VRTEG - VIRTUAL REALITY INTERFACE EVALUATION

DESIGN AND EVALUATION OF HYBRID VR INTERFACES IN REAL-LIFE USE-CASES

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Partners

HERACLES Robotics
TERRASSEMENT AUTONOME

Technologies

Unity
ROS
VIVE
htc | STEAM VR
g.tec

HYBRID VR INTERFACE

VRTEG – VR / EYE-TRACKING / EEG

- Combining **HTC Vive Pro Eye** with **Tobii eye-tracker** and **g.tec electroencephalogram** (EEG)
- Evaluating the **efficiency of VR interfaces** and applications in real-life use-cases

DEVELOPED PROTOTYPES

MEDICAL APPLICATION

VISUAL DYSLEXIA THERAPY
PROTOTYPE & PUBLISHED ARTICLE

- **Dyslexia** is a reading disorder that affects around 10% of the population. **Digital Therapeutics** offer new forms of therapy.
- Dys&Dragons, a prototype gamified app using **Visual Exercises**, **Ecological Exercises** and **Reading Exercises** in VR.
- Published article: Saunier, Lea, et al. "Visual Rehabilitation for Learning Disorders in Virtual Reality: Visual Rehabilitation for Learning Disorder in VR." *Proceedings of the 27th International Conference on 3D Web Technology*. 2022.

Ecological Exercise

INDUSTRIAL APPLICATION

EARTHWORK TELEOPERATION
ON-GOING DEVELOMENT

- Earthwork requires highly qualified personnel for machine control in classic supervision.
- **Automation and Robotics** plays a huge part in **Industry 4.0** and with the right interface can tackle the previously mentioned problem.
- Working with **Heracles Robotics** we are developping a **VR interface for natural remote control** using eye-tracking interactions, connecting **Unity Simulation** and **ROS Robotic Control**.

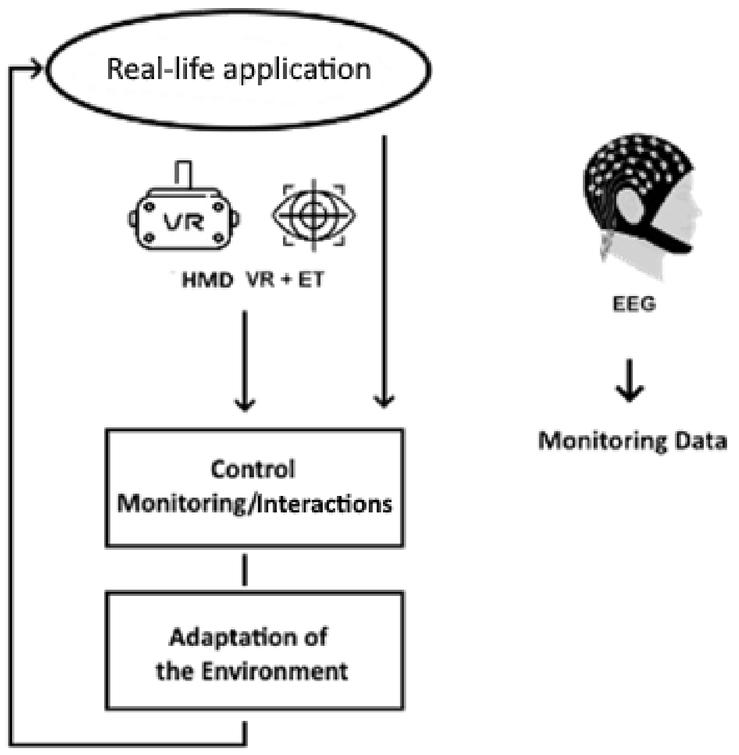
ROS Controlled Machine

Unity Simulated Digital Twin

FUTURE WORKS

EEG TESTING FOR EFFICIENCY EVALUATION

- Combining **active VR and eye-tracking interactions** with **passive eye-tracking and EEG analysis** for interface evaluation,
- Using both **user feedback** and **EEG analysis** – cognitive load, stress, brainwave topography – to evaluate and improve the interface.



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