

AKASH SONI

Embedded Software Engineer

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PROFESSIONAL SUMMARY

Embedded Software Engineer with 3+ years of experience developing production-grade firmware for BLE-enabled smart metering and IoT devices. Experienced in BLE, NB-IoT, FreeRTOS, bootloader development, OTA firmware upgrades, HAL, device drivers, hardware bring-up, and embedded communication protocols (UART, SPI, I2C). Skilled in debugging complex embedded systems from prototype through production.

TECHNICAL SKILLS

Programming Languages: C, Embedded C, C++, Python (Basic)

RTOS: FreeRTOS

Communication Protocols: UART, SPI, I2C, BLE, NB-IoT, Wired M-Bus

Microcontrollers & ICs: TI CC2340R5, MSP430FR6047, Renesas RL78 I1B, TSS721A, ADS1231, ADS1131

Wireless & IoT: BLE (Central/Peripheral), NB-IoT, OTA Firmware Upgrade

Peripherals & Interfaces: ADC, Timers, LCD, GPIO, DMA

Debug & Test Tools: JTAG, Oscilloscope, Logic Analyzer, Joulescope, Spectrum Analyzer

Development Tools & IDEs: IAR Embedded Workbench, Code Composer Studio (CCS), CS+, SVN

PROFESSIONAL EXPERIENCE

Senior Embedded Software Engineer | [Genus Power Infrastructure Ltd.](#) | Jaipur, India *Mar 2026 – Present*

Promoted from Embedded Software Engineer in recognition of leading end-to-end BLE smart water meter product development, from hardware bring-up to production firmware delivery.

- Designed and implemented **BLE Central** role firmware for periodic data exchange over BLE-to-NB-IoT module, enabling seamless wireless IoT communication.

Embedded Software Engineer | [Genus Power Infrastructure Ltd.](#) | Jaipur, India *Aug 2023 – Mar 2026*

- Developed Over-the-Air (OTA) firmware upgrade solution for BLE-based devices using TI CC2340R5, reducing field update time and improving reliability.
- Built **BLE, event handling of GAP and GATT**, transparent debug mode, and a company-specific serial bootloader with CCFG configuration on **ARM Cortex M0+**.
- Developed Serial bootloader for MSP430 through optical UART Communication.
- Developed firmware for a BLE-based smart water meter, including HAL and device drivers for CC2340R5 and MSP430FR6047 with Low power Mode, supporting complete hardware bring-up and system integration.
- Integrated pressure sensor data acquisition via **ADS1131 ADC** over **I2C** protocol with firmware-level validation and calibration.
- Programmed **RL78** microcontroller to acquire AC voltage measurements using a 24-bit **sigma-delta ADC** and display real-time readings on an LCD module..
- Implemented **PPM correction** for RTC oscillator using an internal temperature sensor on the **RL78** microcontroller, improving timekeeping accuracy.
- Optimized communication driver performance to minimize data transfer latency and improve responsiveness and reliability of meter communication systems.
- Delivered firmware tasks on schedule, supporting production timelines through reliable implementation and testing.

EDUCATION

Bachelor of Technology – Electronics & Communication Engineering *2019 – 2023*

Jaipur Engineering College & Research Centre, Jaipur