

iLab: Immersive Visualization Lab

MUITC – IIF 2009-2010

Final Project Report

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Proposal Summary

We proposed to develop the iLab – a large-screen, stereoscopic display environment to support 3-dimensional visualization with the 2009-2010 MUITC Interdisciplinary Innovations fund. The iLab provides an infrastructure for innovative, inter-disciplinary research projects involving visual simulations. The iLab is seen by the department of Architectural Studies department as a strategic investment. The iLab is expected to strengthen the Design with Digital Media program as well as to foster inter-disciplinary collaborations across MU.

iLab Implementation

Location

The Architectural Studies department converted its Resource Library and Drafting studio for the iLab. The iLab is located at the heart of the MU campus in 233 Stanley Hall. The iLab is approximately 36' by 24' including space for rear projection space and can accommodate approximately 30 people for presentations.

Technology Infrastructure

Access to additional funds from the Department and the College enabled us to go beyond what was proposed originally for the core 3d-display facility of the iLab.

Desktop VR system: The iLab was developed using a desktop VR approach for ease of use and accessibility. The main display is driven by a Dell Precision T7500 workstation with Xeon Quad core processor running Windows 7, 64bit operating system. Dual Quadro FX4800 video cards allow the 3 projectors to form one continuous display.

Screens: The display consists of three 6' x 6' TechScreen 150 glass panels for distortion free projection. The overall display size is 18' by 6'. The screen panels are supported using a custom designed aluminum frame that is bolted to the floor. The design allows for reconfiguration & re-use of screen components to accommodate future needs.

Projectors: An active stereo display system using three DepthQ HD 3D WXGA projectors was implemented instead of a passive system using two sets of dual Dell MP 5100 projectors as proposed originally. Using DepthQ projectors and active stereo display system eliminated a host of alignment issues and provides brighter image quality. The expensive front surface mirrors were also eliminated in the revised design.

Project Timeline

August 2009

- Room 233 in Stanley Hall chosen as the location for the iLab

- Additional funding committed from HES & Architectural studies

September – October 2009

- Upgraded the overall design of the iLab with respect to display configuration and choice of projectors

November – December 2009

- Quotes from vendors for Screen and DepthQ projectors
- Finalized Components and Design
- Tested DepthQ projectors for compatibility
- Facility Upgrades Completed

January – February 2010

- Procurement process
- clarifications from vendor etc
- Purchase Order placed on February 11, 2010

March 2010

- Delivery of DepthQ Projectors
- Configuration of Desktop Computer and display configuration testing

May 2010

- Screens Delivered on May 3rd.
- Assembly & initial testing of projection on May 6th.

June – July 2010

- Screen calibration.

October 2010

- Formal launching of the lab

Account of Expenses

The additional support from the Department of Architectural Studies, the College of HES and the PI's start-up funds allowed the project team to expand the project scope. The critical components for the iLab – the DepthQ projectors, TechScreen 150 screens & the frame were procured through LightSpeed Inc. We proceeded through the MU Procurement process to ensure all formal protocols were met. The list of Hardware components purchased using the MUITC funds is listed in the expense account spreadsheet attached herewith.