# AUGMENTED REALITY WITH HEAD-MOUNTED DEVICES (TTPSC)

## Technology

Shipyard workers are equipped with ruggedized HMD (head-mounted devices) that are attached to safety helmets and having connectivity, monocular camera, microphones, noise cancellation algorithms and TTPSC SkillWorx system leveraging computer vision and remote SLAM. That setup gives the workers full hands-free experience to check, record and document construction progress, completion, and quality of delivered work and follow digital work instructions.

## Applications

**HMD App:** Navigate workers within physical environment using spatial intelligence – application streams video feed to remote SLAM server to build in real-time 3D map that allows onsite and remote workers to tag and overlay information on the real 3D world while also maintaining safety, situational awareness, low eyestrain, hands-free use, and full-shift battery life.

**Web App:** Collaboration endpoint for over-the-shoulder help during construction, inspection, repair, troubleshooting, review etc. as remote assistance enriched with real-time AR (when onsite worker and remote supporters can collaborate and place sticky, pervasive AR annotations on a live video). AR is placed on video from ultra-low bandwidth low resolution up to 4K and is stored in a form of reusable 3D maps.

## Involved partners



## Video



https://bit.ly/3QhUmtS

## Impact

The system serves as a source of information for field workers during on-the-job activities. Main benefits:

- Act as fast as possible during real-time supervision, troubleshooting, inspections, repairs, reviews.
- Access to the right information without sacrificing worker safety nor comfort.
- Streamlined communication and collaboration during field work with increased transparency and situational awareness.





AR app on industrial HMD