Minh Quốc Nguyễn Hoàng

Firmware Embedded Intern

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CAREER OBJECTIVE

• Seeking an internship opportunity in **embedded firmware development with a focus on data acquisition and IoT connectivity**. My goal is to specialize in **developing reliable communication protocols and cloud integration**, enabling embedded systems to efficiently collect, process, and transmit sensor data to IoT platforms.

EDUCATION

University of Science - VNUHCM 2023 - 2027

Bachelor: Electronics and Telecommunications

- **GPA: 8.7/10**
- **Co-author and presenter of the paper:** "VQASEP: Applying AI Technologies to develop a Vietnamese Q&A System on an Embedded Platform," successfully accepted and presented at the prestigious 14th Scientific Conference (VNUHCM-US Conf 2024). The project involved building a standalone voice assistant using a Raspberry Pi and Google Gemini API to deliver an intuitive, hands-free Q&A experience in Vietnamese. (**Git:** https://github.com/Biu2005/PeeDee_assistant).

SKILLS

Embedded Programming	C/C++, Embedded C, FreeRTOS
Microcontrollers, Mini pc & Architecture	ARM Cortex-M, STM32, ESP32, ESP8266, Raspberry Pi, Arduino
Interfaces & Peripherals	SPI, I2C, UART, ADC, Timers, GPIO, Interrupts
Hardware & PCB Design	PCB Design: Altium, Proteus Prototyping: Proficient in soldering SMD (QFN, TQFP, 0603) and through-hole components
Networking & Protocols	TCP/IP, HTTP/HTTPS, Websocket
Tools & Environments	Git, Github, STM32CubeIDE, Keil C, VS Code, ESP-IDF,

MY PROJECTS

IoT Attendance System (RFID & Google Sheets) 22/08/2025 - Present

Firmware Developer and Hardware Engineering

Description: Developed an IoT attendance system to automatically record user card IDs and check-in/out timestamps.
Objective: To automate the attendance process and synchronize data to the cloud (Google Sheets) for easy management and monitoring.
Role: Primary developer, responsible for PCB design (Altium), ESP32 firmware programming, and API integration.
Technologies: ESP32, RFID (RC522), Altium, C/C++ (ESP-IDF, FreeRTOS), HTTPS, Google Sheets.
Achievement: Successfully delivered a stable hardware and software solution that reliably syncs real-time attendance data from the device to Google Sheets.
Git: https://github.com/Biu2005/attendance_SYS.

Calculator with Keypad and LCD 06/2025 - 19/08/2025

Firmware Developer and Hardware Engineering

Description: Developed a handheld calculator that processes push-button inputs, performs arithmetic operations, and solves first/second-degree equations, displaying results on an LCD.
Objective: To build a complete embedded system (hardware + software) and apply foundational knowledge of a Real-Time Operating System (FreeRTOS) for task management.
Role: Led the entire project: designed and assembled the custom PCB (Altium), programmed STM32 firmware, handled input logic (debouncing, multi-step operations), and optimized the LCD display.
Technologies: STM32, LCD, Altium, C/C++ (STM32CubeIDE), FreeRTOS.
Achievement: Delivered a stable, functional calculator with reliable input and accurate logic. Successfully implemented FreeRTOS to manage concurrent tasks (input polling, calculation, display updates).
Git: https://github.com/Biu2005/Caculator

TEAM PROJECTS

LiteHouse - Smart Home System (STM32)

- Team size : 3
- Programmed an STM32-based smart home system to control devices (servos, relays) via a Bluetooth mobile app.
- Implemented an automated fire-response safety feature that triggers alarms, sends mobile alerts, and opens doors upon gas detection (MQ2 sensor).
- Git: https://github.com/Biu2005/LiteHouse
- Video project: https://drive.google.com/drive/folders/1IyHeAX215S69uxc0pfSo29VWZflstxH-?usp=sharing

Checkpoint Timing System (ESP32)

- Team size: 2
- Developed firmware for a race timing system using **ESP32** to capture vehicle lap times at checkpoints.
- Utilized **WebSockets** to transmit real-time data to a web dashboard, ensuring low-latency delivery and accurate time synchronization for the competition.
- Git: https://github.com/Biu2005/Checkpoint-System

ACTIVITIES

Robotics & IoT Club (HCMUS) 08/2023 - 08/2025

STEM Educator: Led and instructed Arduino courses (basic & advanced) covering embedded programming, UART communication, and hardware integration for club members.

Technical Supporter (ROBOCUS Competition 2024, 2025): Provided live technical support and troubleshooting (C/C++, Arduino) for teams with line-following and remote-controlled vehicles.

Ngo Quyen High School 11/2024 - 01/2025

Technical Advisor

- **Provided solutions and optimization strategies for remote-controlled vehicles (Arduino) communicating via Bluetooth (HC-05, UART) with an MIT App Inventor mobile app.**

American Center 12/2024 - 01/2025

Technical Supporter

- **Served as a technical support member for a STEM outreach program, assisting with workshops and technology demonstrations at universities across the Mekong Delta.**

CERTIFICATE

English: VSTEP B2 (Overall: 6.5/10) 15/06/2025