

PENGEMBANGAN MODEL 3 DIMENSI UKIRAN BANGUNAN MENGUNAKAN FOTOGRAMETRI JARAK DEKAT PADA JABA SISI AREA MANDALA PURA DESA DI PURA PUSEH DESA DESA ADAT BATUAN GIANYAR

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ABSTRAK

Penelitian ini dilatarbelakangi oleh pentingnya pelestarian dan pendokumentasian ukiran bangunan tradisional Bali yang memiliki nilai sejarah, seni, dan budaya, khususnya pada bangunan pelinggih di Jaba Sisi Area Mandala Pura Desa, Pura Puseh Desa Desa Adat Batuan Gianyar. Kondisi bangunan yang memiliki usia relatif tua serta keterbatasan dokumentasi digital menyebabkan diperlukan suatu media yang dapat mendokumentasikan bentuk, detail ukiran, dan tekstur bangunan secara lebih informatif. Penelitian ini bertujuan untuk menghasilkan model 3 dimensi ukiran bangunan menggunakan metode fotogrametri jarak dekat serta mengetahui respon masyarakat terhadap media yang dikembangkan. Penelitian ini menggunakan metode *Research and Development (R&D)* dengan model pengembangan *Multimedia Development Life Cycle (MDLC)* yang terdiri dari enam tahapan, yaitu *concept, design, material collecting, assembly, testing, dan distribution*. Proses pemodelan dilakukan melalui pengambilan foto objek dari berbagai sudut, pengolahan data menggunakan Agisoft Metashape Professional, penyempurnaan model menggunakan Blender 3D, serta implementasi model 3 dimensi ke dalam media web interaktif. Model yang dihasilkan meliputi Pelinggih Ratu Balang Tamak, Genah Pendeman Bagia Karya Agung Padanan, Pelinggih Sedahan Apit Lawang A, Pelinggih Sedahan Apit Lawang B, Pelinggih Ratu Bhatara Tri Upasedhana, Pelinggih Bhatara Sedhana, dan Pelinggih Ratu Alit. Pengujian dilakukan melalui uji ahli isi, uji ahli media, dan uji respon masyarakat. Hasil uji ahli isi memperoleh persentase sebesar 80% dengan kategori layak, uji ahli media memperoleh persentase sebesar 82% dengan kategori sangat layak, sedangkan uji respon masyarakat terhadap 30 responden memperoleh persentase sebesar 88% dengan kategori sangat layak. Hasil penelitian menunjukkan bahwa model 3 dimensi yang dikembangkan mampu menampilkan bentuk, detail ukiran, dan tekstur bangunan secara visual serta dapat digunakan sebagai media dokumentasi digital dan edukasi untuk mendukung pelestarian warisan budaya Bali, khususnya bagi generasi muda.

Kata kunci: Fotogrametri Jarak Dekat, Model 3 Dimensi, Ukiran Bali, Pura Puseh Desa Adat Batuan, MDLC, Dokumentasi Digital.

DEVELOPMENT OF 3D MODELS OF ARCHITECTURAL CARVINGS USING CLOSE-RANGE PHOTOGRAMMETRY IN THE *JABA SISI* (OUTER COURTYARD) AREA OF THE *PURA DESA* (VILLAGE TEMPLE) COMPLEX AT *PURA PUSEH DESA*, BATUAN TRADITIONAL VILLAGE, GIANYAR

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ABSTRACT

This research was motivated by the importance of preserving and documenting traditional Balinese building carvings that have historical, artistic, and cultural values, particularly the pelinggih buildings located in the Jaba Sisi Area of the Mandala Pura Desa at Pura Puseh Desa Adat Batuan, Gianyar. The age of the buildings and the limited availability of digital documentation have created a need for a medium that can document the form, carving details, and textures of the buildings in a more informative manner. This research aimed to develop three-dimensional models of building carvings using the close-range photogrammetry method and to determine the community's response to the developed media. This research employed the Research and Development (R&D) method using the Multimedia Development Life Cycle (MDLC) development model, which consists of six stages: concept, design, material collecting, assembly, testing, and distribution. The modeling process involved capturing photographs of the objects from various angles, processing the data using Agisoft Metashape Professional, refining the models using Blender 3D, and implementing the three-dimensional models into an interactive web-based media. The developed models included Pelinggih Ratu Balang Tamak, Genah Pendeman Bagia Karya Agung Padanan, Pelinggih Sedahan Apit Lawang A, Pelinggih Sedahan Apit Lawang B, Pelinggih Ratu Bhatar Tri Upasedhana, Pelinggih Bhatar Sedhana, and Pelinggih Ratu Alit. The testing process consisted of content expert testing, media expert testing, and community response testing. The results of the content expert testing obtained a percentage of 80%, categorized as feasible, while the media expert testing obtained a percentage of 82%, categorized as highly feasible. Meanwhile, the community response test involving 30 respondents obtained an average percentage of 88%, categorized as highly feasible. The results indicate that the developed three-dimensional models are capable of visually presenting the forms, carving details, and textures of the buildings and can be utilized as digital documentation and educational media to support the preservation of Balinese cultural heritage, particularly for the younger generation.

Keywords: Close-Range Photogrammetry, Three-Dimensional Model, Balinese Carvings, Pura Puseh Desa Adat Batuan, MDLC, Digital Documentation.