QuantaDyn Corporation

Advanced JTAC Training System

QuantaDyn Corporation has teamed with several small businesses to develop the Advanced Joint Terminal Attack Controller (JTAC) Training System (AJTS). The AJTS device is designed to support JTAC and Combat Controller squadron level continuation, qualification and mission rehearsal training requirements. It has been accredited by the Joint Fire Support Executive Steering Committee (JFS ESC) to replace live controls, type 1, 2, and 3, both day and night, required for JTAC qualification (currency) training IAW the JTAC MOA. QuantaDyn is working toward achieving STANAG accreditation for the device, anticipated in Sept 2013.

The core AJTS configuration consists of a domed visual display system with high resolution projectors, a powerful and intuitive Computer Generated Force (CGF) / Semi-Autonomous Force (SAF) application, a high fidelity Image Generator (IG) system capable of rendering scenes in multiple spectrums, a dynamic aural cueing system, and a full suite of emulated, stimulated, and virtual military equipment.

The AJTS device uses dome systems from Immersive Display Solutions, Inc. The AJTS domes provide a truly immersive environment. They are engineered for durability and are offered in hard shell or fabric covered frame options. They range in size from 3 meters to 6 meters and can be engineered to fit into facilities with limited ceiling height.

The AJTS device uses the Modern Air Combat Environment (MACE) from Battlespace Simulations, Inc., for its CGF/SAF. MACE is a physics-based many-on-many simulation and threat environment with a large order of battle and Integrated Air Defense System (IADS) capability. It includes both Call-for-Fire (CFF) and 9-Line interfaces for quickly tasking constructive close air support entities. MACE also has fully flyable flight models, allowing both constructive and virtual (pilot-in-the-loop) standalone CAS (close air support) training. MACE supports the Distributed Interactive Simulation (DIS) architecture including simulation management, entity state, fire, detonate and emissions PDUs.

The AJTS device uses the Virtual Reality Scene Generator (VRSG) from MetaVR to render the virtual scene in the display dome. It supports high detail models, special effects, and terrain with sub-meter imagery. VRSG also renders low light/IR dome scenes, sensor spectrum modes such as electro-optic, white/black hot, and NVG, as well as targeting pod symbology.

The AJTS device includes a powerful 7.1 surround sound aural cueing system. Aural cues include vehicle, aircraft, weapons, personnel, detonations, and ambient sounds. The system provides a 360 degree sound field that includes entity position and velocity vector (doppler) effects, distance effects like explosion sound delay, terrain occulting, and interference along the sound path.

The AJTS system includes a specifically designed Trainee Military Equipment (TME) computer that integrates a complete suite of TME into the AJTS device. The TME computer interfaces to 6-degree of freedom trackers, dedicated VRSG channels, and the trainer network to provide position and orientation (aiming) data, virtual scene viewport orientation data, and voice-over-IP communication. A typical suite of TME includes multiple virtual radios, a virtual Defense Advanced GPS Receiver (DAGR), emulated binoculars, laser range finder, laser target designator, infra-red (IR) pointer, ROVER feed viewer, and M-4 carbine with scope. An IR configured dome provides ultra realistic stimulated night scene views using any standard military night vision devices.

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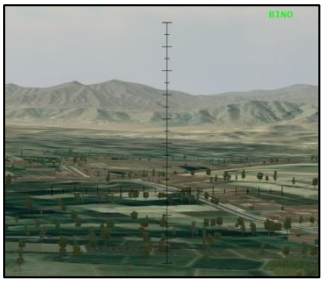
Standard dome sizes include 3m, 4m, 5m , and 6m, with various combinations of field of view and resolutions. LED projectors are used to ensure extended life and low life cycle costs. Projection display systems include an automatic alignment system that provides a perfectly aligned system in less than 3 minutes.

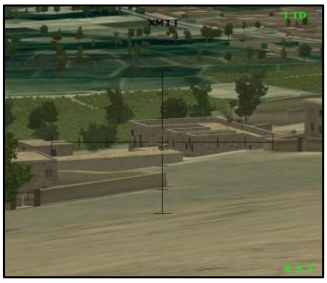
	3-Meter Dome		4-Meter Dome		5-Meter Dome		6-Meter Dome	
Model	300U	300Q	400U	400Q	500U	500Q	600U	600Q
Dome FOV	220 H x 90 V (+60/-30)		240 H x 100 V (+70/-30)		270 H x 100 V (+70/-30)		240 H x 120 V (+90/-30)	
Geometry	Spherical		Spherical		Height Modified Spherical		Height Modified Spherical	
	No overhead cap		Partial Overhead FOV		Partial Overhead FOV		Overhead FOV	
Projector Type	DLP	DLP	DLP	DLP	DLP	DLP	DLP	DLP
Illuminator	LED/LED+IR	LED/LED+IR	LED/LED+IR	LED/LED+IR	LED/LED+IR	LED/LED+IR	LED/LED+IR	LED/LED+IR
Projector Resolution	WUXGA	WQXGA	WUXGA	WQXGA	WUXGA	WQXGA	WUXGA	WQXGA
Resolution, arc-min/pixel	2.6	2	2.4	1.8	2.0	1.6	2.2	1.7
Resolution, arc-min/OLP (10% MTF)	5.5	4.2	5.0	3.8	4.2	3.2	4.8	3.7
Footprint, WxDxH	12'x13'x11'		16'x16'x12'		20'x19'x12'		22'x20'x12'	
Projectors - Electrical	120-240V @ 50/60 Hz		120-240V @ 50/60 Hz		120-240V @ 50/60 Hz		120-240V @ 50/60 Hz	
VDS Max Power, Amps	25	32	35	40	40	50	40	50
VDS Thermal, BTU/Hr	< 6000	<6600	< 10600	< 11000	< 12700	< 13200	< 12700	< 13200
Delivery Timeframe, ARO	8 weeks		8 weeks		10 weeks		10 weeks	

Trainee Military Equipment can be configured in most any combination of emulated or virtual designs. Actual form, fit, and function JTAC equipment such as the SOFLAM, Mark VII, and IZLID emulations can be provided as well as representative combination devices, depending on the training requirements. Radios can be virtual touch-screen simulations or full tactile feel hardware devices.

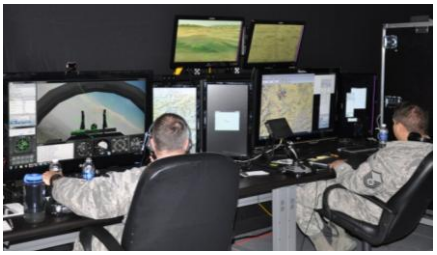
The AJTS Instructor Operator Station (IOS) provides an intuitive interface for scenario creation, setup, and monitoring, and includes the capability to implement trainee equipment malfunctions and features such as mission record/playback. The Instructor can utilize the purely constructive aspect of all scenario entities or may take control of any entity at any time to provide virtual interaction with the trainee.











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