudhanshu Telrandhe

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Introduction

Passionate power electronics engineer seeking a challenging career as a hardware design engineer to develop expertise in power electronics and motor control. Work with enthusiasts to gear full potential and improve my skills to achieve organizational goals.

Technical Skills

- **Power Electronics-** Expertise in DC-DC (buck, boost, flyback, sepic, cuk) converter, Inverter, Rectifier, Power factor correction, circuit protection.
- **Hardware Design and debugging-** Experience in complete hardware development life cycle i.e requirement analysis, component selection, design, development, system integration, testing and documentation.
- **Motor Control-** Understanding of BLDC, PMSM, Induction motor drive.
- **Cadence Schematic Design-** Hands on experience of component selection and schematic design in Allegro cadence software.
- **MATLAB (Simulink and Stateflow)-** Experience in Model based development of On board charger, and BLDC motor control.
- **Circuit simulation –** LtSPICE, Microcap, PSIM, TINA TI.
- **Mathcad-** WCCPA (Worst Case Calculation and Performance Analysis) for component selection
- **Research and development-** Process knowledge of R&D or advance engineering domain
- **Embedded C –** Basic understanding of embedded C

Work Experience

A] Hella India Automotive Ltd., Pune

Company profile:	HIA offers automotive product and system solutions in areas of body electronics, energy management, steering systems, sensors and actuators to the passenger and commercial vehicle segments.
Duration:	From July 2019 to till date (8 months)
Position:	Hardware Design Engineer (Advance Engineering)

Project Details:

Design of 3.3kW, 48 Volt On board charger

Description: An on-board charger (OBC) is used in an electric vehicle (EV) or hybrid electric vehicle (HEV) to charge the traction battery. The On-Board charger system converts the AC input from the grid to a DC input which charges the battery. It includes Design of,

1. Input EMI/ EMC filter
2. Power Factor correction boost converter
3. Isolated DC-DC converter
4. Flyback converter for auxiliary supply.

Responsibilities:

1. Benchmarking of existing Charger
2. Hardware schematic design of on board battery charger
3. MATLAB Simulink and SPICE level simulation of charger
4. WCCPA Mathcad calculation
5. BOM creation and procurement
6. Rigorous Layout review
7. Board Bring Up activities, testing and debugging
8. System Integration (with Battery Management system)

B] Hella India Automotive Ltd., Pune

Company profile:	HIA offers automotive product and system solutions in areas of body electronics, energy management, steering systems, sensors and actuators to the passenger and commercial vehicle segments.
Duration:	June 2018 to July 2019 (1 Year)
Position:	Intern (Advance Engineering)

Project Details:

1.Design of DC-DC converter for automotive application

Description: Scope of project includes complete hardware design of 200 Watt 24V to 12V GaN(Galium Nitride) based DC-DC converter. GaN MOSFET is advanced wide band gap switching device, which have advantage of smaller size and lower switching losses over Si MOSFET based device.

Responsibilities:

1. WCCPA (Worst Case Calculation and Performance Analysis) for component selection of DC-DC converter in Mathcad.
2. Circuit simulation of DC-DC converter.
3. Hardware Design of 200Watt 24Volt to 12Volt GaN based DC-DC converter using GaN MOSFETs.
4. Layout review of converter
5. Board bring up, testing and debugging of Hardware.

2.Switching performance analysis of Gallium Nitride (GaN) MOSFET based BLDC Inverter

Description: The scope of project include analysis of switching performance of pre-existing Silicon(Si) MOSFET based BLDC motor drive and compare with GaN MOSFET based drive.

Responsibilities:

1. Board bring up of 3kw BLDC motor control
2. Hardware testing and debugging of board
3. switching losses analysis of Inverter
4. Documentation of result

EDUCATIONAL DETAILS

Power Electronics and Machine Drive from College of engineering, Pune

Sr. No.	Course	Name of the Institutions	University/ Board	Year of Passing	Percentage %	CGPA
1.	MTECH	COEP, PUNE	AUTONOMOUS	2018	-	8.72
2.	B.E	BDCOE, Wardha	RTMNU, Nagpur	2016	76.40	8.39
3.	H.S.C	J.B.Science College, Wardha.	State Board	2012	83.33	-
4.	S.S.C	Yeshwant high school kelzer	State Board	2010	84.55	-

Academic project details

Title: Z Source Inverter for Speed Control of 3 phase Induction Motor
Description: The scope of project is to make a new design of inverter that reduce harmonics in present inverter and can be work as buck and boost converter. This inverter has applications in E vehicle and non-conventional energy source.

Areas of Interest

1.Power Electronics
2.Motor Control
3.Automotive product development

Achievement

- Published paper on Analysis of GaN based BLDC motor drive in IEEE conference.
- Selected for COEP-Hella Industry Integrated Course.

Personal skills:

Languages: English, Hindi, Marathi.

Strengths:
- Positive attitude, self-disciplined and hardworking.
- Keen towards acquiring knowledge and learning new things.
- Ability to work in team & Multitasking.
- Co-operative and adjustable nature.