U.S. Navy Littoral Combat Ship (LCS) Bridge Part-Task Trainer (BPTT)

Overview

CAE understands the critical importance of safe navigation and collision avoidance in designing its integrated maritime training solutions. Combining its expertise in synthetic environments with those of a Bridge Trainer provider, CAE develops and delivers integrated bridge training solutions that prepare trainees both as individuals and as team members for navigating and operating their ships at sea.

U.S. Navy Littoral Combat Ship (LCS)

The U.S. Navy Littoral Combat Ship (LCS) comprises two different variants of small modern warships, designed for near-shore operations: LCS 1 – the Freedom-variant, designed by Lockheed Martin; and LCS 2 – Independence-variant, designed by General Dynamics.

Built by Xebec, a joint venture between CAE USA and Pinnacle Solutions, the LCS Bridge Part-Task Trainers (BPTTs) enable training ashore for both individuals and Bridge teams. The BPTTs provide training spanning navigation, collision avoidance, advanced ship handling, Bridge resource management, and communications, in settings ranging from entry into harbour to advance tactical exercises.

Key benefits

By using a high-performance computing environment, and sophisticated hydrodynamic modelling these BPTTs provide highly accurate ship handling characteristics. When combined with the necessary physical equipment, the result is a trainer that "feels" and "behaves" like the LCS. These features create the conditions for trainees to develop their seagoing skills and confidence, prior to joining their ships, whilst also becoming familiar with the configuration of the Bridge, all in a cost-effective package.

The BPTT also allows objective performance measurement and after-action review. Providing accurate feedback in this way is a critical aid to instructors who can then help trainees both to learn faster and to focus on activities and skills requiring greater attention. These features help improve trainee self-confidence and readiness to deploy, whilst also enhancing instructors' skills. The net effect is improved operational readiness, morale, and training efficiency.

XEBEC

Flexible solution

These trainers are capable of connecting to other Bridge Trainers and other training devices through the High Level Architecture (HLA) interface for networked training and also mission rehearsal. Utilizing HLA interfaces, the Xebec BPTTs can be integrated with Combat Management System (CMS) and Integrated Platform Management System (IPMS) trainers within larger and more complex synthetic environments. Doing so will support team and collective training in more complex settings including combat mission rehearsal, battle damage, Search and Rescue and a range of other operational challenges.

Features

➔ Realistic simulations of shipborne radios, radar, Automatic Identification System (AIS), and conning information displays.

➔ Enhanced radar with a higher level of fidelity for more realistic training scenarios.

➔ Applies actual Voyage Management System (VMS) 9.4 mapping/Electronic Chart Display and Information System (ECDIS) software deployed on the ship

➔ Uses actual shipset hardware for thrust/steering controls to provide high fidelity training in the Bridge environment.

➔ GDIT's VirtualShip (VSHIP) provides realistic hydrodynamics for the U.S. Navy's Surface Warfare Schools Command (SWSC).

➔ Offers a large variety of other ship models, including U.S. Naval vessels, commercial shipping, civilian vessels and foreign naval ships, many using high-fidelity hydrodynamic models.

Operational training

95% of the current U.S. Navy qualification training can be performed on the LCS BPTT. Additional features to capture performance metrics can be integrated to create a more advanced training and mission and operational support package. CAE with its demonstrated breadth and depth in operational training and learning science in Defense and Security, Civil Aviation, and Healthcare would welcome the opportunity to discuss your training needs and operational readiness challenges. Whether your interest is in Bridge Trainers similar to those provided to the U.S. Navy or other aspects of naval operations, CAE is ready to assist you define your training requirements and then deliver cost-effective solutions to improve operational readiness and ship safety.

Experienced Team

CAE has proven experience in the design, development, and delivery of world-class naval training solutions for navies around the world. We help support individual, team, whole ship, joint and coalition training and mission rehearsal. Examples include:

➔ UAE NDCTC - CAE is leading the design and development of a comprehensive Naval Doctrine and Combat Training Centre (NDCTC) for the United Arab Emirates (UAE) Navy as the first element of a distributed and networked naval training system;

➔ Swedish Naval Warfare Training System - Comprehensive training system that includes simulation software, hardware, wargaming consoles, and instructor operator stations that are being used to educate Swedish Navy sailors and officers in naval tactics, procedures and doctrine;

➔ Canadian Surface Combatant (CSC) – subcontracted to Lockheed Martin for Human Factors Engineering, and the provision of Training Systems Integration centred on the ship's combat systems;

➔ Provision of a Maritime Integrated Training System (MITS) for the United States Army, delivered by Xebec, a joint venture between CAE USA and Pinnacle Solutions;

➔ Design and manufacture a Bridge Part Task Trainer for the Royal Saudi Naval Forces for their Multi-Mission Surface Combatant (MMSC), delivered by Xebec, a joint venture between CAE USA and Pinnacle Solutions;

➔ Design and manufacture Class "A" and "B" Bridge Simulators for the Egyptian Naval Forces, delivered by Xebec, a Joint Venture between CAE USA and Pinnacle Solutions.