Behind the scenes at the museum

Augmented reality to enhance cultural experiences

Academic: Dr Helen Treharne

A new mobile app based on augmented reality and indoor localisation technology is radically changing the way visitors interact with museums and gallery spaces.

As the use of augmented reality (AR) on mobile phones has risen in popularity, several AR apps have been developed to enhance visitor experiences in museums, galleries and other cultural spaces. However, wide-scale adoption of these tools has been hindered for three reasons. Firstly, bespoke development is required to integrate content, which is beyond the means of the UK's 1,900 regional organisations. Secondly, no effective indoor positioning technique is available that can reliably link to augmented content based on a visitor's location. Thirdly, technologists developing apps tend to focus on getting the technology working rather than on usability or content.

An initial IAA project at Surrey developed a prototype Android app capable of overcoming these barriers, enabling exhibition visitors to enjoy a richer, deeper cultural experience, and gallery owners to better understand how visitors are interacting with their space.

The resulting 'Let's Explore' app offers a cost-effective solution by combining the use of visitors' own mobile phones with image recognition and positioning using Bluetooth Smart Beacons (such as the Apple iBeacon). Using the app, visitors are able to access additional information on paintings or historical objects through a combination of oral histories, film, photographs and maps. The technology also recognises where visitors are as they move around an exhibition space, helping curators and gallery visitors to track how their exhibits are viewed.

The app was successfully trialled at two galleries in Surrey – The Lightbox in Woking and Watts Gallery in Compton – in order to evaluate the needs of curators, the expectations of the public and the requirements of the technology. It was enthusiastically received, demonstrating a clear market for the technology.

'It was enthusiastically received, demonstrating a clear market for the technology.'

The 'Let's Explore' app on trial at The Lightbox, Woking

Following the trials, a second IAA project was launched – in partnership with Pervasive Intelligence Ltd, Visit Surrey, The Lightbox and Watts Gallery – to develop a production-ready AR app and supporting infrastructure. This project focused on creating the web system to support the product, developing a business plan to define how 'Let's Explore' could be rolled out to cultural organisations, and establishing links to both cultural organisations and commercial partners.

One of the key findings of this second phase of the development was the need for cultural organisations to be able to look after their own content. Typical apps for a museum or gallery are bespoke and hence cater for only one exhibition with no changes to the content. This approach is expensive and places a limited lifetime on the app. In contrast, the approach taken by 'Let's Explore' is to enable cultural organisations to enter and maintain their own content and release it to the mobile app simply, time and time again without any bespoke development.

Matthew Casey, Managing Director of Pervasive Intelligence Ltd, says:

"The launch of 'Let's Explore' is the culmination of a lot of hard work in understanding the needs of cultural organisations and their visitors, and our approach to solving some of the key problems associated with wide-scale adoption of digital interpretation. Without the support of the University or the EPSRC, this project would not have been possible and this demonstrates the commitment of the University of Surrey to turn research into impact."

'Let's Explore' launched in February 2015: **lets-explore.com.**