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3D documenatation of the petalaindera : Digital heritage preservation methods using 3D laser scanner and photogrammetry (Conference Paper)

(Open Access)

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Abstract

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3D imaging technologies have undergone massive revolution in recent years. Despite this rapid development, documentation of 3D cultural assets in Malaysia is still very much reliant upon conventional techniques such as measured drawings and manual photogrammetry. There is very little progress towards exploring new methods or advanced technologies to convert 3D cultural assets into 3D visual representation and visualization models that are easily accessible for information sharing. In recent years, however, the advent of computer vision (CV) algorithms make it possible to reconstruct 3D geometry of objects by using image sequences from digital cameras, which are then processed by web services and freeware applications. This paper presents a completed stage of an exploratory study that investigates the potentials of using CV automated image-based open-source software and web services to reconstruct and replicate cultural assets. By selecting an intricate wooden boat, Petalaindera , this study attempts to evaluate the efficiency of CV systems and compare it with the application of 3D laser scanning, which is known for its accuracy, efficiency and high cost. The final aim of this study is to compare the visual accuracy of 3D models generated by CV system, and 3D models produced by 3D scanning and manual photogrammetry for an intricate subject such as the Petalaindera . The final objective is to explore cost-effective methods that could provide fundamental guidelines on the best practice approach for digital heritage in Malaysia. © Published under licence by IOP Publishing Ltd.

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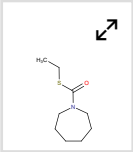

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