



Oqueber Navarro

EMBEDDED FIRMWARE ENGINEER

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Madrid, Spain

Portfolio & projects
oqueber.com

PROFILE

Embedded firmware engineer with 6 years of experience building low-power C/C++ firmware for medical, IoT and telecom devices, from requirements to production. Hands-on with STM32, NXP, Renesas and ESP32, Zephyr and FreeRTOS, LoRaWAN, and PCB validation and bring-up. Background in air-defence electronics at Indra. Motivated to bring this to satellite IoT across the space, ground and user segments.

EDUCATION

BSc ELECTRONIC COMMUNICATIONS ENGINEERING

THESIS: AUTONOMOUS IOT SMART GARDEN (ESP32, C, MQTT)

Universidad Politécnica de Madrid | 2018 – 2021

EXPERIENCE

RBZ ROBOT DESIGN | DEC 2022 – PRESENT **FIRMWARE ENGINEER**

- Developed C/C++ firmware for regulated medical devices, from requirements to production, meeting strict regulatory and documentation standards.
- Led planning, implementation and technical management of telecom projects.
- Validated every section of new PCBs against the Altium design, checking that each component behaved as expected; diagnosed faults with multimeter, oscilloscope and logic/analog analysers, and agreed fixes with the hardware team.
- Implemented I2C, SPI, UART, USB, Wi-Fi, Bluetooth and NFC on 32-bit NXP, Renesas and STM32 microcontrollers.
- Integrated Zephyr RTOS into IoT products and built long-range LoRaWAN links between devices.
- Debugged firmware at low level over JTAG/SWD (SEGGER, Lauterbach) and managed releases with GitLab.

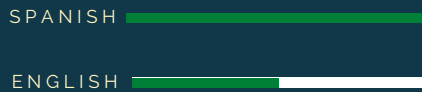
INELCOM | SEP 2020 – DEC 2022 **EMBEDDED SYSTEMS DEVELOPER**

- Designed and ran validation test campaigns for new electronic equipment.
- Implemented industrial protocols (Modbus TCP/IP and RTU, SNMP) over RS232, RS485 and Ethernet.
- Programmed 8- and 32-bit MCUs (NXP, PIC18F, STM32) and embedded Linux (Raspbian) for IoT solutions.
- Introduced FreeRTOS and IoT into the product line, driving Industry 4.0 adoption.
- Analysed control signals in field installations, improving the response time of critical systems.
- Wrote technical documentation: user manuals, verification reports and validation tests.
- Set up GitLab version control for traceable firmware projects.

INTERESTS



LANGUAGES



Technical skills

Languages: C, C++, Python
MCUs: STM32, NXP, Renesas, ESP32, PIC18F
RTOS / OS: Zephyr, FreeRTOS, embedded Linux
Interfaces: I2C, SPI, UART, USB, RS485, Modbus, LoRaWAN, BLE, Wi-Fi, NFC
Hardware & lab: Altium (PCB validation), multimeter, oscilloscope, logic & analog analysers, spectrum analyser, JTAG/SWD (SEGGER, Lauterbach)
Tools: Git/GitLab, VHDL (Intel Quartus FPGA)

CELLNEX TELECOM | JUL 2020 – AUG 2020 INNOVATION INTERN

- Researched 5G and IoT, producing strategic reports for long-term projects.
- Wrote technical articles on innovative use cases for stakeholders.
- Tracked innovation projects against business and technology goals.

INDRA | APR 2019 – JAN 2020 FIRMWARE DEVELOPMENT INTERN – IFF (AIR DEFENCE)

- Designed and ran integration tests for air-defence (IFF) equipment.
- Modelled digital circuits in VHDL (Intel Quartus FPGA).
- Debugged PCBs and radar systems, improving operational stability.
- Built test benches with oscilloscopes, spectrum analysers and RF power meters.
- Analysed civil and military aeronautical communication systems against international standards.

EVERIS | SEP 2018 – APR 2019 AI & EMERGING TECHNOLOGIES INTERN

- Built AI proofs of concept with TensorFlow, reaching 85% classification accuracy.
- Programmed in Python, C, JavaScript, Vue.js and Node.js, with MongoDB storage.
- Produced AI market analyses and strategic proposals for clients.
- Selected hardware for projects, balancing cost and performance.

Selected projects

- Smart urban garden (BSc thesis): autonomous IoT garden with ESP32, sensors and MQTT, monitored from a web dashboard.
- Wildlife camera: battery-powered ESP32-CAM that photographs animals unattended (in progress).
- BMO desk assistant: ESP32-C6 with LCD, a Tamagotchi-style office companion (in progress).
- All projects documented at oqueber.com/lab · code at github.com/oqueber