



THE | SHAPING A
TECHMED | HEALTHY
EVENT | FUTURE

14.45 - 16.00 | PIONEERS IN HEALTHCARE TALKS | SIGERT MEVISSSEN



Live streaming of stereoscopic microscope videos during microsurgery to enable remote 3D viewing for assistance and education purposes

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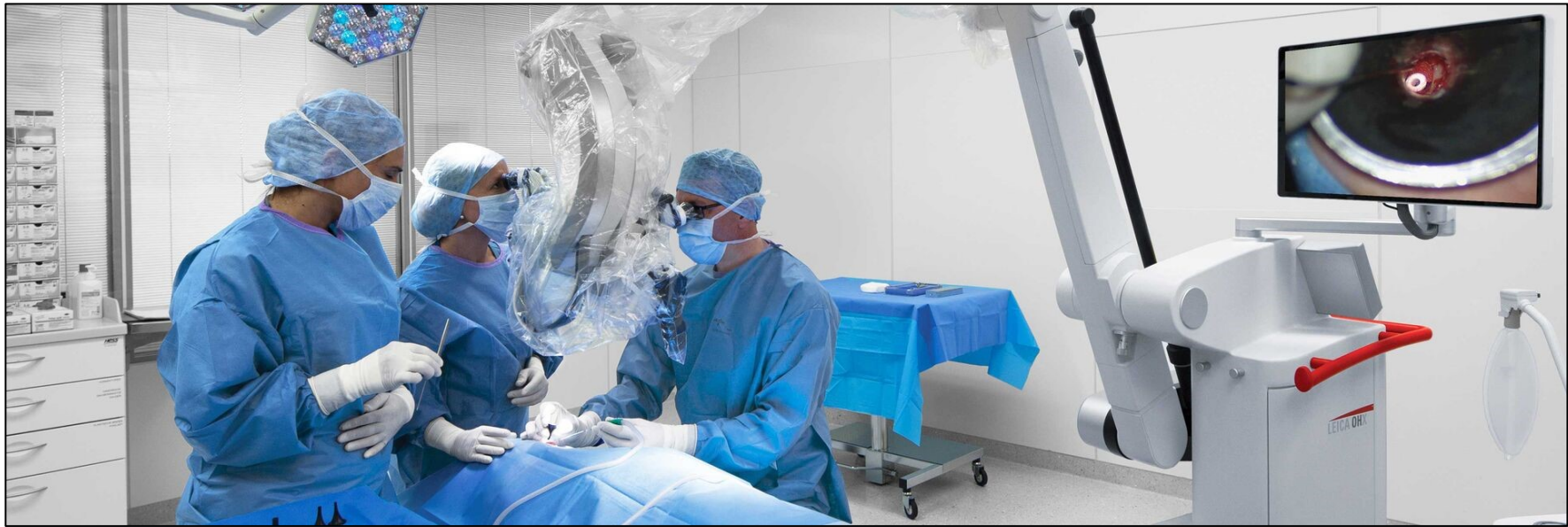
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01-11-2023

