

Engineering Documentation of Thai Heritage Sites

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Abstract

Historical structures are very valuable national asset of Thailand. Several cultural sites have been designated by UNSECO as the World Heritage Sites, and some sites are in the nomination process. The ancient structures in many parts of the country have been deteriorating due to aging, environmental impacts and man-made activities and they require rational conservation plans. From structural conservation point of view, modern engineering techniques can be served as efficient tools for documentation and assessment of the existing conditions of these structures prior to any intervention on them. The project “Conservation of Historic Structures by Engineering Measures” was supported by Thailand Research Fund (TRF) and National Research Council of Thailand (NRCT) during 2016 to 2021 with objectives to apply engineering measures to document and evaluate structural condition the historical structures. The study sites are Ayutthaya historical park, Sukhothai historical park, Si Thep historical park and Phanom Rung historical park. Research contents consist of survey and construction of image-based 3D model of historical sites using an unmanned aerial vehicle (UAV) and Structure From Motion (SfM) technique, dynamic test and analysis of ancient monuments and finite element analysis of the historic structures under environmental loads. The major outcome from the research is to commence documentation of the existing conditions of the historic structures for further reference and sustainable conservation plans.

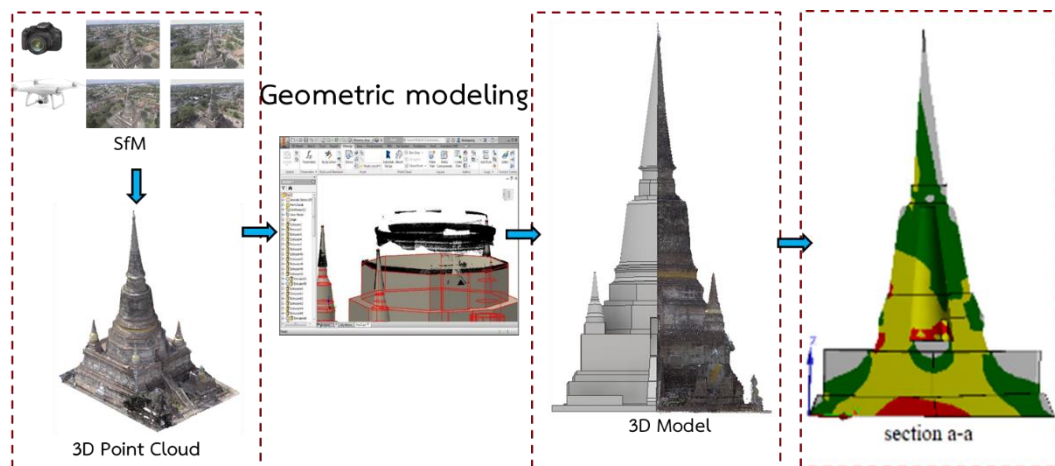


Figure 1: Overview of Geometry documentation and analysis of an ancient monument for structural assessment

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