

Widefield: Optical module for near-eye display in augmented reality

- Innovative optical engine for a greater field-of-view
- Compact and light-weight to integrate into augmented reality glasses and forget about bulky headsets



KEYWORDS

- Augmented reality
- Near-eye display
- Smart glasses
- Optical guides

PATENTS

- FR1650351
filed on Jan, 15 2016
- PCT/FR2017/050073
filed on Jan, 12 2017

LAB

P. Twardowski
ICube
UMR 7357
Strasbourg, FR

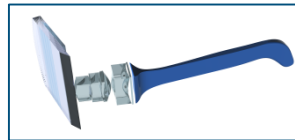
TECHNO-STATUS

Under Development

- Ongoing Conectus investment for proof of concept – 300 k€
- Planned project end date: May 2019
- Open for licensing to an industrial partner or start-up

TECHNOLOGY

- Waveguide-based optical system to guide image from side of the head to the eyes
- See-through to allow image super-imposition onto the real world and augmented reality
- Based on reflective optics
- Conceived for integration into smart glasses
- Polychromatic (MTF > 0.3 for 33 l/mm)



Compact design with few optical components



Monocular version of see-through optical engine

APPLICATIONS

Augmented reality

- Consumer electronics : Smart glasses to replace smart phones, video games...
- Industry : logistics, assembling chains, storehouses, manufacturing...
- Medicine : check-lists and guidance for procedures

INNOVATION ADVANTAGES

- Large field-of-view 30°x60° (HV)
- Eyebox 8 x12 mm
- Waveguide thickness 4 mm
- Light-weight and compact for integration into smart glasses (< 20 g)
- Can be tuned to many different out-couplers
- Compatible with OLED micro-displays
- Can be used as monocular or binocular systems
- Customizable (size, source color, form...)

DEVELOPMENT STATUS

- Full simulation with Zemax (Yang J. et al., Opt.Let., 5427 (2016))
- Tolerance analysis achieved
- Feasibility in glass and plastic under evaluation
- First lab optical device available in 2019