Can heritage be high-tech?

Building Information Modelling (BIM) for built heritage

Danae Phaedra Pocobelli

UCL Institute for Sustainable Heritage, University College London, London, UK

Aknowledgements

SEAHA and UCL ISH. This project is supported by Alexandra Bridarolli for the training; thanks to Jan Wouters for the chemistry training; thanks to Lik Ren Tai and Mark Underhill for the laboratory assistance; thanks to Alexandra Bridarolli for the support. This project is supported by SEAHA and UCL ISH.

References


Building heritage conservation is a sensitive task, as there are many issues that have to be considered [1][2]. In the analysis phase a lot of different kinds of information has to be researched [2], such as building’s history, its historic layers, material characterisation and properties, damage and temporal decay. Holding the correct data is the first step to achieve a successful renovation project [3]. BIM is a new technology used in new constructions that allows to have a holistic view of the building [5], thanks to its capability to retain different information in different formats, such as tables, graphs, images, texts, links, etc. [4]. This work aims to propose a solution developing a new step-list that will enable professionals to use BIM in the building heritage field.

The planned methodology deals both with material analysis, through material characterisation, and surveying, via Terrestrial Data Acquisition (TDA). Concerning TDA, two different techniques will be studied: 1. Laser scanning allows to detect the geometry and the volumetry of the building; 2. Photogrammetry permits to focus on the material characterisation and on the textures. Both tools create a points cloud.

The above process will be applied to the Jewel Tower. A conservation project will be delivered, and a step-list will be developed, which will include suggestions based on the experience gained through the case-study. Information will be unified in a unique model through BIM.

This project is an opportunity to deepen the research in both material characterisation/ways of decay and the use of BIM in built heritage. The conservation project will affect the former topic, whilst the step-list and the unique model will be a benefit for heritage science professionals dealing with historic buildings.

Future work should focus on the development of a new software, which will be able to hold all the information, including intervention records. Moreover, it will output a real-time model of the building, based on the monitoring data/forecasts.

Building life-cycle in BIM

The Jewel Tower, case-study

How is BIM useful to building heritage conservation?
• What kind of information is it able to hold?
• Using BIM will bring a revolution in heritage? What kind of revolution?

1 UCL Institute for Sustainable Heritage, University College London, London, UK
*danae.pocobelli.15@ucl.ac.uk

Aknowledgements

SEAHA and UCL ISH.

support. This project is supported by

thanks to Alexandra Bridarolli for the training; thanks to Jan Wouters for the chemistry training; thanks to Lik Ren Tai and Mark Underhill for the laboratory assistance; thanks to Alexandra Bridarolli for the support. This project is supported by SEAHA and UCL ISH.

References


Acknowledgements

Thanks to Jan Wouters for the chemistry training; thanks to Lik Ren Tai and Mark Underhill for the laboratory assistance; thanks to Alexandra Bridarolli for the support. This project is supported by SEAHA and UCL ISH.

References


Acknowledgements

Thanks to Jan Wouters for the chemistry training; thanks to Lik Ren Tai and Mark Underhill for the laboratory assistance; thanks to Alexandra Bridarolli for the support. This project is supported by SEAHA and UCL ISH.

References


Acknowledgements

Thanks to Jan Wouters for the chemistry training; thanks to Lik Ren Tai and Mark Underhill for the laboratory assistance; thanks to Alexandra Bridarolli for the support. This project is supported by SEAHA and UCL ISH.

References


Acknowledgements

Thanks to Jan Wouters for the chemistry training; thanks to Lik Ren Tai and Mark Underhill for the laboratory assistance; thanks to Alexandra Bridarolli for the support. This project is supported by SEAHA and UCL ISH.

References