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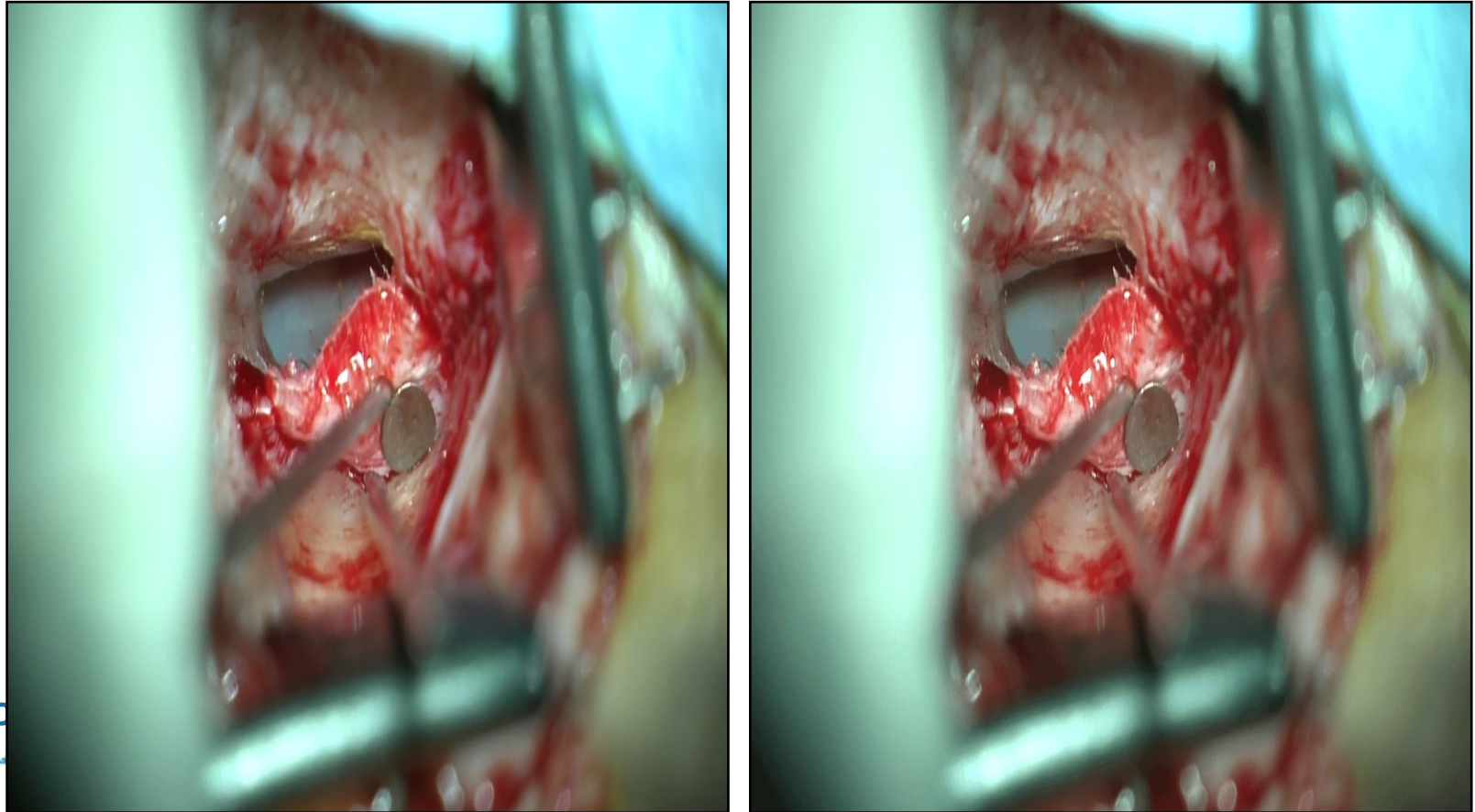
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Live streaming of stereoscopic microscope videos during microsurgery to enable remote 3D viewing for assistance and education purposes

- In-house assistance
 - AIOS requires short assistance. Allows responsible ENT doctors to do other work simultaneously
- Expert assistance from other hospitals
 - Decreases planning challenges because expert is only required for a short time and does not have to travel
 - Ad hoc problems can be solved instantaneously
- Education
 - Students can experience 3D to get real feeling
- Time saving → cost saving solution

