

SATELLITE PAYLOAD & IMAGE APPLICATIONS (WREN)

This competency focuses on the design and integration of space-borne payload electronics combined with satellite image-analysis services. Embedded in the WREN-1 nanosatellite initiative, it delivers high-reliability payload modules and end-to-end image-processing workflows for Earth-observation use cases. The activity enables partners to exploit orbit-derived data for agriculture, environmental monitoring, and dual-use intelligence applications, contributing directly to space-focused RDI and commercialisation.



ACHIEVEMENTS

- Developed and delivered the electronic payload module for the WREN-1 nanosatellite, launched on 16 August 2024.
- Integrated multispectral SWIR imaging and micro-vibration measurement capabilities on-orbit.
- Established a service pipeline translating satellite imagery into precision-agriculture intelligence.



INFRASTRUCTURE

- Space-grade payload prototyping laboratory for small satellites and CubeSats.
- Embedded electronics and IP-protected subsystem components.
- Satellite image-processing and geo-visualisation platforms.
- Ground-station interface with real-time data access from orbit.
- Multi-faculty and industrial collaboration framework within the WREN-1 consortium.



REFERENCES

- WREN-1 nanosatellite mission: payload electronics development by Óbuda University with COMBIT Zrt., C3S Kft., Alba Regia University, and Kandó Faculty.
- Precision-agriculture pilot delivering soil-moisture and vegetation-stress analytics using WREN-1 imagery.