

DATE: August 6, 2002

FROM: Ronald D. Kriz

TO: A. Habayeb

CC: Lance Arsenault, John Kelso, Fernando das Neves, and Chris Logie

SUBJECT: NAVCIITI Quarterly Report 21

RE: - Project 2.0 Visualization HCI and Collaboration  
- Task 2.1: Command and Control Visualization

***SOW 2.1a.9: Create interfaces (DSOs) for HMDs, IWBs, and desktop flat panel displays, across heterogeneous operating systems: IRIX, Linux, HP-UX, Windows, August 02***

*Background:* Our objective is to provide a distributed collaborative network of graphical and device independent tools in a shared virtual environment, which can be used by Command and Control (C&C) personnel to gain a strategic advantage. Specifically we focus on the mission critical C&C interpretation of acoustic undersea data from towed arrays for the Naval Undersea Weapons Center (NUWC) using the CONRAY simulation models. These simulation models can be extended to "real-time" data acquisition systems. Under the direction of personnel from NUWC and the Naval Research Laboratory (NRL) we have identified a working prototype which we have successfully incorporated into our Device Independent Virtual Environment Re-configurable-Scalable-Extensible (DIVERSE) tool that works in stereo in the (C)AVE Automated Virtual Environment (CAVE), Immersive Work Bench (IWB), Immersive Desk (I-Desk), desktop workstation simulator, and Head Mounted Display (HMD) systems at the Virginia Tech Center for Virtual Environments and Visualization (CVEV). This effort has evolved and become part of the 3D Visualization Project called TALOSS, which was originally called SubVE.

*Discoveries, Accomplishments, and Test Results as they relate to NAVCIITI SOW 2.1a.8*

Virginia Tech and NUWC personnel met in June in Alexandria, VA, to evaluate the progress of the project and establish what was the desired state of the project required for the demo at NUWC in September 2002. NUWC and VT agreed to share in the development of creating and handling the bathymetry, which was not originally assigned to VT. Since a proper handling the bathymetry was deemed critical to the project, this task took precedence over other tasks originally scheduled. NUWC would work on generating a tiled bathymetry from DNC (Digital Nautical Charts), while VT would write the code to handle the assembly of tiles in a bathymetry, and displaying of a rectangular sub-area of the bathymetry. This rectangular area or "window" to the bathymetry can be shifted to explore all the available bathymetry area.

*Plans for Next Quarter: 2.1a.10: Delivery of first complete version of DGL /TALOS, March 03*

*What's next:*

Given the variable detail in the DNC, it was agreed that updating bathymetry should not result in a decrease or lock in the rendering of the rest of the scene. As of August 5, 2002, Virginia Tech has written the code to fulfill the newly acquired responsibility of handling the bathymetry, which is in its final stage of testing and on schedule to be integrated with the main code before August 31 2002. The drawback is that Virginia Tech's other responsibilities, like integration of DGL in the SubVE code to

take advantage of Virtual Environment displays, has been delayed after September 1 2002. This delay, along with better integration with ICE to handle sonar data coming from multiple sensor databases inside the submarine, was agreed with and approved by NUWC.

NUWC will coordinate NUWC and NRL efforts and interact with VT as required. VT will maintain regular communications with NUWC regarding the development of the SubVE/TALOSS interface

*Outstanding Issues:* SOW 2.1a.9 has been postponed because of reassignment of coding bathymetry for the TALOSS project.