Devi Surya Teja Chilukuri

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Profile

M.Eng. Electrical Engineer specializing in embedded systems and IT security. Strong hands-on experience in low-level programming (C/C++, bare-metal) and security analysis of microcontrollers (STM32, NXP). Proven contributions in advanced development at Vitesco Technologies and in modernizing legacy systems. Goal-driven and solution-oriented with advanced German proficiency (B1+).

Professional Experience

Hardware and Embedded Systems Engineer
10/2024 – 10/2025

New Age of Food UG, Freiberg, Germany

- Analysis and re-engineering of communication protocols for existing vending machines (STM32F103 + RTOS) to integrate modern Android interfaces.
- Designed and implemented C SDKs to control PLC and microcontroller hardware via UART for Android applications.
- Integrated NAYAX and Sparkasse payment systems using industry protocols MODBUS and MDB.
- Tech stack: C, Kotlin, CMake, STM32, Ghidra, logic analyzer, Git, GitHub Actions.

Working Student – Embedded Security
01/2024 – 04/2024

Dissecto GmbH

- Developed an SWD debugger based on the Raspberry Pi Debug Probe using ARM CMSIS-DAP and the Pico SDK.
- Conducted hardware security analyses of microcontrollers, including validation of JTAG protection mechanisms and fault injection (voltage glitching) to harden against attacks.
- Tech stack: C, OpenOCD, Pico SDK, NXP MCUs, Tigard (FTDI), CMake.

Pre - Development Intern
03/2023 – 09/2023

Vitesco Technologies AG, Regensburg, Germany

- Developed a capacitive DC-DC control topology in LTspice; improved power stability under transient loads (<10 ms) by 54%.
- Designed and validated a high-speed MOSFET gate driver circuit (12 A) using KiCad.
- Implemented interrupt-driven bare-metal firmware for STM32 for high-frequency switching control.
- Tech stack: C, STM32, LTspice, Simulink, KiCad, LaTeX

Battery Management Systems (BMS) Engineer 07/2020 – 08/2021

ATOM Motors Ltd, Guntur, IN

- Implemented firmware routines for active cell balancing and optimized SoC/SoH estimation methods (State of Charge/Health).
- Tested and validated BMS hardware and battery packs according to AIS-156 (overcharge/deep-discharge).
- Tech stack: C, Python, Altium Designer, oscilloscope, logic analyzer.

Education

M.Eng. in Electrical and Microsystems Engineering 09/2021 – 09/2024

Ostbayerische Technische Hochschule Regensburg

- GPA : 2.1 (Transcript)
- Master's thesis: "JTAGprobe" – Designed an RP2040-based JTAG/SWD debugger with RTOS. Developed an automated security testing tool for automotive MCUs (open source).

B.Tech. in Electrical and Electronics Engineering 08/2016 – 03/2020

VR Siddhartha College of Engineering

- GPA : 2.7 (Transcript)

Skills

Programming Languages: C, C++, Python

Embedded Platforms: STM32, ESP32, Rockchip, Raspberry Pi, nRF,

Operating Systems: Arch, Debian, Yocto, RTOS, Zephyr

Tools & Development Environments: KiCad, GitHub, GitHub Actions, CMake

Communication Protocols: I2C, SPI, UART, SWD, JTAG, BLE, MDB, CAN, RS-485, RS-232

Debugging & Analysis: OpenOCD, Ghidra, logic analyzer, oscilloscope

Standards & Methods: MISRA C/C++, ISO 26262 & ISO 21434

Languages

English: Professional proficiency (C1)

German: Advanced proficiency (B1)