

## **Reference Project 3 – Foundation of the Hellenic World – Cultural Center Hellenic Cosmos - Tholos**

**Location** –Foundation of the Hellenic World- Athens, Greece

**Type of System Installed** – Virtual Reality Systems

**Project Completion** – 2009

### **Project Summary**

#### **Foundation of the Hellenic World – Cultural Center Hellenic Cosmos - Tholos**

The "Tholos" is the Foundation's new dome-shaped Virtual Reality "Theatre" with a capacity of 130 people. It is a building of exceptional architectural design and with unique technological infrastructure, which hosts FHW's digital collections.

The "Tholos" resembles a planetarium regarding its natural and morphological characteristics. However, their only common characteristic is the semi-circular shape of the projection surface. The exterior shape of the "Tholos" refers to a whirling celestial body. It a sensation that is rendered through the processing of surfaces and the selection of materials, such as the successive rings that surround the external shell and the special lights that make it stand out during the night. Thus, the "Tholos" becomes a symbol of Hellenism and characterizes Pireos street in Athens - Greece.

The shows will be interactive, controlled by the spectator, and not static. It is a unique experience of immersion into the virtual world, which is characterized by immediate response, flexibility, originality and liveliness.

### **Technology**

The "Tholos" has been designed as a Virtual Reality museum, which hosts FHW's digital collections making them accessible to the public. These collections are testimonies of high cultural value, as they are developed and composed based on original and internationally innovative procedure of research, documentation and visualization of the historical and archaeological information.

The peculiarity of the "Tholos" is its ability to project onto the projection surface, with an inclination of 23 degrees, fully interactive content. The content that is projected on the "Tholos", like FHW's existent Virtual Reality systems, "Kivotos" and "Magic Screen", is not



"taped" but thanks to its digital infrastructure it possesses flexibility and liveliness. This significant difference is due to the fact that the basic mechanism of creation and projection at the digital "Tholos" is an extremely powerful battery of computers, which creates the projected images in real time, using the visualized information that has already been produced by FHW.

The basic advantage of this method is the ability to "create" a photorealistic reconstruction of sites, buildings, monuments, even people, that exist solely in the imagination of their creators or the researchers architects, historians and archaeologists, who have been trying for decades to describe and reconstruct them with two-dimensional drawings, based on their ruins and sources that still survive.

As a result, infinite alternative scenarios are created, within the same virtual model, which are being developed during the show and the visitor has the opportunity to navigate in real time. In spite of the fact that this medium can be used by creators or producers for numerous other objectives and applications, it also has the ability to incorporate and project into virtual space every kind of digital content: from videos and pre-processed digital projections to Internet web pages.

The superiority of the "Tholos" consists in its increased ability to create the feeling of immersion in virtual space, in other words the feeling that we are really there, but also the interactivity with the virtual space and the objects that compose it. The public is no longer just spectators in the realistic environment, but they can participate actively in the program and even define their experience. Since the images they see are not predetermined or "taped", but are produced in real time, the public can interact with the space and determine the attitude of the virtual space.

An international innovation of the "Tholos" is the ability to create a full stereoscopic projection on the whole surface of the screen, with the use of 12 projectors and special stereoscopic glasses, increasing thus the feeling of immersion and providing additional opportunities for interaction. Of course, the projection onto a concave semi-circular surface, even without the stereoscopic ability, creates a 3-dimensional sensation. The ability to combine and alternate them combined with the interactive scenarios make "Tholos" a project unique for the whole world.

Another innovation is the ability of the "Tholos" to incorporate in real time the interaction between virtual and real elements, and particularly presenters and performers, with the use of special technologies for the recording and modeling of animation. This ability brings closer Visual Arts and Virtual Reality and increases the public's feeling of immersion, as well as the educational and expressive uses of the medium.

"Tholos" possesses state-of-the-art sound systems 7.1. of film quality, as well as all the relevant control systems.



**PANOÜ S.A.** was responsible for the supply and installation of the special equipment (central super-computer system, playback system and other systems for the virtual reality systems.

### **The experience**

In order for the spectator's eye to adapt to the dark environment of the main hall, he passes through a semi-lit space, where for 5-10 minutes he watches a multimedia presentation on numerous screens, where he learns about the "Tholos", the presentation he is about to watch or even about the project itself and the digital representation.



## PROJECT IMAGES



