Parth Sanepara

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SUMMARY

Senior Embedded Firmware Engineer with **6+ years** of experience in **developing embedded systems** and **IoT solutions**. Proven expertise in **low-power** firmware design for **Wearable, HVAC, Home Automation, Smart sensor** technologies, **RTOS, Bare-Metal**, and **secure cloud integration**. Skilled in leading end-to-end **product development**, implementing **CI/CD pipelines**, and delivering production-ready solutions. Strong background in **device lifecycle management, fleet provisioning,OTA, Device Shadow** using **AWS IoT Core** and **Azure IoT** platforms. Hands-on experience with **ARM Cortex-M, Nordic nRF52, nRF54, nRF91, STM32** and **ESP32** MCUs, boardbringup, and advanced debugging. Passionate about **Edge AI**, **sensor fusion**, and building next-generation connected devices.

SKILLS

Programming Languages: Embedded C, Python, Shell Script **RTOS & SDKs:** ZephyrRTOS, FreeRTOS, Bare-metal Programming, nRF Connect,nRF5, ESP-IDF, STM32CubeMX **Wireless & Networking:** BLE, Wi-Fi, Ethernet, lwIP, Cellular IoT (LTE-M, NB-IoT), MQTT, HTTPs, TLS/SSL, ArtNet **Communication Protocols:** SPI, I2C, UART, RS485, DMX **Cloud & IoT Platforms:** AWS IoT Core, Azure IoT Hub, Secure Fleet Management/Provisioning/OTA, Eclipse Mosquitto **MCUs:** ARM Cortex-M Series, Nordic nRF54/52/53/91, ESP32, STM32 **PMICs:** nPM1300, nPM2100 **Tools & Version Control:** VSCode, Eclipse, GCC, STM32CubeIDE, Wireshark, BLE Sniffer, Git, GitHub, GitLab, GitHub Actions, BitBucket, Sourcetree, TortoiseSVN, CI/CD, SonarQube, Jira, Confluence **Debugging & Hardware:** JTAG, Oscilloscope, Logic Analyzer, Multimeter **Operating Systems:** Ubuntu, Windows, Embedded Linux, Ubuntu IoT Core, RaspbianOS

WORK EXPERIENCE

Thingularity Consulting Pvt Ltd
Bengaluru, Karnataka

Sr. Embedded Firmware Engineer
May 2022 – Present

- **HVAC Zone/Central Controller** (Zephyr, BLE multi-client) Designed central up to 16 zone sensors protocol,multi-client BLE data management,OTA from central to clients,E-Ink, Modbus RTU bridge to HVAC; achieved battery life target of 5 years (3×AAA)via deep sleep, RTC, and wake interrupts.
- **Cloud-Connected Smart Lighting** (Ethernet/Wi-Fi)Integrated FreeRTOS,WIZnet TCP/IP,AWS IoT Core,MQTT Device Shadow,Fleet/Just-in-Time provisioning,AWS OTA Jobs and device-management libraries;RTC-based scheduling,low-power modes;handled board bring-up,security testing,app integration and production release. delivered secured connectivity (MbedTLS) and FOTA pipeline

GT Silicon Pvt Ltd
Bengaluru, Karnataka

Embedded Software Developer
Nov 2019 – May 2022

- **Location-Tracking Wearable** (BLE + cellular,GNSS)–Built dual-MCU architecture with BLE + cellular,GNSS,nPM1300 PMIC integration; implemented OTA for both MCUs, low-power telemetry, and field diagnostics., NOR Flash logging; validation, and production support.
- **Smart Cricket Bat (BLE + Motion)**: Achieved 200Hz real-time streaming via BLE tuning, implemented low-power runtime for ̃6 hours on 800 mAh, and delivered OTA DFU + Integrate IMU Algorithm and calibration.
- **Fitness Datalogger Platform:** Master–node architecture (up to 3 sensors) with FTMS profile, display driver,AFE HR integration; contributed power analysis and production release.

EDUCATION

CDAC Knowledge Park
Bengaluru, Karnataka

PG.Diploma in Embedded Systems Design
Feb 2019 – Aug 2019

Gujarat Technological University
Ahmedabad, Gujarat

B.E. in Power Electronics Engineering
June 2018

CERTIFICATES

Software architecture for the Internet of Things - Coursera

Internet of things - Standford University Online University

nRF Connect SDK Fundamentals - Nordic Semiconductor   *Jul 2024*

nRF Connect SDK Intermediate - Nordic Semiconductor   *Sep 2024*

Bluetooth Low Energy Fundamentals - Nordic Semiconductor   *Sep 2024*

Wi-Fi Fundamentals - Nordic Semiconductor   *Sep 2024*

Cellular IoT Fundamentals - Nordic Semiconductor   *Oct 2024*

Zephyr Technical Contributor - The Linux Foundation   *Dec 2024*

LANGUAGES

English:Professional Proficiency   **Hindi**:Native   **German / Deutsch**: A2 - In Progress