Leopold Achterberg-Nash

Firmware Engineer, Low-Power Connected Devices

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SUMMARY

Firmware engineer with 6 years shipping battery-powered BLE and LTE-M devices on Nordic and STM32 parts under Zephyr and FreeRTOS. Cut sleep current on a smart lock from 38 to 9 microamps, built an A/B bootloader that has updated 410,000 units in the field with zero bricked devices, and brought up 5 board revisions from first power-on to production.

EXPERIENCE

Senior Firmware Engineer — Latchwell Home Devices

Austin, TX · Jul 2021 – Present

- Lowered smart-lock sleep current from 38 to 9 microamps by gating peripheral clocks and moving BLE advertising to a longer interval, extending battery life from 7 to 14 months.
- Designed an A/B bootloader with signed images and automatic rollback that has delivered 23 OTA releases to 410,000 devices with zero bricked units.
- Brought up 3 board revisions on an nRF52840, writing drivers for the motor controller, fuel gauge and capacitive keypad within 4 weeks of each first build.
- Cut factory test time per unit from 95 to 40 seconds by adding a UART test mode that runs all hardware checks in one command.
- Traced a 2% field failure to brown-out resets during motor stalls and added a supply-voltage check before each actuation, dropping returns for that fault to near zero.

Firmware Engineer — Brazos Sensor Networks

Round Rock, TX · Aug 2019 – Jun 2021

- Wrote FreeRTOS firmware for an STM32L4 soil-moisture sensor reporting over LoRaWAN, reaching 3 years of battery life on 2 AA cells.
- Shrank the firmware image from 248 KB to 176 KB by removing unused HAL modules and moving lookup tables to flash, freeing room for OTA.
- Added a hardware watchdog and crash log in retained RAM, letting the team diagnose 14 field resets that had no reproduction in the lab.

SKILLS

Languages: C, C++ (embedded subset), Python for test scripts, ARM assembly reading

Platforms and RTOS: Nordic nRF52/nRF91, STM32L4/U5, Zephyr, FreeRTOS, bare-metal

Connectivity and update: BLE, LTE-M, LoRaWAN, MCUboot, signed OTA images, A/B partitions

Bring-up and debug: J-Link, logic analyzer, oscilloscope, power profiler, schematic reading

EDUCATION

B.S. Electrical and Computer Engineering, University of Texas at Austin, 2019

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