

SAFAL SHARMA

IoT Software Engineer - Edge Devices, Python, C/C++, Mobile and Cloud

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SUMMARY

Japan-based software engineer with 3+ years building edge-device, mobile, real-time, and cloud-connected software. Current work includes Flutter/BLE control apps used by 1,000+ active users, C/C++ hardware communication across UART/CAN, internal diagnostics tooling, and Senior Cars camera-based AI safety research. Personal projects include Python/FastAPI/WebSocket services and C++ smart-home IoT firmware.

SKILLS

Programming Languages: Python, C, C++, TypeScript, JavaScript, Dart, Kotlin, PHP

Edge and IoT: Bluetooth/BLE, UART, CAN, UDP, WebSocket, REST/mDNS, IR protocols, I2C/SPI, WiFi

Backend and Cloud: FastAPI, Docker, Firebase, REST APIs, SQL, JWT Auth, Git

Mobile and Web: Flutter, React Native, Native Android, Next.js, React, Laravel

AI and Hardware: Camera-based AI safety, Genkit, LLM workflows, ESP32-C3, Raspberry Pi Pico W, Arduino

WORK EXPERIENCE

Flutter Mobile and Embedded Systems Developer

ATEX Co., Ltd. | Japan | Jan 2024 - Present

- Build and architect Flutter/BLE mobile applications used by 1,000+ active users to control and monitor self-driving commercial lawn mowers, working across mobile, edge device, and hardware-control boundaries.
- Independently built a Flutter-based VT100 Bluetooth serial terminal emulator for internal diagnostics, giving engineers wireless mower-terminal access without opening the case or attaching debug wires.
- Handle C/C++ hardware communication tasks across UART/CAN, sensors, and mower-control integrations; built Python CAN-bus testing tools to accelerate motor telemetry checks.
- Contributed to two filed, pending patent applications for camera-based AI safety systems with research universities, integrating real-time obstacle detection for Senior Cars.

Software Engineer

Rambler Technologies | Nepal | Aug 2022 - Dec 2023

- Served as sole frontend engineer for a B2B SaaS platform supporting 6 role groups, 15+ employees, and 100+ daily client loan records using Next.js and REST APIs.
- Designed and shipped a native Android AR application enabling real-time virtual wallpaper placement and visualization for a premium consumer brand.
- Translated stakeholder requirements into production features for authenticated CMS portals, Laravel/REST API integrations, JWT-based authentication, and data-heavy operational forms.

Frontend / Mobile Developer

Kurma Tech | Nepal | Sep 2021 - Dec 2021

- Contributed to a React Native food delivery app using Redux and Mapbox, building product discovery, ordering, and delivery-location flows with a dedicated UI/UX team.
- Delivered frontend features for several client-facing web applications, translating designs and API requirements into practical production screens.

SELECTED IOT AND REAL-TIME PROJECTS

Smart Home and Real-time Systems

Python, C++, FastAPI, ESP32, Pico W | Personal Projects | 2026

- Built a Python FastAPI real-time speech translation service with WebSocket streaming, device/settings APIs, translation history, and export support.
- Built ESP32-C3 and Raspberry Pi Pico W smart-home firmware using UDP streaming, REST endpoints, mDNS, reverse-engineered IR commands, and Homebridge/HomeKit integration.

EDUCATION AND LANGUAGES

University of Northampton | BSc Computing (Software Engineering) | First Class Honours | 2019 - 2022

Himalayan Whitehouse College | High School (Physics, Chemistry, Math) | 2017 - 2019

Languages: English: Business | Japanese: Conversational in Japan workplace | Nepali: Native