

Stephen Vowell

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SUMMARY

Software engineer with **29 years in product development and programming** — shipping **embedded firmware**, **production web services**, and **user-facing IoT products** from requirements through deployment. Hands-on in **C/C++**, **Python**, and **JavaScript (Node.js)**; experienced in **mission-critical environments** (NASA contractor), **patented network systems**, and end-to-end delivery of the **MedAlert** wellness platform (mmWave radar + ESP32-C6 + live Health Board). Increasingly focused on **AI agents and workflow automation** — building autonomous, API-integrated Python tools (Cursor SDK, Gmail API/OAuth, scheduled automation) that run business workflows unattended. Shipped **Lumin**, an open-source Windows voice assistant integrating Groq LLM + Whisper STT, Edge TTS, LLM tool calling, and web search — packaged as a desktop app with session memory and PyInstaller distribution.

TECHNICAL SKILLS

Languages: C/C++ (embedded), Python, JavaScript (Node.js), HTML/CSS

Embedded & IoT: ESP32 (C6, S3), PlatformIO, Wi-Fi (STA/SoftAP), UART/sensor stacks, NVS, 60 GHz mmWave radar

Linux & Gateways: embedded Linux gateway development, device-to-cloud connectivity, edge gateway integration

Software & APIs: REST, OAuth 2.0, Express, HTTPS/Twilio, JSON status APIs, captive-portal UX

AI & Automation: agentic workflow automation, Cursor SDK (Python), Google Cloud / Gmail API integration, OAuth 2.0 desktop authorization, scheduled/unattended task automation (Windows Task Scheduler), LLM integration (Groq), speech-to-text / text-to-speech pipelines, tool calling & agentic web search, desktop app packaging (PyInstaller, Tkinter)

Engineering: Requirements → production code, root-cause debugging, code review, technical documentation, reliability under operational constraints

Domains: Health/wellness IoT, security consulting, hybrid building networks (6 granted U.S. patents)

EXPERIENCE

Independent Software Engineer & Consultant · *Sierra Vista, AZ / Houston, TX* · 2024 – Present

- Own **end-to-end product delivery** for MedAlert: embedded firmware, backend services, caregiver UX, and production deployment — from architecture through working hardware and live dashboard.
- Debug and harden **cross-platform deployments** (GoDaddy Node.js PaaS, Cloudflare DNS, ESP32 devices) including OAuth flows, health checks, and environment-based configuration.
- Write operator-facing documentation and API guides for maintainable, **quality-at-scale** handoff.
- Build **autonomous workflow automations**: designed a Python agent that authenticates to the **Gmail API (OAuth 2.0)**, classifies inbound messages, and runs **unattended on a daily schedule** with desktop notifications — read-only, secrets kept out of version control.
- Shipped **Lumin** (github.com/stephenvowell/Lumin): end-to-end voice assistant with Groq Whisper STT, streaming LLM responses, DuckDuckGo tool calling, cross-session user memory, personality presets, and a Tkinter desktop launcher packaged as a standalone Windows **.exe**.

MedAlert — Lead Developer (Firmware & Backend) · *medalert.stephenv.net* · 2024 – Present

- Shipped **flashable ESP32-C6 firmware**: 60 GHz mmWave integration, person-present gating, debounced alarm logic, NeoPixel feedback, captive-portal Wi-Fi setup, LAN JSON status/cancel APIs.
- Built **production Node.js Health Board**: Express API, Oura OAuth 2.0, vitals dashboard, alert rules, Chart.js trends; deployed with Cloudflare DNS and structured error handling.

- Integrated **Twilio REST (HTTPS)** for staged SMS escalation; NVS-backed configuration; bench UART tools for sensor bring-up and maintenance.
- Roadmap: Matter/Alexa smart-home path; additional wearable and vitals integrations.

NASA — Security Consultant (Contractor) · Johnson Space Center area, Houston, TX

- Delivered **practical, deployable solutions** in **mission-critical** environments: risk assessment, control recommendations, and phased remediation without disrupting ongoing programs.
- **Bridged security policy and engineering teams** — translated compliance requirements into clear specs and follow-through under high-reliability expectations.

Texon LP — Solutions Developer · Houston, TX

- Built **custom systems** for pipeline, terminal, and blending operations in a regulated production environment — requirements through deployment when off-the-shelf software did not fit.
- Collaborated with operations and engineering on **reliable, maintainable solutions** under production pressure.

Co-Inventor — VUTP Hybrid Command-Management Systems · Orbit-Matrix / Global Communications · ~2007 – present

- Named inventor on **6 granted U.S. patents** covering hybrid networks, mesh-style distribution, and command authority for building and facility services.

EDUCATION & AUTHORIZATION

29 years professional software & product development. Authorized to work in the **United States**.