

THE UNIVERSITY  
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at CHAPEL HILL

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<b>Research Institutions:</b>	Naval Postgraduate School (NPS), Sarnoff Corporation, University of North Carolina (UNC) at Chapel Hill

## Virtual Sand Table

We have demonstrated a new idea for a “virtual sand table” that combines **physical models** with **computer-generated projection** and **painting-style interaction**. Intended for training or operational use, the sand table comprises small-scale physical models of buildings, illuminated by multiple projectors to add aerial and synthetic imagery, including dynamic indications of the locations and motion tracks of personnel. Interaction with the tabletop scene is enabled through wand-controlled painting on all surfaces. Motion tracks are read from the BASE-IT database. We demonstrated the sand table at the BASE-IT Year 2 review as part of a simulated training exercise (right, top), and have shown other models such as Kilo 2 at Camp Pendleton (right).

The targeted training facility currently uses a conventional physical sand table with wooden building models to plan movements of small groups of exercise forces. Our new display should **enhance this planning process** and also support **after-action reviews**.

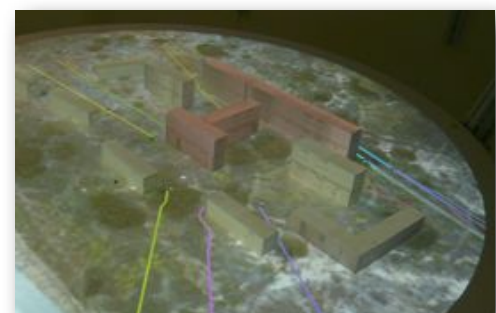
Possible future work includes the development of **modular units** that can be dynamically configured with different scene models, and linked to each other (multiple units) to create a larger physical-virtual space. Enhancements to the content could include **simulation of lighting conditions**—particular times of day or night, including shadows; additional target types, e.g., vehicles; and **training statistics**, e.g., fields of regard, or unobserved areas. Beyond this initial application, our display may also be useful in applications such as **surveillance**.

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### A Projector-based Physical Sand Table for Tactical Planning and Review



16 SEP 2009, Y2 Demo, Princeton, NJ



K2, Camp Pendleton, with motion tracks