

AVERT ADAPTIVE
VIRTUAL
REALITY
TRAINING

AVRT and TESLASUIT – Human Centred Design for Immersive Training

DISTEC Theatre @ IT²EC - 28th April 2022



teslasuit

AVERT ADAPTIVE
VIRTUAL
REALITY
TRAINING

 **teslasuit**

“Human-centered design is an approach to interactive systems that aims to make systems usable and useful by focusing on the users, their needs and requirements, and by applying human factors/ergonomics, and usability knowledge and techniques”.



HCD Activities

There are four HCD activities that should take place during the design of any interactive system. These include:

- Understanding and specifying the context of use.
- Specifying the user requirements.
- Producing design solutions.
- Evaluating the design.



AVERT ADAPTIVE VIRTUAL REALITY TRAINING

For AVRT:

- **Extensive user research**
- **Prototype technology demonstrated**
- **Hardware in the hands of users**
- **Consideration of all potential stakeholders**
- **Collection, consideration and reaction to all feedback**



For Teslasuit:



AVERT ADAPTIVE
VIRTUAL
REALITY
TRAINING

STATISTICS

Shots Fired: 0
Accuracy: 0%
BPM: 9

PARTICIPANT VIEW

FREE ROAM CAM

AVERT

ADAPTIVE
VIRTUAL
REALITY
TRAINING



teslasuit

SAVE CAM HIDE UI MENU

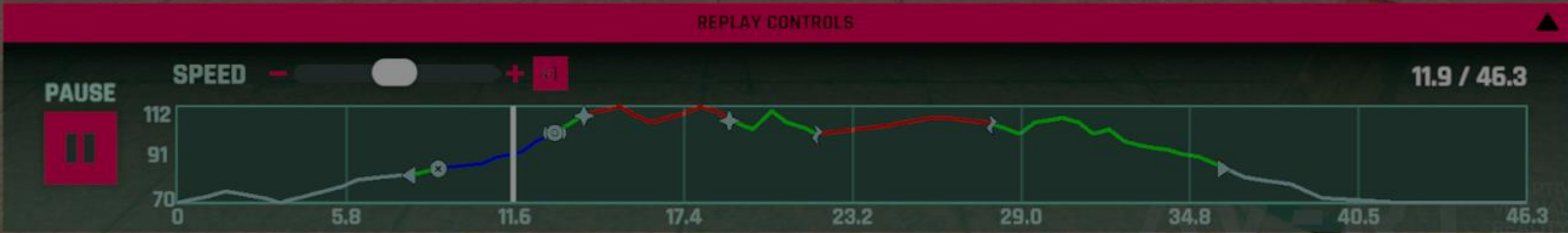
START SESSION

RESTART REPLAY

MAIN MENU

Biometrics:

Biometric data directly from the suit to the After-Action Review Display



AVERT ADAPTIVE
VIRTUAL
REALITY
TRAINING

 **teslasuit**

Motion Capture: Full Body Tracking

- **User body position analysis**
- **Correction of technique**
- **Enhanced Avatar appearance**

AVERT ADAPTIVE
VIRTUAL
REALITY
TRAINING



teslasuit

Haptic Feedback:

- **Enhanced user threat level**
- **Gunshots, stabbings and CED exposure**
- **Immobilisation of limbs**
- **Weather effects**

The AVRT platform is a new way of training that will supplement the toolkit of trainers:

Delivery method for existing curricula and frameworks.

No controllers, no buttons to learn or multiple choice menus to interrupt the learning.

More repetitions of critical training activities for neutral or saved costs is one of the key benefits of VR training.

See through the eyes of the trainee in order to better understand their decision making.



AVERT

VIRTUAL
REALITY
TRAINING

Natural Actions and Movements: Fully Free-Roam and Wireless Technology

- Reliable, self-contained consumer technology
- Wireless hardware
- Natural movements on a completely free-roam tracking area
- Users can train in standard tactical kit
- Far lower potential for training gaps

Virtually zero adaption time for users, leaving them to focus on the learning outcomes.

AVERT ADAPTIVE
VIRTUAL
REALITY
TRAINING

Train Anywhere, Anytime: Fully Configurable and Scalable Training Environment

- Fully configurable training area – any venue can be a training venue
- Can be set up in any reasonably-sized open space
- Fully scalable and portable
- No reliance on external networking or infrastructure

Train with Familiar Equipment:

Simulated real-feel weapons and hardware

- Industry-leading technology in weapons and active real-world objects
- Less-lethal weapons, Firearms and Equipment can be simulated
- Virtually any weapon can be built into the platform.
- Intuitive Weapon use is intuitive with haptic feedback
- Can be holstered into existing tactical equipment

Exceptional After-Action Reviews:

Detailed Full 3D and First-Person replays

- View the User's perspective to assess decision making
- View from any perspective within the scenario using a free-roaming camera.
- Training sessions can be recorded for review later if required
- Advanced metrics display shot placement, distances, reaction times and User biometric data

Challenge Users Every Step of the Way: Completely Adaptive and Controllable Dynamic Scenarios

- Adaptive configuration and adaptation of fully interactive scenarios whilst in action
- Define the environment, characters, clothing and weapons during training setup
- Change character behaviour, aggression and actions while the scenario is running live
- Different outcomes for users each time or standardised for assessment
- Networking allows Users to train together in the same virtual and physical space.
- Use existing trainer skillsets to deploy established curricula and frameworks out-of-the-box

More Training for Lower Costs:

A Blended VR Approach can Increase Repetitions Whilst Saving Costs

- Equipment use is simulated, saving costs for training sessions.
- Firearms, CEW and PAVA/CS can all be simulated within the system.
- More training for lower costs is the ultimate aim.
- Further incidental savings through travel, actors, environments etc.
- Denied environments are available within the system

AVERT ADAPTIVE
VIRTUAL
REALITY
TRAINING



teslasuit