Nguyen Van Hieu

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Summary

A recent Mechatronics Engineering graduate from Ho Chi Minh City University of Technology, eager to apply knowledge in mechanics, electronics, and programming to the design and operation of automation systems. Aspiring to become an engineer in robotics field and contribute to the technological advancement of the company.

Education

Ho Chi Minh City University of Technology (HCMUT) District 10, HCMC

Bachelor of Engineering in Mechatronics ***GPA:*** *3.0/4.0* *Aug. 2019 – Apr. 2025*

- **Key Coursework:** Embedded C/C++, STM32, IOT, Robotics, PLC Programming, PCB Design, Industrial Automation, Control Systems, Mechanical Design.
- **Award:** 2nd Place, HCLTech Automotive Application Ideation Competition.
- **TOEIC Certification:** 625.

Experience

HCLTech Vietnam District 1, HCMC

Embedded C Intern *May 2024 – Oct 2024*

- Programmed STM32F4 using UART, SPI, I2C for sensor integration and actuator control.
- Designed and optimized real-time embedded systems for high performance and stability.
- Researched and implemented Embedded applications, working with hardware drivers.
- Tested, debugged, and improved hardware-software integration for IoT and robotic devices.

Thien Phuc Precision Mechanical Binh Tan District, HCMC

Mechanical Engineering Intern *Jun 2022 – Aug 2022*

- Designed 2D and 3D models using AutoCAD and SolidWorks for mechanical systems.
- Operated CNC machines to produce and inspect precision mechanical components.
- Analyzed and interpreted technical drawings, transmission systems, and assembly tolerances to ensure manufacturing quality.
- Assisted in maintenance, troubleshooting, and quality control of automated mechanical systems.

Projects

Capstone Project | *Design of gripper for a palletizing robot combined with image processing* Aug 2024 – Dec 2024

- Designed a vacuum-based robotic gripper, optimizing mechanical efficiency for precise object handling.
- Developed image processing algorithms for object recognition and robotic path planning.
- Utilized SolidWorks, AutoCAD for 3D modeling and technical drawings.
- Simulated ABB robots using RobotStudio, Visual Components for virtual validation and control optimization.

Autonomous Line-Tracking Car | *STM32F407, ESP32, UART* Jul 2024 – Oct 2024

- Developed an embedded system on STM32F407 for autonomous navigation and Bluetooth-based remote control.
- Integrated HC-SR04 and TCRT5000 sensors for precise obstacle detection and line tracking.
- Implemented PWM-controlled motor drivers (L298) for speed and direction control of four DC motors.
- Designed a custom PCB for the TCRT5000 sensor array, improving signal clarity by 40 % and achieving 1mm tracking resolution.
- Optimized mechanical design in SolidWorks, reducing assembly time by 50%.

Technical Skills

Languages: Embedded C/C++ (MISRA), Python, Shell Script, MATLAB/Simulink.
Microcontrollers: STM32 (CubeIDE), Arduino, PIC18F (MPLAB).
Robotics Automation: RobotStudio, Visual Components, PLC Programming (GX Works2, TIA Portal).
Hardware PCB Design: Altium Designer, Proteus, AutoCAD, SolidWorks (Mechanical Design Simulation).