

Joseph Ignacio Guzman

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Professional Summary

Passionate Computer Engineering graduate from California State University of Long Beach, specializing in embedded systems, firmware development, and hardware-software integration testing. Proven track record designing and delivering robust, low-level embedded solutions with hands-on experience in ARM Cortex microcontrollers, real-time operating systems (RTOS), and communication protocols. Proficient in programming, system architecture, and cross-platform compatibility, combined with a proactive problem-solving mindset.

Project Experience

Dr. Pill · C, Python | STM32CubeIDE | Shapr3D

Sept 2024 - May 2025

- Led embedded firmware development for an automated pill dispensing system tasked with delivering precise medication doses reliably. Developed and calibrated robust motor driver algorithms on STM32 microcontroller, reducing power consumption by 85% and improved dispensing accuracy up to a 92% success rate.
- Engineered and deployed fault-tolerant board-to-board communication protocols between the STM32 microcontroller and Raspberry Pi, ensuring synchronized hardware integration that enabled seamless data exchange and reliable operation of multi-component subsystems.

I2C Network Communication · C | Keil uVision

Nov 2024

- Developed embedded firmware integrating multiple I²C devices—including TCS34725 color sensor, MPU6050 gyroscope/accelerometer, and a 16x2 I²C LCD display—on a TM4C123GXL microcontroller to enable real-time sensor data acquisition and system status feedback.

Weather Quest · C | Keil uVision

Oct 2024

- Implemented embedded firmware on TM4C123GXL microcontroller with Wi-Fi Booster Pack to autonomously fetch, parse, and display JSON weather data from OpenWeather API. Developed error-handling routines that maintained 100% uptime during continuous operation under constrained memory conditions (32KB).

Bluetooth Controlled Car · C | Keil uVision

- Integrated firmware onto a robotic car, designed modes for manual and autonomous driving using TM4C123GXL microcontroller, HC-05 Bluetooth, PWM motor drivers, sensor feedback, and LED indicators.

Education

California State University, Long Beach

B.S. in Computer Engineering

May 2025

ABET Accredited

Work Experience

Tastea - Long Beach Exchange Retail

June 2020 - June 2022

Team Lead Supervisor

Long Beach, CA

- Supervised daily team operations in a fast-paced retail environment, ensuring product quality and compliance with strict service and safety standards, which contributed to maintaining a 95% customer satisfaction rate.
- Managed inventory control and stock optimization, reducing waste by 33% and improving operational efficiency through strategic team coordination and staff training.
- Conducted performance evaluations and delivered constructive feedback, collaborating with management on training initiatives that enhanced staff productivity and team efficiency.

Technical Skills

Programming Languages: C, C++, Python, MATLAB, Verilog, Java, JavaScript, SQL, HTML, Assembly

Software & IDEs: STM32CubeIDE/MX, Vivado, Keil uVision, Solidworks, Shapr3D, LTspice

Version Control & Collaboration: Git, GitHub, Jira, Trello

Operating Systems & Virtualization: Windows, macOS, Linux, VirtualBox

Hardware & Embedded Systems: ARM Cortex-M, STM32, UART, SPI, I2C, RTOS

Project & Team Skills: Leadership, Team collaboration, Project coordination