

Polhemus PATRIOT™ Tracks the Positioning of Ultrasound Probe for Training and Simulation System



MedSim—Pioneers in Ultrasound Simulation Training

Historically, ultrasound training has been a challenging task; training on real-life patients can be difficult and alternative forms of training did not exist. MedSim changed this and revolutionized training for ultrasound users. With their flagship product, UltraSim®, MedSim was the first to pioneer the use of simulation for ultrasound training.

The ability to simulate ultrasound training was an important break-through for health care. An advantage of simulated ultrasound training is it allows trainees to practice with various types of situations—everything from normal to abnormal cases.

The UltraSim provides a realistic environment that looks and feels as it would with a real patient. For example, with a simulated obstetrical exam, the screen image is identical to that of a real fetus using real ultrasound equipment. The trainee can scan an entire fetus's anatomy.

“The UltraSim simulates the functions of a conventional ultrasound machine, allowing students to perform sonographic examinations on a mannequin. The UltraSim is a self-guided simulator that gives students realistic hands-on ultrasound scanning experience without the need for live patients. The scanning techniques used by the students simulate the same skills necessary to examine a patient in a clinical setting.” said Denise Levine, Sales Manager, North America, MedSim Inc.

UltraSim Powered by Polhemus PATRIOT—6DOF, Cost Effective Tracking Solution

After evaluating various technology options for UltraSim, MedSim selected Polhemus motion tracking technology to power UltraSim. PATRIOT provides the necessary six-degree-of-freedom tracking and its combined performance and affordability made it the top choice.

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INNOVATION IN MOTION™

There are multiple advantages of using the PATRIOT system in a training simulator—the small size and portability of the entire system, the affordable price, and the unique ability to embed the sensor inside the probe. (*Polhemus PATRIOT Motion Tracker pictured at right*).



Because Polhemus proprietary technology is electromagnetic based, the sensor can be embedded into a custom form factor. This made the PATRIOT a perfect fit for MedSim's UltraSim.



The PATRIOT precisely tracks the position and orientation of the mock ultrasound probe relative to an anatomically correct training mannequin. The UltraSim system uses this probe position data to change the ultrasound image accordingly. MedSim's UltraSim delivers the much needed ultrasound scanning experience and the ability to identify and examine different anatomic areas with standard ultrasound equipment settings, controls and functions. (*MedSim Ultrasound Probe with embedded sensor pictured at left*).

UltraSim—Also Aids in Quality Assurance

According to Levine, “Instructors can measure and monitor the student’s skills and progression. The simulator is a valuable tool that provides standardized, non-subjective evaluations of the student’s scanning abilities.” This aids in quality assurance and is helpful to medical organizations that accredit professionals in procedures and examination techniques. There are many benefits to the trainers, trainees, and the hospitals, but the real benefit translates to the future patients who will be examined by a competent, well-trained technician.

Background on MedSim

MedSim is a leading simulation design company with a history in various industries as diverse as defense avionics and medical training technology. Former parent company, Hadas Avionics, designed simulation systems for training fighter pilots to control the sophisticated weapon systems of attack aircraft. MedSim is focused on furthering the development and use of its simulation technologies in industries where high performance and accountability are crucial.

After being spun-off by Israeli-based Hadas Avionics in 1994, MedSim began designing medical training simulation devices. MedSim’s focus is advanced medical simulation devices and its first product, UltraSim, an ultrasound simulation device was launched in November 1995. With UltraSim, allied health departments, medical schools and hospitals can use this real-time simulation training device to improve their student residents and physician’s ultrasound imaging and diagnostic techniques. MedSim UltraSim units are sold and used worldwide.

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UltraSim system and probe images courtesy of MedSim.*



For more information on MedSim visit: www.medsim.com