Support & Service Solutions

IMMERSIVE VR SOLUTION FOR SIMULATION AND TRAINING

MORPHEUS is an innovative virtual reality training tool allowing allows users to perform system familiarisation, operating and maintenance proecedures in a synthetic, photorealistic environment.

It supports instructors during the preparation and execution of practical training allowing the easy creation of training sessions.

Students are able to enjoy virtual training in an easy, cost effective way using a standard PC. Training can be delivered in a more effective way using a low-cost immersive environment based on a Virtual Reality (VR) Head Mounted Display (HMD) and location tracking system.

THE SOLUTION

MORPHEUS puts a user inside a customisable virtual environment (scene) in which the training scenario is shown (virtual content). It offers a smart, safe and cost effective way of training personnel on equipment operation and maintenance. It replicates a real operating and maintenance environment/scenario in a safe virtual space, where students are able to move naturally and interact as if they with the actual kit.

In the virtual environment, the students are guided step-by-step and have the chance to repeat the procedures as many times as they need.

Using the tool, students can undo actions and learn from mistakes without the risk of damage (and subsequent repair cost) to the real system.

MORPHEUS

Key advantages over Training-on-the-Job
- Motivate students using a fun and safe way of game-based learning
- Training scenario independent of time and place
- Share the same virtual training experience between students at different locations
- Evaluate results in real-time
- Reduce errors and improve practice through the availability of repeatable training procedures
- Benefit of the cost-saving potential coming from customisable virtual training scenarios

MORPHEUS is a software application based on a game engine that allows real-time rendering and interaction with the virtual mock-up objects that implement physical constraints and operative behaviours. Users interact with the system components using the correct tools and following the real-life access constrains and limitations.

Thanks to a built in gateway for the interoperability with HLA/DIS networks, it is possible to perform operative training sessions in which the users can interact with a dynamic simulated scenario created and managed by the system.

MAIN FEATURES

Familiarisation
Users can familiarise themselves with physical system characteristics and perform activities in line with the physical constraint of the system components.

Recording
The instructors can record any interaction with the virtual model in order to create a step-by-step link between the technical manual procedures (S1000D Data Module) and the actions performed on the models (camera movement included).

Playback
The students can select and perform one of the recorded exercises/procedures available for the units of the system.

All the actions (including camera movement) recorded during sessions can be played back step-by-step on the virtual model, while the related technical manual procedure is displayed. All steps of the performed procedure could be exported as an MP4 video file.

Evaluation
Student can perform evaluation sessions (a set of exercises/procedures) having free or guided interactions with the system according to the evaluation criteria. All actions performed are recorded and compared with the reference procedure stored by the instructors.

Results are evaluated for the number of errors and the percentage of procedure correctly performed.

VERSIONS

MORPHEUS 3D
This is the desktop version containing the interactive, virtual environment linked to IETM (Interactive Electronic Technical Manual) and CBT (Computer based Training) learning objects.

MORPHEUS WEB
This is the web-based version of Morpheus 3D and allow the user to enjoy system functionality over a web browser (WebGL).

MORPHEUS VR
This is an advanced version providing an immersive 3D stereoscopic environment in which one or more users can interact in a seamless way using an HMD.