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Virtual reality brings past to life

Virtual museums could offer a way of travelling back in time to experience the past, say researchers.

A team at the University of Geneva have been using sophisticated 3D computer modelling technology to bring historical monuments to life.



The models can be explored in real-time

They have developed virtual reality models of a Turkish mosque dating from the Ottoman era of the 16th century which let you move around and explore the buildings in real-time.

The researchers say the technology could give visitors to a virtual museum a sense of "being there".

"The technology allows you to restore endangered sites, with the atmosphere and ambience of those buildings at that era," said Nedjma Cadi-Yazli of Miralab at the University of Geneva.

"We have also simulated a virtual human to make for a more realistic simulation."

Time travelling

For the project, the Miralab team focused on the mosque of Hagia Sophia, which is now a museum.

It is a world acclaimed cultural heritage site in the Turkish city of Istanbul.

The Hagia Sofia was originally a cathedral dating back to the 6th century.

The researchers used architectural plans, together with high resolution photography and video to create the virtual models of the mosque.



“ We are trying to give the impression of back in time - this kind of technology could be used for a virtual museum ”

Nedjma Cadi-Yazli, Miralab

As well as the buildings, they also created virtual humans, including an imam, to simulate what Friday prayers would have been like in the Ottoman era.

The models can be explored in real-time using a mouse, either zooming in on a detail in the mosaics on the wall or pulling back to get an overview of the interior of the mosque.

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3D sound

Close attention has been paid to ensuring the furniture, colours and texture is historically accurate.

In addition, the lighting and sound change, depending on the position of the mouse.

The aim is to provide an alternative to photos or diagrams of cultural artefacts and instead provide a way for people to immerse themselves in the past.



Attention has been paid to details inside the mosque

"We are trying to give the impression of going back in time," Ms Cadi-Yazli told BBC News Online. "This kind of technology could be used for a virtual museum.

"We are now performing these demonstrations in 3D stereo on a big screen. You feel like you are in the building."

The Miralab team say their work can offer a way of witnessing the past using virtual reality technology, when restoring an ancient monument to its full glory would be too expensive, time-consuming or impractical.

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