

Zubair Ahmad — Embedded Systems & Qt Software Engineer

Location: (Add city, country) • **Email:** (Add email) • **GitHub:** (Add GitHub URL)

Professional Summary

A pragmatic, results-driven Embedded Systems and Qt Software Engineer with strong experience building robust, production-grade HMI and test-jig applications for defense and industrial customers. Skilled at bridging hardware and software: designing intuitive touch GUIs (Qt Widgets & QML), implementing low-level device communication (UART, RS422, GPIO), and integrating Python toolchains for hardware drivers. Proven record of delivering 13+ client projects, optimizing performance, and building maintainable SDKs, CI-friendly Docker workflows, and complete data-acquisition and reporting pipelines.

Core Skills

- **Languages:** C/C++ (OOPs, STL, C++11/14), Python, Bash
 - **Frameworks / UI:** Qt (Widgets), QML (Qt Quick), QCustomPlot
 - **Embedded / Linux:** Raspberry Pi, GPIO, pin configuration, systemd, cross-platform packaging
 - **Communication / Protocols:** Serial UART, RS422, Socket programming, TCP/IP, SSH, X11 forwarding
 - **Build & DevOps:** Docker, Git, GitHub, CI-friendly packaging, Docker-based testing
 - **Data & Reports:** SQLite, QXlsx, automated PDF/Excel generation, structured logging
 - **Concurrency & Reliability:** Multithreading, thread-safe hardware access, robust error handling
 - **Tools:** Qt Creator, Putty, VcXsrv/XLaunch, ldd/strace/gdb (Linux debug), build systems (qmake/CMake), Inkscape, Inno Setup Compiler, MS Word.
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What I Bring

- End-to-end delivery: from SDD (Software Design Documents) and prototyping to production deployment and post-delivery support.
- Practical system-level knowledge: I optimize for memory, CPU and I/O on constrained embedded hardware.

- Strong stakeholder communication: translate client requirements into usable UI/UX and reliable embedded behavior.
 - Maintainability & observability: logging, monitoring, and traceable error reporting so issues in production are diagnosable.
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Notable Projects

Automatic Cable Harness Tester (ACHT)

Client: Bharat Electronics Limited (BEL) | Role: Qt C++ Developer (Kiosk Application Specialist)

- Developed a Qt-based kiosk application for automated testing and validation of defense - grade cable harnesses.
 - Implemented continuity, voltage, and resistance measurement modules integrated with BEL's RS422-based DAU system.
 - Designed a secure kiosk mode UI: frameless full-screen, disabled taskbar & shortcuts, and full-screen QMessageBoxes.
 - Added admin & user role-based access control with restricted system-level settings.
 - Ensured stability and memory-efficient handling for continuous high-volume testing.
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HighG TestJig Application

Built a Qt desktop tool for high-G acceleration and ADC data acquisition, processing, and visualization.

- Managed serial communication with embedded hardware, including checksum validation and command-response handling.
 - Developed real-time data plotting and monitoring with QCustomPlot.
 - Integrated with SQLite, enabling report saving/loading (PDF, Excel) and robust session management.
 - Designed a multi-tab, grid-based UI with integrity checks, timers, and system diagnostics.
 - Focused on reliability, detailed logging, and user feedback through custom dialogs and error alerts.
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Embedded System Interface Application

- Created a Qt-based UI for testing and configuring embedded hardware with live serial communication.
 - Supported port & baud rate configuration, channel control, and ADC data export to Excel.
 - Implemented secure flash operations, event fetching, and detailed backend logging.
 - Handled multithreading for real-time updates and responsive performance.
 - Used Qt Framework, C++, QSerialPort, QXlsx, ensuring efficient data management and robust error handling.
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Engineering Practices & Deliverables

- **SDD & Documentation:** Prepared clear, testable SDDs and runbooks for QA and field teams.
 - **Version Control & Collaboration:** Git workflows, branching strategies, PR reviews on GitHub, release tagging and changelogs.
 - **Packaging & Reproducibility:** Dockerized build/test images for consistent deployment across developers and CI.
 - **SDK Development:** Designed internal Qt SDK modules to reuse UI controls, plotting widgets, and standardized logging across projects.
 - **Testing & Field Support:** Unit & integration test harnesses for serial devices; built tools to reproduce customer issues remotely.
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Achievements

- Delivered 13+ client-focused, production-grade applications in defense and industrial domains.
 - Reduced debugging turnaround by building structured logging and reproducible test cases.
 - Created reusable Qt SDK components that reduced new-project setup time by weeks.
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Open Source / Repos

- **GitHub:** (Add link) — contains utilities, example drivers, and scripts used for prototyping and tooling.
- Comfortable sharing private work with NDA-safe summaries or sanitized demos for technical interviews.

Education & Certifications

- (Add Degree(s), Institution(s), Year) — e.g., B.Tech / B.E. in Electrical / Electronics / Computer Science
 - (Add any relevant certifications: Embedded Systems, Linux, Qt, etc.)
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Contact & Availability

- **Email:** (Add) • **Phone:** (Add) • **LinkedIn / GitHub:** (Add)
- Available for embedded software roles (Qt/C++), HMI development, and contract work involving test jig automation.

In essence

“Zubair is a full-stack embedded developer — equally fluent in hardware protocols and elegant UI design. A bridge between low-level engineering and user experience, driven by curiosity, discipline, and a relentless focus on reliability.”