

HUMAN-01 – consortium structure and partners sought

Multisensory hardware components for virtual worlds · initiated by EEC Service, UAB (Lithuania)

Call	HORIZON-CL4-2027-04-HUMAN-01 – Advanced and Innovative Hardware Components for Virtual Worlds (RIA)	Dates	Opens 17 November 2026 · closes 18 March 2027 · single stage
Maturity	TRL 3 rising to 5 · Virtual Worlds Partnership	Must have	SSH contribution (mandatory) · contribution to standardisation · hardware components

The concept

Virtual-worlds hardware mostly addresses sight, sound and touch. We propose adding two further channels – **the body's own physiological response** and **smell** – so that a multisensory XR device can measure how its user is actually responding and adapt its visual, audio, haptic and olfactory output in real time, and so that new XR hardware can be evaluated on objective human measures, not only on specifications. **Neurorelaxation capsule (planned)**. We propose an integrated immersive enclosure combining an XR visual display, spatial sound, scent delivery and physiological feedback. It does not yet exist as an integrated unit; building it would be part of the project, and it would then serve as the integration testbed and real-user demonstrator where the new components are synchronised and evaluated together.

Current structure

Role	What it covers	Country	Status
Coordination / integration	Overall management; integration of modalities into tested devices	—	OPEN · priority
Physiological sensing	Optical sensor giving pulse-wave morphology – EEC Service	Lithuania	Initiating partner
Interpretation and adaptation	Real-time user state driving multisensory adaptation – EEC Service	Lithuania	Initiating partner
Olfactory component	Scent composition and dispensing module, TRL 4 – EEC Service	Lithuania	Initiating partner
Edge / near-sensor AI	Processing at the sensor; data minimisation at source	Netherlands	Soft-confirmed
Connectivity and accelerators	5G/6G XR subsystem; low-latency transport; AI accelerators	Greece	Candidate
Standardisation	OpenXR, RISC-V, 3GPP, ETSI contributions	Greece	Candidate
XR-to-machine integration	Connecting XR interfaces to industrial systems and robots	Sweden / Egypt	Candidate
SSH (mandatory)	Ethics, inclusivity, construct validation	Italy	To be confirmed
XR displays and visual evaluation	Display components; visual comfort and fatigue evaluation	—	OPEN · early talks
Haptics	Haptic and wearable components	—	OPEN
Audio components	Audio for multisensory devices	—	OPEN

Partners we are looking for

Coordinator / integrator An organisation with Horizon Europe coordination experience and the capacity to integrate hardware components into fully tested XR devices. EEC Service would be a partner, not the coordinator.	XR displays and vision science Display component developers, and researchers able to evaluate the visual side of XR hardware – visual fatigue, display comfort, accommodation-vergence effects – alongside our autonomic measures.
Haptics and audio Developers of haptic, wearable and audio components for new-generation XR equipment, designed to be miniaturised, energy-efficient and interoperable.	Korean partners welcome Korea is associated to Pillar II of Horizon Europe, so Korean institutions can take part as funded partners – especially relevant for display, haptic and component engineering.

Where EEC Service stands. Optical sensor at TRL 5, certified for EU electrical safety and EMC as a non-medical product; a wired finger clip, so placement for hands-occupied immersive use is an open research question. Olfactory module at TRL 4. Our affective-state mapping is exploratory and not independently validated. This is our first Horizon Europe cycle.

Partners are shown by role and country. Organisations are named only once each has agreed to be named. Nothing here is a commitment of a seat, a work package or a budget share.