The Invest WindsorEssex VR CAVE, located in Windsor, Ontario, Canada is an immersive and active virtual reality (VR) environment integrated with state-of-the-art hardware and software. The facility serves as a teaching, training and research tool for the Windsor-Essex region and beyond, designed to support Connected and Autonomous Vehicle technology development.

Virtual reality provides many valuable opportunities to aid in product development including: simulation, skills training, communication, and collaboration. Virtual prototyping allows products/processes to be tested before final verification with physical prototypes is performed.

Powered by ANSYS, Simutech and Barco, the Invest WindsorEssex VR CAVE delivers advanced simulation capabilities including:

- Advanced manufacturing simulations virtual training
- Walkthroughs (cockpits, buildings etc.)
- Perceived quality evaluations
- Advanced driver assistance systems testing
- Autonomous testing & engineering
  - Component simulation
  - HMI evaluation
  - Virtual drive scenarios
- Colour and material studies
- High-end data visualizations
- 1:1 scale virtual reviews

Virtual reality CAVEs could help automakers and their suppliers become more technologically innovative and competitive in the global marketplace.

Why is virtual reality useful to industry?

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Dave Hall, Automotive News Canada
A CAVE automatic virtual environment is an immersive virtual reality environment ideal for design, engineering and simulation. The Invest WindsorEssex VR CAVE uses 4 x 15 ft screens to create a cube room-sized virtual environment.

- 4 Barco UDX 4K projectors
- Active stereoscopy
- 3,840 x 2,400 resolution
- 31,000 lumens
- 2,000:1 contrast ratio
- 4 15 ft Barco screens
- ART smart track motion capture system
- 6 cameras enabling full body tracking
- Finger tracking

Head-Mounted Displays (HMDs)
Head-mounted displays (HMDs) are worn on the head or as part of a helmet, that has a small display optic in front of one or each eye. These have the smallest footprint with lower resolution than the CAVE, but are easy to deploy in any given environment.

- HTC VIVE Pro headset
- 1440 x 1600 pixels per eye
- 110-degree field of view

Data Processing
- 4 computers running NVIDIA RTX GPUs

For more information, to schedule a visit or talk about how your company can leverage the Invest WindsorEssex VR CAVE contact:

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