



JOHAN WALLSTRÖM

SENIOR EMBEDDED DEVELOPER

CONTACT

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PROFESSIONAL PROFILE

With over 20 years of experience in embedded systems development, I have broad expertise in firmware, hardware design, and supporting software - ranging from battery monitoring and control systems to radio applications and IoT.

SKILLS

Team player who takes initiative and solves problems.

LANGUAGES

C, C++, C#, Python

EMBEDDED

ARM, STM32, NXP, Renesas, Atmel, 8051, FreeRTOS

TOOLS

Git, SVN, Jira, Confluence, Jenkins, IAR, GCC, Silabs Studio, VS, VSC, Cursor, Altium

PROTOCOLS

Modbus, CAN, RS-232, USB, SPI, I2C, TCP/IP, UDP, HTTP, WebSocket, MQTT, BLE, LIN

SECURITY

AES-CCM, ECDSA P-256, SHA-256, Secure Boot, TLS, certificates

STANDARDS

IEC 60730, IEC 62619, ISO 13849, UL 9540, UL 1973, MISRA

AI

Training, usage, integration



WORK EXPERIENCE

Polarium Energy Solutions, contractor 2016-2018, employed 2018-2026

Senior Firmware Engineer

Head of Software during the company startup phase, including recruitment, leadership, and process establishment.

HV (RA4E1, LPC804, GitLab CI, IAR) - Firmware, certification, and customer integration. Design of cell voltage measurements, a proprietary communication bus, a comm adapter, and a HIL rig for the BMM. Automated tests in the GitLab pipeline.

SLB (SgKEAZN32/64, HDLC, Modbus) - Firmware, certification, and customer integration for two related product families. Design of a proprietary communication bus and adapters.

FSS (LPC804) - Firmware, certification, and design of a HIL rig for an automatic fire suppression system.

PCM (EFR32FG23, FreeRTOS, power-line comm, AES-CCM, ECDSA P-256, Secure Boot, GitLab CI, GCC) - Initiated firmware development. Building, signing and private-key handling in CI.

HIL (Python) - Designed a software platform used across multiple products, with integrations to external equipment.

Configuration software (C++, C#, MAUI) - Tool used by customers to communicate with most of the product range.

PoC AI agent (Python, Flask, OpenAI, MCP, agent tools) - Integration with internal systems and development workflows.

Production test (VS, C++, MySQL, WordPress, PHP) - Design and implementation of clients and server for the company's first production lines for telecom batteries.

PBM (MK64, Modbus, CloudConnect) - Firmware for a site controller - cellular and Ethernet cloud, Modbus TCP/IP, and a G5 battery stack including remote updates.

SLP (MK64, Modbus, CloudConnect) - Firmware for a lithium battery - Modbus, cellular cloud, bootloader, alarms, climate and load limits.

IoT gateways - Requirements and integration testing.

G5 (HDLC) - Customer integration and homologation.

CONSULTING EXPERIENCE

EDAB proprietary products, 2002 – 2014

TCS (ATmega32) - Firmware for a vehicle climate-control unit.

BFV (ATmega32/64/128, C++ Builder) - Firmware and Windows map software for mixed petrol/gas vehicle engine control, including OEM variants. Hardware design of a proprietary fuel-mixture sensor.

FSL (ATmega128, Telit GPRS, GPS, Windows/MySQL) - PoC firmware and a Windows/MySQL server for a vehicle GPS tracker over GPRS.

STT, 2002 – 2006

Tuning systems (68HC12, LIN, J1850, K-line) - Software and hardware for automotive tuning systems, including NOx/throttle-servo units and vehicle diagnostic test interfaces.

Permobil, 2003 – 2015

SLS (AT89S8252/8253, JBUS) - Contributed to firmware for a wheelchair seat controller: JBUS from the drive system, lights, and direct drive of seat, back, tilt and leg actuators.

Actuator firmware (Cypress PSoC) - Firmware for motor control and position sensing on powered-wheelchair actuators.

Test systems (XC164, LIN, CAN) - Firmware for production test systems for wheelchair control electronics.

BMS (ATmega168/328, C++ Builder) - Firmware and bootloader for a NiMH wheelchair battery-management system, plus Windows software to configure pack parameters.

ICS (XC164, LIN, JBUS, R-net, C++) - Contributed to firmware for the seat controller: LIN master to actuator nodes, with a configurable mathematical model of the chair for constraints and soft stops.

Capi2, 2003 – 2007

Distributed power (AVR C/ASM, DC-line bus, C++ Builder) - Firmware for a system controller and button, display and switch nodes on a DC-line bus, used on yachts and trailers. Windows software to configure connections, logic and timers.

Elfarm, 2006 – 2010

CBI (ATmega168/128, C++ Builder) - Firmware for a pressure-sensitive attendant handle on a wheelchair, converting left/right force to speed and steering. Windows software to set gains and calibration.

Bon Air, 2006 – 2007

Air Star (ATmega168/88, IR) - Firmware for a handheld IR remote and fan units that control ventilation.

Datasoft, 2007 – 2010

QPS (ATmega64, FT245 USB, RS232) - Firmware for a docking interface that charges a GPS tracker and connects it to a PC.

Solvatten, 2010

Electronic indicator (ATmega168) - Firmware for the electronic indicator and data logger on a solar water-treatment product.

Abatel, 2011

Configuration software (C++ Builder) - PC software for configuration and live monitoring of battery modules.

Auto-ID, 2013 – 2015

CI (ATmega168) - Firmware for a camera interface for QR code readers on fork lifts.

Momenta, 2013 – 2017

FlexTag (CC2540, BLE, Android) - Firmware, radio, Android app and Windows software for BLE personal-safety tags.

BSR, 2015 – 2016

PPC4 (STM32F4, C++ Builder) - Windows software for writing performance maps into engine ECUs, plus firmware for a wireless unit.

PPC3 (Obj-C, Mac) - Mac app for writing performance maps into engine ECUs.

AI, 2024 – 2026

LLMs - Training and evaluation of models for coding and STEM.

Personal projects

Misc (C#, Unity, HLSL, WSS, Mapbox, Python) - Game logic, multiplayer networking library, graphics and compute shaders, electrical and physics simulations, and 3D modelling.