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Emma Windows
IC Resources
Bristol, UK

December 4, 2025

Dear Emma,

I am writing to express my strong interest in the Embedded Software Engineer position in Bristol. As a final-year Electrical & Electronics Engineering student at the University of Southampton expecting First Class Honours, I am excited by the opportunity to begin my career working on leading-edge technology alongside industry experts.

My academic background and hands-on project experience have provided me with exactly the skill set you are seeking. Through my role as Junior Software Engineer on the ARTEMIS Lunar CubeSat project, I have spent the past 18 months developing space-grade flight software in C/C++, working directly with bare metal embedded systems under strict timing and reliability constraints. I achieved a 6% reduction in system latency through low-level algorithm optimization and reduced interrupt overhead, while enhancing system reliability by 20% through comprehensive testing frameworks following MISRA C guidelines.

My expertise in low-level hardware interfaces is demonstrated through multiple projects. For the WattsApp smart energy platform, I developed bare metal ESP32 firmware in C, directly interfacing with INA219 and ACS712 sensors via I2C and SPI, achieving $\pm 0.5\%$ measurement accuracy. My 16-Stage FIR Notch Filter project showcases my DSP capabilities—I designed and implemented a real-time digital filter on an Altera Cyclone V FPGA achieving 19-cycle latency for dual-channel 48kHz audio processing, with custom MATLAB scripts for coefficient generation and frequency response verification.

My electronics grounding extends from transistor-level IC design through to complete embedded systems. As team lead for a TSMC 65nm CPU fabrication project, I worked through the entire design flow from RTL to GDSII tape-out, performing extensive SPICE simulations and physical verification. This deep understanding of hardware architecture informs my embedded software development, allowing me to write highly optimized code that leverages hardware capabilities effectively.

Beyond C and electronics, I am proficient in Python, which I regularly use for automation, data analysis, and testing frameworks. My control systems coursework and signal processing modules have given me strong theoretical foundations in DSP, complementing my practical FPGA filter implementation experience.

I am enthusiastic about relocating to Bristol upon graduation in June 2026 and am committed to building a long-term career in embedded systems engineering. The opportunity to work with industry experts on cutting-edge technology aligns perfectly with my career aspirations and technical interests.

I would welcome the opportunity to discuss how my background in bare metal embedded C programming, low-level hardware interfaces, and electronics design could contribute to your team. I am available for interview at your convenience and can provide references from my academic supervisors and project leads.

Thank you for considering my application. I look forward to hearing from you.

Yours sincerely,

Glen Muthoka Mutinda