



A LIBRARY FOR 3D MODELING OF ARCHEOLOGICAL SCENES

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Abstract

Archaeological sites have always been a valuable aspect in the preservation of heritage and cultural identity of any country. More importantly, Archeological sites have become the prime choice of tourist attraction. This applies to Sri Lanka too. Over the years Sri Lanka has reported a high income generation through tourism. However, this could have been increased if the Sri Lankan archeological sites are published on www. For instance, it is now high time to go beyond text, photographs and videos of archeological sites and use 3D interactive Virtual Reality techniques to allow people to sense the archeological information. However, development of 3D interactive Virtual Reality models is a tedious and time consuming task. Therefore, this project has developed 3D interactive Virtual Reality Modeling library that can be used by even novice person in 3D modeling with little knowledge is archeological domain. The Library has been customized to development of 3D models of archeological sites in Sri Lanka.

The 3D Models Library has been designed and developed with a library of 3D building blocks of archeological scenes in Sri Lankan. For instance, the library includes 3D interactive models of water gardens, tanks, ponds, canals, temple and moonstones, which are specific to Sri Lankan archeological sites. As a key feature of the approach, developers are allowed to download the framework through web and after developed the site they can export their scenes into web interface. Since the 3D interactive visualization of archeological sites will also be enabled on the web for the users, this approach has a great importance in terms of testing improving the site being developed. By using Java EAI user can control the scenes and change the texture through web interface. The modeling techniques used in these 3D models can be divided into several tasks. First we have found archeological finding information, maps and terrestrial images. Secondly, developed basic 3D models and apply texture to the models using 3D Studio Max and finally export it to VRML. After. exporting to VRML we have apply VRML functionality to VRML cording and to reduce unnecessary cording produce by the software used "Chisel" VRML optimizer.



Finally upload 3D models into VRML library. Library of building block GUI developed through "Visual studio" and link with VRML model database. In the user interface user can insert archeological site map into user platform and insert 3D models from the given list and place in the map

The Framework has been used to develop a 3D interactive Virtual Reality Model for Sigiriya and ancient temple. The created 3D model of Sigiriya consists of water gardens, stone garden, ponds, prince meeting rooms, Mountain & ancient temple, etc. This application allows a user to view Sigiriya from various angles and also enjoy a walk through following scenes of the 3D model of Sigiriya. User can change 3D VRML scenes texture in the web interface and they can move the object in the site.

This model has been shown to student and collected the feed back on their satisfaction. Most users are to be new in this type of system and, they are interesting the system but like to see the more realistic texture and models in the library. There for we add another temple 3D models category into the library. It is recognized that the developed Framework can be used to model other Sri Lanka archeological sites such as Ancient city of Anuradapura , Polonnaruwa, Dambulla and Yapahuwa through the reuse of 3D interactive building blocks available in the system. Although the 3D modeling library has been currently developed with a library of 3D building blocks of archeological scenes, the library can be extended for modeling in other domains too. More importantly, this Framework can also be introduced as a plug-in for standard Virtual Reality Modeling environments.

Keywords - Virtual Reality, Virtual Reality Modeling Language, 3D modeling, Animation