



project: syntropy (Germany / KSA / Sweden / Singapore)
 creates dvLED- / projection-based visual technologies and solutions for professional simulation and training environments, immersive XR environments, XR-CAVES, media based attractions and much more.

Project
Pennsylvania State University Motion Base Flight Simulator Visual System

Customer

The Vertical Lift Research Center of Excellence (VLRCOE), Motion-Base Flight Simulator Lab, Pennsylvania State University Pennsylvania/USA.

Project

Turnkey visual display solution for motion base helicopter simulator equipped with a 5m diameter curved screen on a dedicated mounting structure, six-channel WUXGA projection system, including domeprojection.com ProjectionTools auto-calibration and warping.

Project Details

The VLRCOE of the Penn State University planned an “Advanced Flight Simulation Facility for Research on Sea-Based Operations of Rotorcraft.” to develop a more advanced rotorcraft flight simulation facility which should be used for research on helicopter ship landings, as well as other rotorcraft flight dynamics, controls, and handling qualities topics. While attending a Helicopter Symposium hosted by the Institute for Helicopter Technology of the Technical University Munich/ Germany, they learned and tested the helicopter simulator ROSIE (Rotorcraft Simulation Equipment) and were also impressed by the quality of ROSIE’s visual system which we had delivered a couple of years ago. Penn State opted for a more or less identical visual system for their motion base rotorcraft simulator from us.

We therefore delivered a 6-channel visual display system – at that time equipped with projectiondesign F22 WUXGA projectors – which provides a large field of view of 210° horizontal and +20°/-50° vertical on the spherical screen. The complete system was equipped with domeprojection.com ProjectionTools auto-alignment and nWARP based on Nvidia graphics cards.

The simulator features a BA609 Simulation Cab donated by Bell Helicopters. The cab is mounted on a 6-DOF motion base



Leading Provider of Next Generation Visual Display Systems

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developed by Servos and Systems Inc. The electromechanical motion base provides +/- 30° roll / pitch / yaw motion in a compact 1 m3 system.

Meanwhile we supported Penn State to relocate the system in a new building.

About the VLRCOE at Penn State University

In 1996, a Penn State team was competitively awarded one of the three Rotorcraft Centers of Excellence (RCOE) by the newly formed National Rotorcraft Technology Center (NRTC). Since that time, Penn State research and graduate student enrollment has grown 10 fold, having been competitively awarded RCOE and VLRCOE Cooperative agreements from the NRTC in 2001, 2006, 2011, 2016, and 2021. Penn State also receives strong support from the US Office of Naval Research, NAVAIR, US Army Research Office, USAF Agility Prime, AATD, AED, NASA (Ames, Glenn and Langley Research Centers), and numerous industry partners throughout the vertical flight community.

The Motion-Base Flight Simulator Lab allows graduate student researchers to develop advanced control systems, dynamic models of advanced rotorcraft configurations, or new pilot interfaces and then test them in a realistic simulation environment with actual rotorcraft pilots.

Videolink:

<https://youtu.be/CeLdivT7MvU?si=OVEcP3EebEQvIGVN>



project: syntropy's visual display solutions for

- FMS FULL-MISSION-SIMULATORS
- FFS FULL-FLIGHT-SIMULATORS (EASA Level D)
- CT COCKPIT SIMULATORS
- HELICOPTER FLIGHT SIMULATORS
- FNPT / FTD TRAINING SIMULATORS
- COMBAT SIMULATION
- JFST ACTION TRAINERS
- JTAC TRAINERS
- ATM TOWER SIMULATORS
- DRIVING SIMULATORS
- SHIPS BRIDGE SIMULATORS
- INDUSTRIAL SIMULATORS
- RESEARCH SIMULATORS

full-service for S&T visual display solutions

project: syntropy offers turnkey solutions and full-service throughout your entire project:

- CONSULTING
- CONCEPT AND DESIGN
- APPLICATION DEVELOPMENT
- CONSTRUCTION, MANUFACTURING, INSTALLATION
- ADVANCED SOLUTIONS FOR NVG STIMULATION
- FULLDOME SYSTEMS
- tailor-made dvLED-/Projection-based VISUAL DISPLAY SYSTEMS
- AFTER SALES SERVICES
 - training
 - maintenance and support
 - tailored service-level-agreements (SLA)
 - spareparts supply

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