

Retrofittable Embedded Vision and Energy-Efficient Inference for Production Lines

A hardware partner seeking a consortium — not a project of our own

Kuantek Elektronik A.Ş. · Bilişim Vadisi, Gebze, Türkiye

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-03

Factory processes and automation for de- and re-manufacturing

HORIZON-CL5-2027-02-D3-15

Production technologies for solar photovoltaics beyond the state-of-the-art

Two calls, one constraint

MATERIALS-PRODUCTION-03 · RE-MANUFACTURING

Parts arrive in unknown condition

Disassembly and re-manufacturing cells cannot assume a fixed product configuration. Automation has to recognise the part, assess its state and decide its route — at line rate, on equipment that can be added to an existing cell rather than replacing it. Vision that needs a server rack behind it does not get installed.

D3-15 · PV PRODUCTION

Inline inspection has to keep pace

Production technologies beyond the state of the art need inspection that runs at throughput, not on sampled batches. Thermal and electroluminescence imaging carry the defect signal. The constraint is processing that signal at line speed, at every station, within the power and space a production line actually has.

In both cases the vision has to run next to the machine — which is a hardware problem, not an algorithm problem.

What we bring to the hardware work package

1

Energy-proportional inference

Quantised CNN accelerators implemented in RTL, with the power and precision profile adapted to the workload instead of fixed in silicon.

2

Retrofittable sensing nodes

Compact modules that attach to existing cells and stations, so a pilot does not require replacing the line it is meant to improve.

3

Thermal and visible-band imaging

Multi-band capture and processing, including an existing thermal inspection platform we can bring as a background asset for adaptation.

4

Fieldbus-native integration

Modbus, CAN and EtherCAT out of the box, so data paths fit the plant infrastructure that is already installed.

Why this is credible

32+

national R&D project applications
submitted

14

R&D projects completed

8

carried through to commercialised
products

- Authorised Efinix FPGA distributor for Türkiye — direct silicon vendor access for the consortium.
- Industrial product lines already in the field: IoT gateways, energy analysers, remote I/O modules and data loggers.
- Electro-optical system engineering, from sensor and optics specification through to latency characterisation.
- Able to act as a technology supplier within cascade funding (FSTP) schemes as well as a full partner.

What we are asking for

Our role in the consortium

- Lead of a hardware or edge-processing work package
- Supplier of demonstrator nodes for pilot lines
- Contributor to integration and industrial validation
- Not a coordinator — we join, we do not lead the proposal

Partners we are looking for

- Coordinators forming consortia in these two topics
- Production technology and automation integrators
- Research organisations with algorithms needing hardware
- Pilot line hosts in re-manufacturing or PV production

Assoc. Prof. Dr. Anıl Çelebi — Managing Partner, Kuantek Elektronik A.Ş. · Kocaeli University

Request a bilateral meeting on the ICTürkiye2026 platform — matchmaking stays open into Q1 2027.