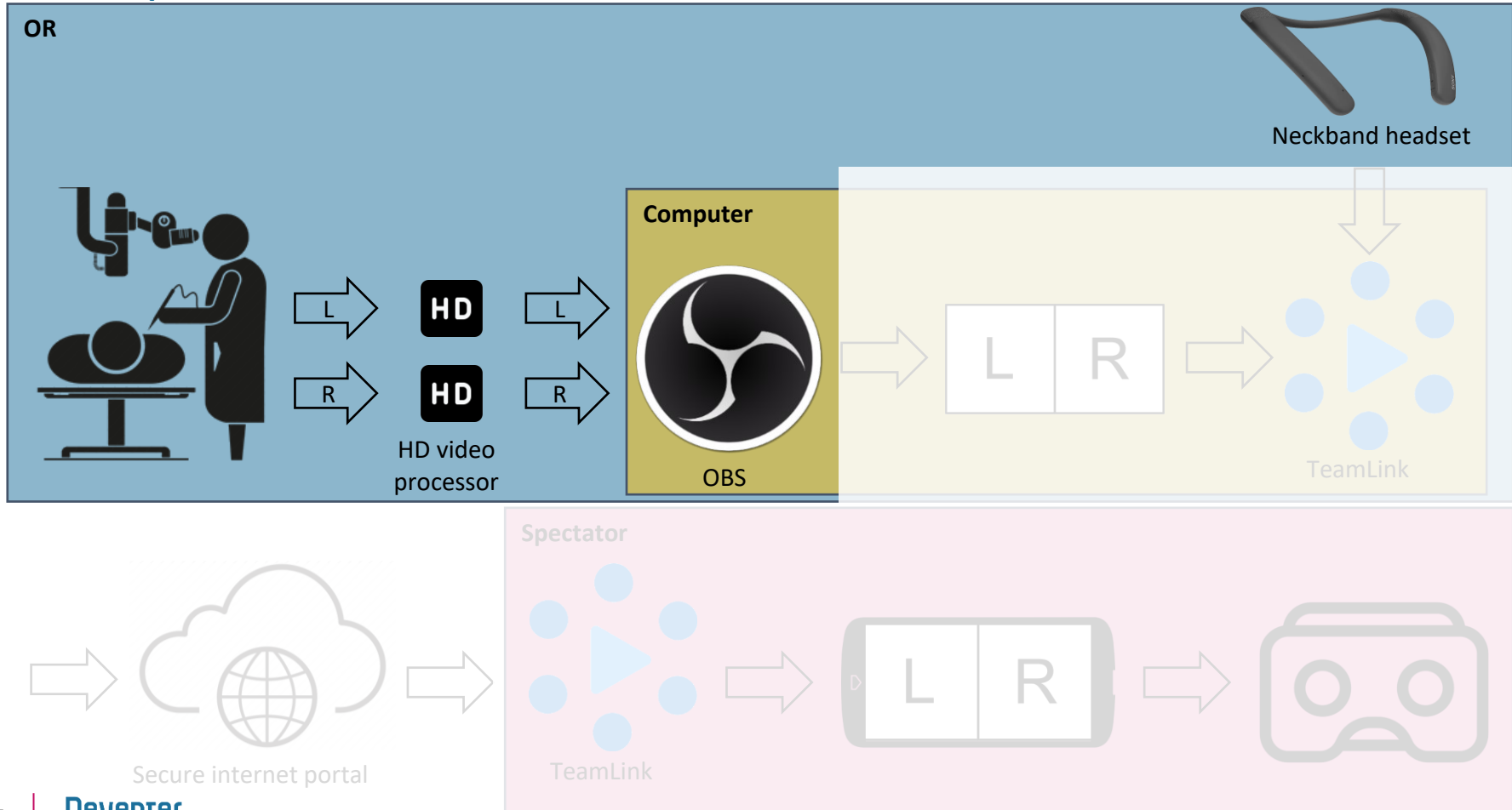
Live streaming of stereoscopic microscope videos during microsurgery to enable remote 3D viewing for assistance and education purposes



Requirements

- Video quality
- 3D perception
- Ambulatory – any place, any time
- Minimal latency for flawless communication and real-time images
- Bidirectional communication for discussion
- Availability – easy and cheap
- Safety regulations
 - Medical Device Regulations (MDR) compliant
 - General Data Protection Regulation (GDPR) compliant

