

Senior Hardware Engineer – Electronics

Role specification: purpose, responsibilities, essential skills and desirable background

Salary: Competitive

Location: Ely, Cambridgeshire (a city repeatedly voted among the best places to live in the UK)

Employment Type: Full time, permanent

1. About UBIETY and the role

UBIETY Technologies Ltd is a Cambridgeshire spin-off from a well-established, UKRI-designated Emerging Technology Developer, collaborating with leading research-intensive universities in the UK and internationally. We develop Edge-AI measurement and imaging instrumentation serving energy-transition, industrial and healthcare markets. This Senior (Electronics) Hardware Engineer will be central to our technology development, leading the definition, design, build and test of new products from initial conception to production within a high-performance R&D team operating under core SCRUM principles. Our work develops precision analogue and digital measurement devices with substantial embedded compute — improving sensor sensitivity, signal-processing performance and on-device analytics — so the role best suits candidates who straddle in-depth hardware and good embedded/firmware skill sets. Full details of our products and technology roadmap are shared at interview under confidentiality.

2. Main duties and responsibilities

Area	Expected ownership
Electronics design	Own the full design process: schematic capture, component selection, simulation and PCB layout; check consistency and accuracy of the entire product specification, liaising with stakeholders; evaluate and introduce new technologies, laboratory requirements and certifications.
Compliance & verification	Ensure designs are fit for purpose and compliant with regulatory and safety agency standards; coordinate early prototype builds hands-on; lead subsystem-level DFMEA to identify risks and mitigations.
Requirements & firmware	Perform requirements analysis and derivation from system to hardware level; set requirements and test specifications for firmware/FPGA engineers; define, develop, document and test FPGA firmware as part of the hard/firm/software team.
Delivery & bids	Estimate time and effort for hardware/firmware activities and deliver to them; review technical proposals and provide effort, cost and risk estimates for bids leading to contract and funding awards; contribute to customer-facing meetings and documents.
Project management	Integrate into the SCRUM team (daily SCRUM, SPRINT and retrospectives); with experience and talent, develop into a SCRUM Master working with Product Owners — training available for the right candidate.
Customer & dissemination	Learn customer needs via meetings and pilot testing of prototypes; demonstrate at trade shows; co-author peer-reviewed publications and present at industry workshops/conferences within commercial confidentiality.

3. Essential skills and experience

Criteria	Requirement
Qualifications	Suitably qualified (preferably postgraduate academics and equivalent professional qualification) in electronics or equivalent engineering; 5+ years' full life-cycle R&D of commercial products and technologies.
Analogue design	Low-noise, high-frequency analogue circuit design: amplifier chains, signal conditioning, filtering, ADC/DAC front ends, precision references, grounding/shielding strategy and power-integrity design for sensitive measurement electronics.
Digital & embedded	FPGA, microprocessor and microcontroller designs; high-speed communication interfaces (e.g. LVDS, Gigabit Ethernet, USB, SPI/I2C); clocking, memory interfacing and mixed-signal partitioning; good embedded/firmware awareness to work across the hardware–firmware boundary.
PCB & CAD	Extensive experience designing production-ready systems and multi-layer PCBs; electronics CAD (preferably Altium) for both schematic and layout; stack-up definition, controlled impedance, signal-integrity and thermal considerations.
Compliance & DF-x	Design for EMC compliance; design for manufacturing and test (DFM, DFT); understanding of regulatory and safety agency standards and internal design, specification and certification processes.
Verification & debug	Proficient with laboratory equipment (oscilloscopes, spectrum/logic analysers, signal generators) for board bring-up, circuit debugging, characterisation and design verification against specification.
Power & thermal	Power-supply design for mixed-signal instruments: low-noise LDOs and switching regulators, power sequencing and protection; thermal analysis, derating and heat-sinking for enclosed instrument electronics.
Documentation & control	Engineering drawings, BOM release and engineering-change control; version-controlled design data; clear design, verification and test documentation supporting production hand-over.
Project & delivery	SCRUM-based scheduling of multi-party product design (ideally including subcontractors); managing time-critical projects to agreed plans; commercial awareness.
Communication & attributes	Excellent written and verbal communication with stakeholders at all levels; multi-disciplinary teamwork; excellent problem solving; self-motivated ownership of projects through to completion; can-do and collaborative.

4. Desirable background

- Development and implementation of complex imaging or tomographic devices such as MRI, CT or ultrasound.
- Electrical or electromagnetic tomography and impedance-measurement circuit design — a distinct advantage.
- Transducer drive/receive electronics: high-voltage pulsers, T/R switching, low-noise preamplifiers and impedance matching.
- Taking designs through accredited EMC/safety test houses to CE/UKCA marking.
- Mixed-signal simulation (e.g. SPICE) and MATLAB/Python for design analysis and automated test.

Employee benefits

- Modern, fully refurbished Ely offices; free parking; walking distance to Ely rail station
- 25 days annual leave + Bank Holidays, rising to 30 days with service
- Auto-enrolment workplace pension (optional, with opt-out under UK rules)
- Healthcare provided automatically, non-contributory
- 9am–5pm with one-hour lunch; role-based flexible/remote working day
- Cycle to Work scheme; supported team activities (e.g. staff rowing on the River Great Ouse)
- Performance-based share options after 3 years' employment