**Principal Engineer**

**Embedded Systems & IoT**

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| Reports to: | Senior Innovation Engineer | Department: | Research and Development (R&D) |
| Classification: | Exempt | Last Updated: | 10/19/2026 |

**Job Summary:**

The Principal Engineer will own the technical direction of King Technology's first company-owned IoT device and companion mobile app. This role is the senior technical authority across the full embedded stack: device firmware, wireless connectivity, device-to-cloud integration, and native mobile applications, with end-to-end responsibility for architecture, hardware supplier selection, and delivery.

This position is responsible for identifying, evaluating, and recommending the hardware supplier(s) and platform, lead firmware development on that platform, define how the device connects to King's Azure-based cloud backend, and build the native iOS and Android experience customers use every day.

The ideal candidate has spent a career shipping connected products across multiple layers of the stack, makes sound architectural decisions with incomplete information, and is comfortable owning outcomes rather than executing a predefined plan.

**Essential Functions:**

- **Architecture & Technical Strategy:** Define and own the end-to-end architecture for King's IoT device, mobile app, and cloud integration, including technology choices, interfaces, security model, and long-term roadmap.
- **Hardware Supplier Selection:** Identify, evaluate, and recommend hardware suppliers, modules, and platforms (including development partners and contract manufacturers). Lead technical due diligence, supplier engagement, and platform bring-up.
- **Firmware Development:** Design, develop, test, and maintain production firmware in C/C++ on ARM Cortex-M, ESP32, or similar platforms, built on an RTOS (FreeRTOS, Zephyr, or similar).
- **Sensor & Peripheral Integration:** Interface with sensors and peripherals using I2C, SPI, and UART, including driver development and signal handling.
- **Wireless Connectivity:** Implement and support BLE, Wi-Fi, and other wireless technologies, including secure device provisioning, pairing with the mobile app, and robust reconnection behavior.
- **OTA & Device Lifecycle:** Design and implement secure over-the-air firmware updates, device provisioning, and fleet-level lifecycle management.
- **Cloud & Telemetry Integration:** Define the device-to-cloud contract (protocols, data models, provisioning, security) and collaborate closely with King's cloud consultant(s) on the Azure-based backend to deliver reliable telemetry and device management.
- **Mobile Application Development:** Design and develop native iOS and Android applications that interact with the device over BLE and the cloud, hands-on and by directing additional engineers or contractors as needed.
- **Dashboard Development:** Contribute to internal and customer-facing dashboards and reporting for new product analytics.

- **Hardware Integration & Debugging:** Troubleshoot hardware and firmware interactions using oscilloscopes, logic analyzers, and JTAG/SWD tools.
- **Security & Compliance:** Apply IoT security best practices across device, app, and cloud. Support wireless and safety regulatory certification (such as FCC and UL) with test labs and suppliers.
- **Product Ownership:** Take full ownership of deployed firmware and app systems, including field issues, releases, and ongoing improvement.
- **Technical Leadership & Collaboration:** Partner with engineering, product, consultants, and external vendors. Set technical standards, mentor engineers, and help build the team as initiatives require.
- **Other duties as assigned**

**Key Competencies:**

**High Priority**

- Deep, proven C/C++ embedded development experience on production products.
- Strong RTOS experience (FreeRTOS, Zephyr, or similar) on microcontroller platforms such as ARM Cortex-M or ESP32.
- Track record of architecting and shipping connected products from concept through production, across device, mobile, and cloud layers.
- Native mobile app development experience (iOS and Android).
- Sensor integration and communication protocol experience (I2C, SPI, UART).
- Strong troubleshooting and debugging skills at the hardware/firmware boundary.
- Experience evaluating and selecting technology vendors, hardware platforms, or contract manufacturers.
- Ability to independently learn and understand existing codebases and systems.

**Medium Priority**

- Cloud-connected devices and telemetry systems; experience with Azure IoT services.
- Wi-Fi and other wireless protocol experience (LoRa, cellular, or similar).
- Secure OTA update and device provisioning design.
- IoT security best practices (secure boot, encryption, credential management).
- Python scripting and automation.
- Dashboard development and data visualization.
- Hardware test equipment and debugging tools (oscilloscopes, logic analyzers, JTAG/SWD).

**Nice to have’s**

- Experience leading or mentoring engineering teams.
- Experience with FCC, UL, or similar regulatory certification of wireless products.
- Experience with Embedded Linux
- Experience working with outside consultants and development partners.

**Job Qualifications:**

- BS degree in Electrical Engineering, Computer Engineering, Computer Science, or related technical field (or equivalent experience). Advanced degree a plus.
- 15+ years of professional experience in embedded systems, firmware development, or full-stack IoT engineering, with a record of progressive technical leadership.

- Professional experience developing embedded software in C/C++ on RTOS-based platforms.
- Demonstrated experience delivering at least one connected product to market, spanning firmware, mobile, and cloud.
- Experience with hardware debugging tools including oscilloscopes, logic analyzers, and JTAG/SWD.
- Excellent communication skills, including the ability to explain technical trade-offs clearly to non-specialists and leadership.
- Highly self-driven, quick to learn, and comfortable owning outcomes with a high degree of autonomy.
- Embrace and foster company values of Excellent, Selfless, Courageous, Integrity and Safety.