Setup

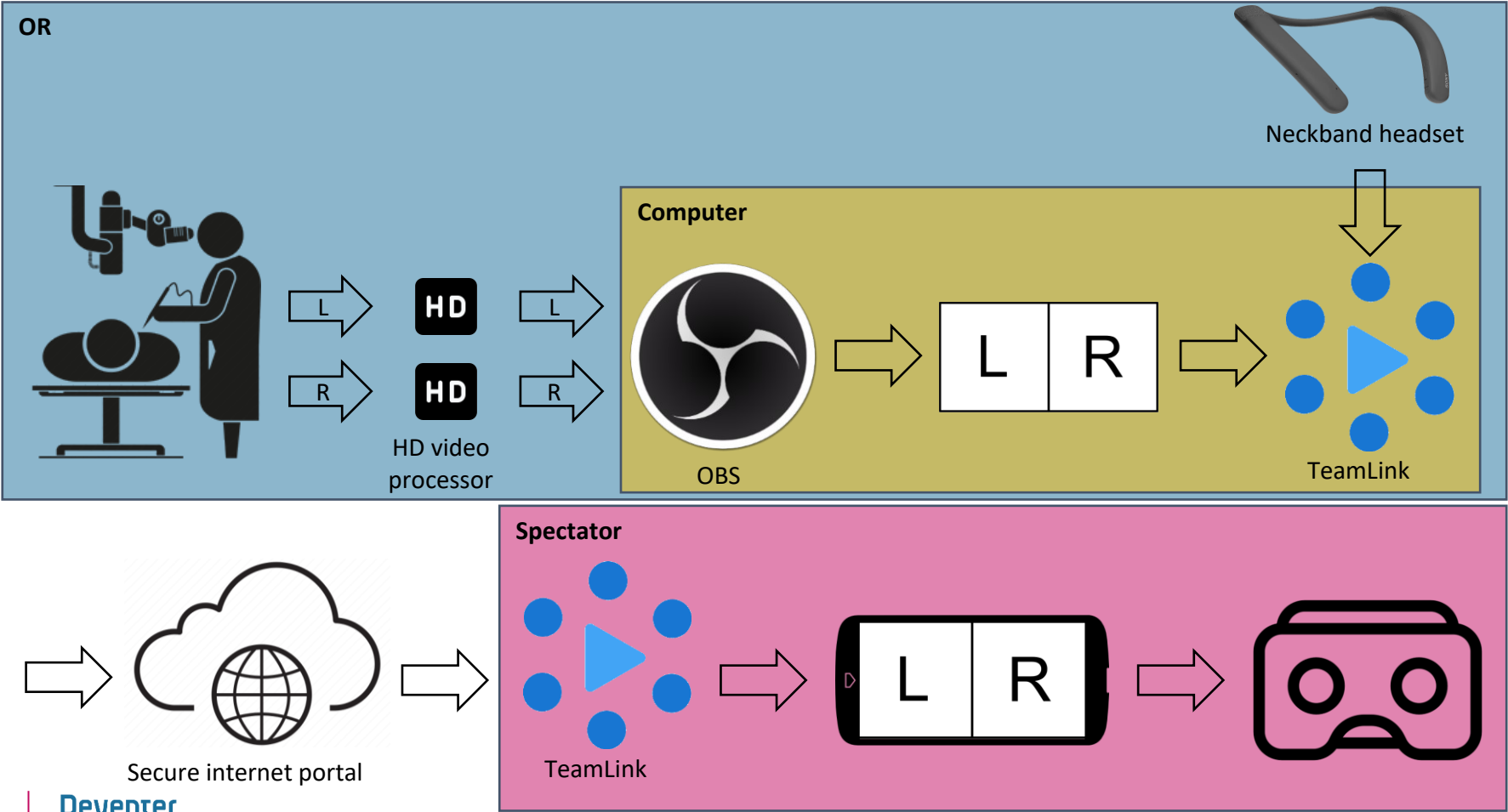


Side-by-side positioning

- Mimic surgical microscope view
- Interpupillary distance
- Zoom vs. field of view

