Ngo Duc Hieu (Hieu Ngo)
Embedded Hardware/Firmware Developer
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SUMMARY

I graduated as a salutatorian from HCMUTE with a GPA of 3.32, specializing in Embedded Systems, IoT, RTOS, C/C++ programming, and strong hardware design. At Viettel, I conducted research and developed applications for network technologies such as LTE-M and NB-IoT, enabling advanced solutions for IoT devices.

I love turning knowledge into practical solutions that solve real-world problems. Working in teams is something I enjoy, as I believe collaboration and sharing ideas lead to the best results. I'm passionate about creating innovative projects that make a real impact.

TECHNICAL SKILLS

- **Programming Languages:** C/C++/C#/Python
- **Version Control:** Git
- **Platform:** ThingsBoard, AWS
- **Foreign Language**: TOEIC 725/990
- **Hardware Design Tool**: Altium, EasyEDA
- **Orther**: Time management, Teamwork

EDUCATION

HCMC University of Technology and Education (HCMUTE) 09/2020 – 09/2024

- Studying Computer Engineering.
- Degree Classification: Distinction - GPA 3.32/4 (Graduated as Salutatorian in the Field)
- Achieved the Title of Outstanding Graduate with Distinction

PROJECTS

Viettel Corporation 08/2024 – Now

Position: Hardware/Firmware Developer

Project: LTE Signal Quality Monitoring System for DAS Networks

- **Project Description:** Developed a system for periodic LTE signal monitoring in buildings equipped with Distributed Antenna Systems (DAS). The system collects signal strength data, compiles daily reports, and provides real-time warnings via server and email when poor signal quality is detected.

- **Technology Used:** SIM7677S module, STM32L4 microcontroller, MQTT protocol, EasyEDA (hardware design), C programming.
- **Team Size:** 5
- **Responsibilities:**
  - Designed and developed the hardware using EasyEDA, adhering to STM, SIMCOM, and Texas Instruments design guidelines.
  - Developed the firmware in C, including flow design, coding, and debugging.
  - Conducted extensive testing and optimization to ensure device stability and performance.
  - Ensured the device's energy efficiency and longevity, enabling it to operate for 3 years on an 8.5Ah $LiSOCl_2$ battery.

Viettel Corporation 01/2024 – 07/2024

Position: Firmware Developer

Project: Development of an SDK for Narrowband IoT (NB-IoT) SIM Modules

- **Project Description:** Created an SDK to simplify NB-IoT module integration, enabling developers to seamlessly adopt NB-IoT technology compatible with Viettel's network.
- **Team Size:** 5
- **Responsibilities:**
  - Defined software architecture and flow diagrams based on 3GPP standards.
  - Developed robust firmware in C for NB-IoT modules.
  - Designed core modules (device/network/data/power management, drivers, debugging, etc).
  - Documented SDK usage and supported the release process.

HCMC University of Technology and Education (HCMUTE) 02/2023 – 08/2023

Position: Hardware/Firmware Developer

Project: NarowBand IoT Smoke Detector

- **Project Description:** Designed and developed a smoke detection system utilizing Narrowband IoT (NB-IoT) technology to send real-time alerts to web and mobile applications.
- **Technology Use:** BC660K module, STM32L4 microcontroller, BM22S2021 smoke sensor, EasyEDA (hardware design), CoAP protocol, C programming.
- **Team Size:** 2
- **Responsibilities:**
  - Designed hardware circuits using EasyEDA following STM and Quectel guidelines.
  - Designed firmware flow and developed it in C to handle sensor communication, integrate with NB-IoT networks, process data, and optimize energy efficiency.
  - Tested and optimized the device to ensure it works reliably for 10 years on a 3Ah battery.

ACHIEVEMENTS

- The title of Runner-up Valedictorian in CET at HCMUTE 2024
- Top 3 Outstanding Participants in the Viettel Digital Talent Program 2023