

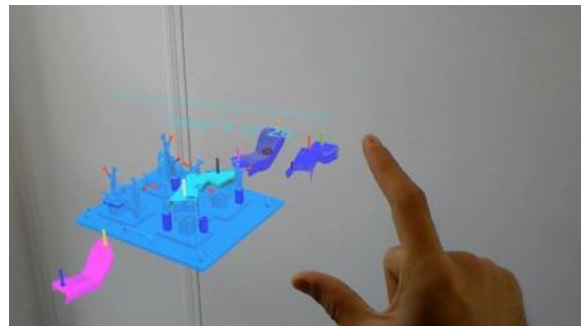
7) INART - On-site training of Industrial workers using AR Technology; D-CUBE Private Company, Greece

EXPERIMENT DESCRIPTION

The INART experiment demonstrates a novel way of Augmented Reality (guided assembly in manufacturing environments through MIDIH ecosystem

Key Points

- Hands free solution with technical drawings and training material available in view at all times
- Blending of real execution, support and training makes equipment and assembly operations easier to learn/use
- Gamification increases worker engagement and potentially skills
- Time and cost efficient industrial training
- Assembly recordings can be analyzed and allow for sequence optimization, support decision making and drive growth



TECHNICAL IMPACT

The INART architecture is built on the MIDIH RA standards:

- Data in Motion (DiM) concept
- Data at Rest (DaR) concept

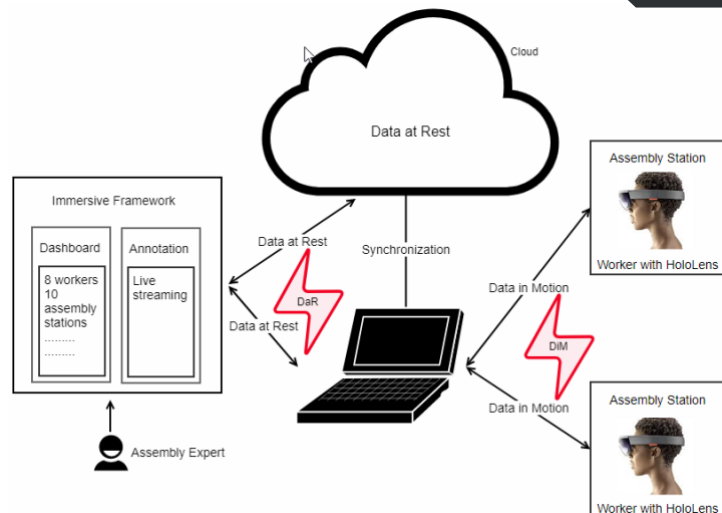
INART consists of two major components:

- The AR HoloLens Application that runs on the Microsoft HoloLens device.
- The Immersive Framework that acts as the backend platform for recording and sharing data.

The Immersive Framework is a full-featured IoT web-based platform that is built to serve as a generic sensor / device / data stream host and allows for seamless component integration.

The Immersive Framework along with vertical / custom components, form an Immersive Framework Solution. In the scope of INART, the content authoring and the analytics modules are custom components developed and fully integrated in the Immersive Framework

While presenting the virtual model to the worker, the HoloLens device streams a video of what the worker is seeing to a remote workstation for the assembly expert (i.e. the supervisor). This exchange of information is following the Data in Motion (DiM) concept of the MIDIH Architecture. After each assembly session is finalized, information on the performance of the trainee (worker) is synchronized and stored to the cloud through the Immersive Framework following the Data at Rest (DaR) concept of the MIDIH Architecture.



ECONOMICAL/BUSINESS IMPACT

The AR driven assembly process is drastically changing the way an assembly is presented to the workers as well as the way workers and supervisors interact in an immersive way in the manufacturing process. Instead of referring to a manual that might contain hundreds or thousands of pages, or sitting through hours for training courses, new hires and trainees use headsets that broadcast the pertinent information directly in front of their eyes. Apart from making the education process easier and more exciting, INART provides to senior executives a holistic framework to improve and assess workspace industrial training, using cutting-edge technologies.

D-cube's goals for INART is to provide Immersive Training Experiences to its existing and/or potential customers as part of the Immersive Framework Ecosystem. Apart from providing Artificial Intelligence and Deep Learning Solutions in the context of Industry 4.0 services, vertical AR industrial training sessions could be developed to support assembling or machine operating processes.

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