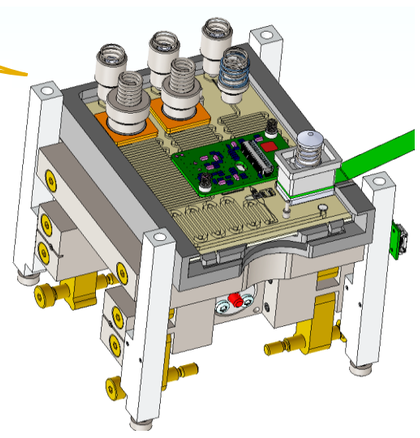
LRE Medical

# PHOTO–SENS Project

- EU-funded project of the program Horizon 2020
- New generic tool with integrated optical sensing circuits for ultra-sensitive detection
- Wafer scale fabrication for cost-effective disposable bio-sensor
- Microfluidics cartridge enabling sample treatment & transfer of various water–based samples
- Functional and easy-to-use read-out device for use with disposable bio-sensing cartridge
- Identification of aquaculture-specific pathogens and respective biomarkers & serving as testing hub for fish farms

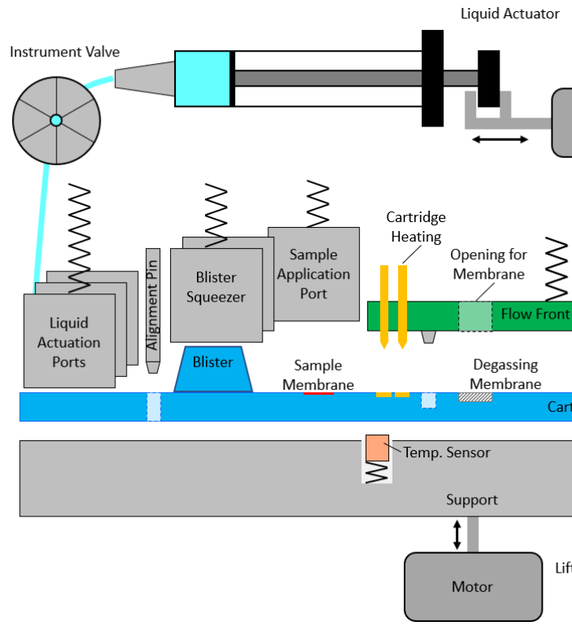
**Final Product (Future):**

- Industrial design
- User guidance
- Full automation



**Device Design:**

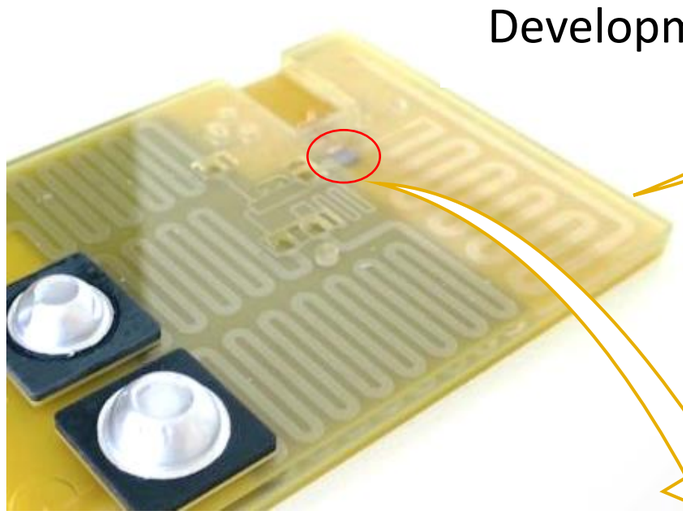
- Cartridge handling
- Sample application
- Cartridge processing




Device Development

**Device Concepts:**

- Liquid control
- Temperature control
- Sensor read-out



**Disposable cartridge:**

- Microfluidic system
- Integrated buffers
- Integrated sensor chip

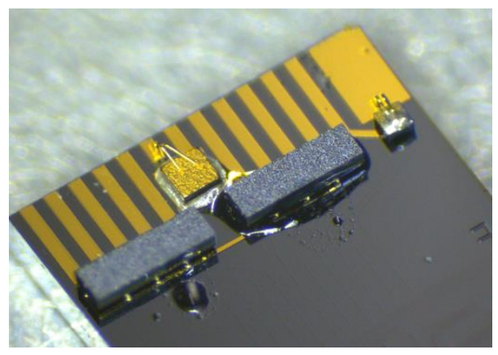
Chip Development

csem

phix PHOTONICS ASSEMBLY

**Sensor chip:**

- Miniature optical system
- Interference based on laser with modulated wavelength



Application

TUNATECH

- Six sensor channels
- Two channels for process control

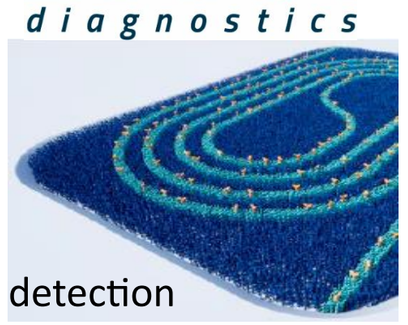
**Assay development:**

- Pathogen detection
- Early sturgeon sex detection
- Based on double stranded DNA

SURFIX diagnostics

**Optimization Surface coating:**

- Anti-fouling
- Biofunctionalization for DNA detection



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