MOHAMMED LUTHFI

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PROFESSIONAL SUMMARY

Embedded systems developer with experience in low-level driver design, communication protocols, and real-time systems. Skilled in embedded C/C++, Linux environments, and ARM/PIC architectures, with a solid understanding of electric vehicle (EV) architecture.

EDUCATION

M.Tech in Computer Science (pursuing), IIT Patna 2024–present
Relevant Coursework: Artificial Intelligence, Cyber Security, High Performance Computing

B.Tech in Electrical Engineering, Model Engineering College 2019–2023
Relevant Coursework: Power Electronics, Microcontrollers and Microprocessors, Digital Electronics

SKILLS

Programming Language	C, C++,Python
Software Tools	MPLAB IDE, STM32 Cube IDE, PCAN, POLYSPACE, VS CODE, Git
Hardware Tools	CRO, Logic Analyzer, Multimeter
Embedded	Debugging and Testing, Hardware Interfacing
Soft Skills	Problem-Solving, Adaptive Learner

EXPERIENCE

Embedded Software Engineer Aug 2023 - Nov 2024
Embitel Technologies *Banglore,Karnataka*

- Developed base software for BLDC motor control, focusing on Field Oriented Control (FOC).
- Created and tested drivers for various Microcontroller peripherals.
- Worked on various Communication protocols like SPI, I2C, UART, and CAN.

System Engineering Consultant at TVS Motors

- Worked on evaluating and testing wiring harnesses and other electrical components in 3-wheelers.
- Ensured CAN bus functionality to facilitate communication between vehicle systems.
- Performed DFMEA (Design Failure Mode and Effects Analysis) for off-board chargers, Vehicle Control Units (VCU), and Motor Control Units (MCU) to identify and mitigate potential failure modes.

PROJECTS

Motor Control Unit (MCU) for BLDC Motor

- Developed and implemented Field-Oriented Control (FOC) for BLDC motors using the dsPIC33CK series microcontroller and DRV8305 motor driver.
- Created drivers for Clock, PWM, ADC, SPI, and Timer, as part of the Hardware Abstraction Layer (HAL).
- Additionally, Intergrated the application layer incorporating Clark and Park transforms, PID control, and Space Vector Modulation (SVM) for precise motor control.
- Conducted extensive testing on motor platforms to ensure the software's reliability and effectiveness.

3.3 kW On-Board Charger (OBC)

- Developed code for accurate current and voltage measurement on the dsPIC33 microcontroller.