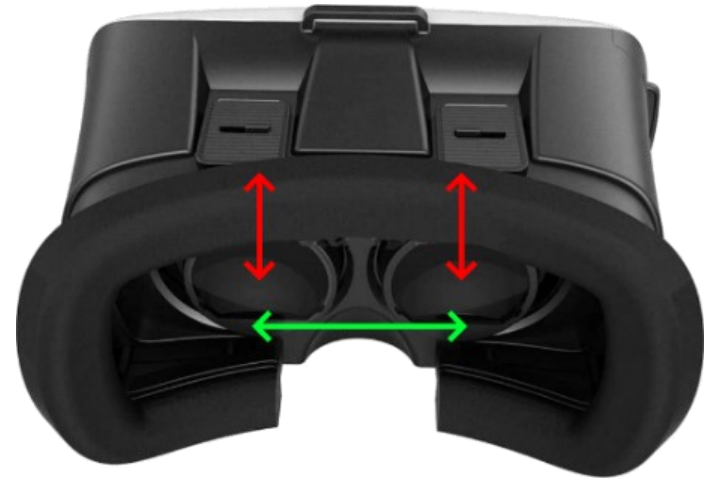


Setup

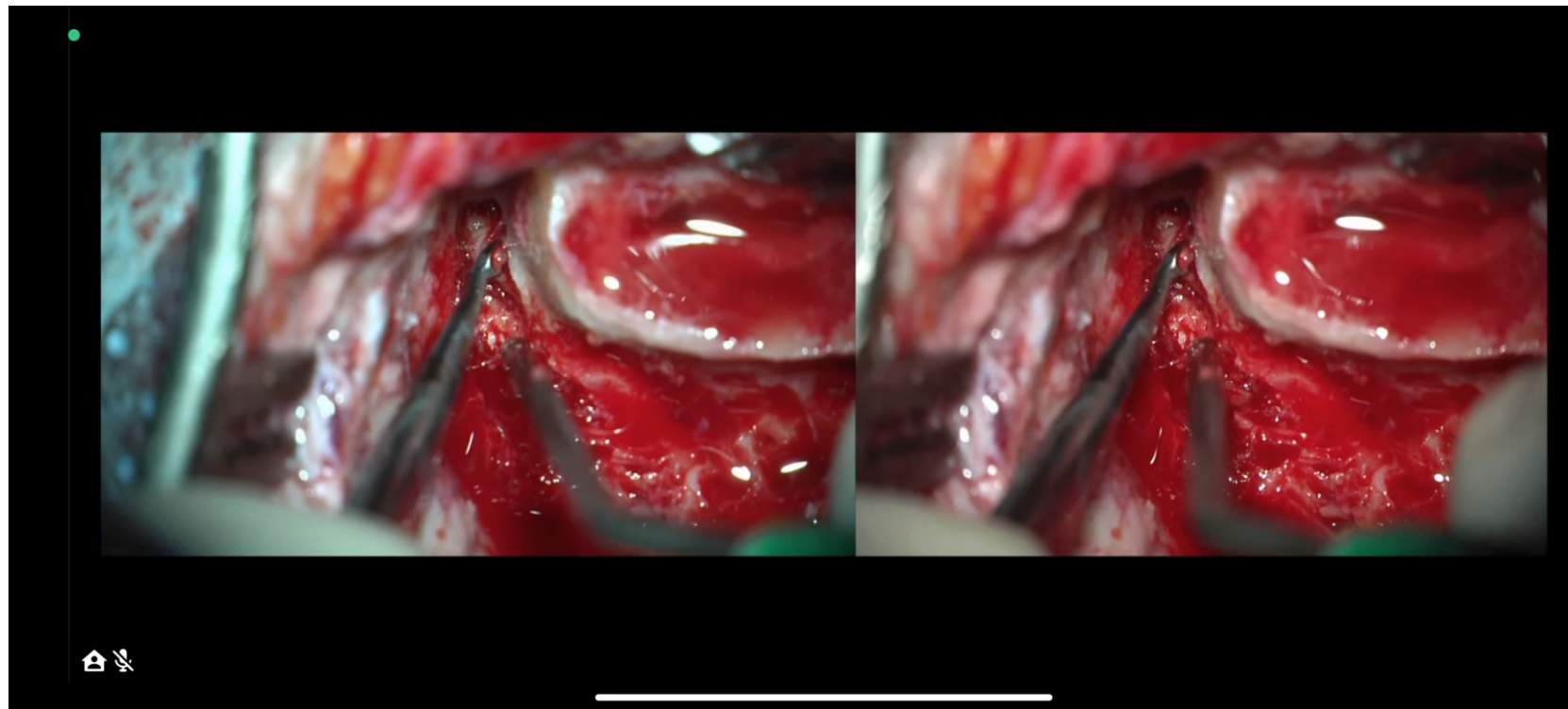


VR-glasses

- “VR” for phone screen
- Interpupillary distance > 3D perception
- Lens distance > video quality



Result



Requirements

- ✓ Video quality
- ✓ 3D perception
- Ambulatory
- Minimal latency
- Bidirectional communication
- Availability
- Safety regulations
 - MDR-compliant
 - GDPR-compliant

Video quality:

- Limited by
 - Phone screen resolution
 - Video call software
- Doctors are pleased

3D perception:

- Positioned to mimic microscope
- Adjustable with VR-glasses

Requirements

- ✓ Video quality
 - ✓ 3D perception
 - ✓ Ambulatory
 - ✓ Minimal latency
- Bidirectional communication
- Availability
- Safety regulations
- MDR-compliant
 - GDPR-compliant

Ambulatory:

- VR glasses are easy to carry
- Any place and any time with internet coverage.

Minimal latency:

- Latency \approx 0,3 seconds

Requirements

- ✓ Video quality
- ✓ 3D perception
- ✓ Ambulatory
- ✓ Minimal latency
- ✓ Bidirectional communication
- ✓ Availability

Safety regulations

MDR-compliant

GDPR-compliant

Bidirectional communication:

- Neckband headset
- Phone speaker and microphone

Availability:

- VR glasses ≈ €25
- Easy to use

Requirements

- ✓ Video quality
 - ✓ 3D perception
 - ✓ Ambulatory
 - ✓ Minimal latency
 - ✓ Bidirectional communication
 - ✓ Availability
- Safety regulations
- ... MDR-compliant
 - ✓ GDPR-compliant

Safety regulations

MDR:

- Currently not compliant
- Further testing to prove quality of system

GDPR:

- Patients are unrecognisable

Status

- Optimisation of video quality
- Pilot study
- MDR compliance
- Looking for cooperation

Disclosure

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