Nicholas Morgan

Roscoe, Illinois 61073 | 815-981-5103 | nickkenmorgan@gmail.com | morgannk.com

Professional Summary

Experienced Embedded Software Engineer with a strong background in developing and optimizing real-time embedded systems. Proficient in C/C++, RTOS, and hardware-software integration. Adept at debugging and improving system performance, with a proven track record in collaborative projects and technical proficiency.

Education

Iowa State University | Ames, IA   *August 2019 – December 2023*
Bachelor's of Engineering - Computer Engineering
Minor: Cybersecurity Engineering

Skills

Platforms & Operating Systems: Linux, MacOS, Windows
Programming: C/C++, C#/.NET, Java, Python/MicroPython, Bash, Git.
Tools & Technologies: FreeRTOS, ESP32, ESP8266, Node-Red, Visual Studio, ESP-IDF
Languages: English, Japanese

Experience

***Embedded Software Engineer Intern* - Mr. IIOT | Crystal Lake, IL**   *May - August 2023*
- Collaborated with cross-functional teams to design and debug firmware for the ESP32 chip using C and Python.
- Created comprehensive design documents outlining system architecture and functional specifications.
- Enhanced the Fanuc Driver codebase using C#/.NET in Visual Studio for improved operation and adaptability.
- Wired and configured SHARC test bench to test PNP, NPN, 0-10v and 4-20mA simultaneously to increase production speed, lower DOA rates and increase profitability. Front-end was done using Node-Red Dashboard

***Robotics Test Engineer* - Walmart Advanced Systems & Robotics | Rockton, IL**   *April 2024 - Current*
- Conducted rigorous testing procedures on Alphabots to guarantee seamless deployment, adhering to strict quality standards.
- Collaborated closely with cross-functional teams to identify and address any issues, ensuring smooth integration of Alphabot technology into operational processes.
- Automated system maintenance with Bash scripts, enhancing operational efficiency, shortening system startup time by 20%.

Projects & Notable Achievements

iRobot Mars Aerospace Rover
- Spearheaded a team of four in the development of a NASA-inspired micro rover, leading efforts in programming precise obstacle navigation and distance measurement functionalities using C.
- Enhanced team's technical proficiency and collaborative dynamics through hands-on leadership in embedded programming.
- Directed comprehensive system testing and debugging processes, achieving robust performance

Security System Development
- Engineered an integrated security system featuring motion, sound, and distance sensors on the ESP32 platform, leveraging FreeRTOS and Arduino for advanced task management and system optimization.
- Developed and implemented a real-time threat detection and response system using ESP8266, significantly enhancing system responsiveness and security measures.

Arinc429 Portable Receiver Application and Firmware Development
- Led the design and development of firmware for the ESP32S3 chip, enabling Bluetooth Low Energy (BLE) communications for Arinc 429 data transmission with mobile devices.
- Executed firmware programming using ESP-IDF, C, and Python, ensuring reliable operation and system compatibility.
- Created a Flutter application for Arinc 429 label reading and decoding, enhancing user accessibility and functionality.