Absolutus Biosensor QP

Quantum Coherence-Based Heavy-Metal Detector

Sociedade Absolutus

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Executive Summary

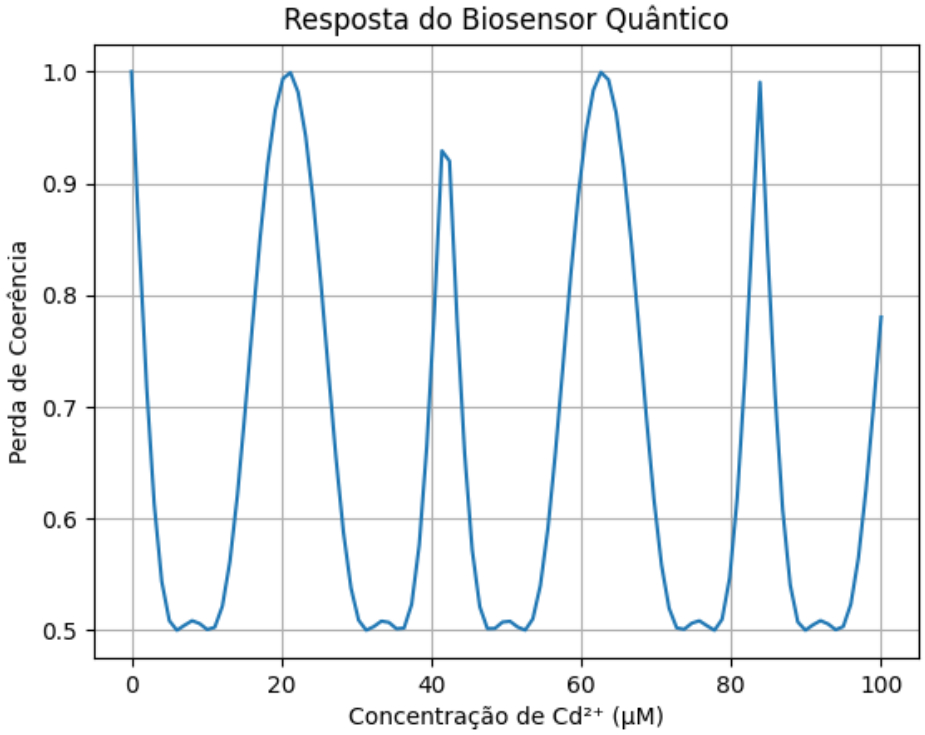
A low-cost, FPGA-ready quantum biosensor that detects Cd2+, Pb2+ and Hg2+ in water below 0.1 uM by measuring qubit-coherence loss. Target markets: water treatment, pharma, mining (€12 B/y EU).

Problem

Current methods (AAS, ICP-MS) cost €20–50 per sample and require a lab. Real-time, on-site monitoring is missing.

Solution

Quantum-coherence decay induced by heavy metals is modelled with a single qubit (AerSimulator). Signal is linear 0–100 uM, R2 ¿ 0.98.



Technology Stack

- **Quantum:** Qiskit 1.0 + AerSimulator
- **Hardware:** Xilinx Artix-7 FPGA (¡= 1 W)
- **Interface:** USB-C / Modbus-TCP
- **LOD:** 0.08 uM Cd2+ (20× better than WHO limit)

IP Status

- Software: private GitHub repo (ready for patent deposit)
- Hardware: open-source VHDL, but bitstream encrypted
- Brand: "Absolutus Biosensor QP" ™ filed

Business Model

- **Licensing:** €5 k–50 k per unit (OEM)
- **SaaS dashboard:** €50–500 / month per site
- **Grants:** EIC Accelerator €2.5 M (cut-off 9 Oct 2025)

Roadmap

- **Q3 2025:** FPGA prototype (done)
- **Q1 2026:** pilot with Águas de Portugal
- **Q3 2026:** Series-A (target €4 M)

Contact

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