PAST, PRESENT & FUTURE: Using Digital Technologies to Support Conservation

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Project aims:

To demonstrate the use and application of relevant digital techniques for local and national heritage groups concerned with buildings and their artefacts.

The application of such technologies can be generally classed as:

1. Scanning devices (such as surveying and recording of historic buildings and structures, etc.)
2. Modelling systems (such as 3D digital modelling, printing of scaled models of buildings and artefacts, etc.)
3. Visualisation techniques (such as Augmented Reality (AR), Virtual Reality (VR), interactive and animated displays, and mobile and locative systems, etc.)

Object-based Case-Study

1. Solid plaster-cast replica of a statue of a cat utilising Photogrammetry
2. Anglo-Saxon object made from crystal utilising Laser Scanning

Photogrammetry

1. Indoor / outdoor lighting can give different results depending on the weather. Solution: Take photos in a more controlled environment.
2. Singular colours and fine textures (e.g. such as hair) are difficult to triangulate. Solution: Use colour reference points
3. Having overlapping images can help achieve greater accuracy, but problematic to simultaneously compute large number of images.
4. Choosing automatically produced geometry sometimes resulted in distorted models. Solution: Manually triangulating points through having several images.

Laser Scanning

1. Bottom of the surface not detected. Solution: Raise the object.
2. Issue of transparency and reflectivity of crystal. Solution: Dust an inert coating of powder and increase the scan resolution.
3. Post-processing was time consuming. Solution: requires greater familiarity with Materialise Magics software.