

INTISARI

Candi Prambanan merupakan kompleks candi Hindu terbesar di Indonesia yang diakui UNESCO sebagai warisan budaya dunia sejak tahun 1991. Sebagai salah satu candi utama selain Candi Siwa dan Candi Brahma, Candi Wisnu memiliki nilai sejarah, arsitektur, dan simbolisme tinggi, termasuk relief kisah Kresna yang terletak pada bagian selasar. Hal ini mengakibatkan tingginya kunjungan wisatawan sehingga menimbulkan risiko kerusakan dan menuntut upaya konservasi. Pembatasan akses dan kondisi candi membuat pengunjung sulit mengamati detail relief secara optimal, sehingga diperlukan media alternatif yang tetap mendukung pelestarian. Proyek akhir ini bertujuan mengembangkan aplikasi *Virtual Reality* (VR) wisata interaktif 3D Candi Wisnu sebagai media alternatif untuk memperkenalkan warisan budaya secara imersif tanpa mengganggu kelestarian fisiknya.

Pengembangan aplikasi *Virtual Reality* dilakukan dengan menggunakan *Game Engine Unity* dan data 3D Candi Wisnu tingkat LoD 4 hasil tim peneliti TSPD SV UGM. Pembuatan aplikasi terdiri dari tiga tahapan utama: pembuatan lingkungan virtual, pengembangan sistem pergerakan pemain, dan implementasi sistem interaksi. Sistem interaksi tidak hanya mencakup *pop-up* informasi, tetapi juga navigasi *first-person* yang memungkinkan eksplorasi bebas, sehingga pengguna dapat memperoleh informasi tepat saat dibutuhkan atau saat mendekati objek-objek interaktif. Informasi yang disajikan meliputi teks mengenai arca, relief, serta informasi umum mengenai Candi Wisnu. Setelah aplikasi berhasil dijalankan pada perangkat PC, pengujian usability dilakukan terhadap 37 responden dari berbagai usia dan latar belakang, termasuk masyarakat umum serta pengelola Candi Prambanan menggunakan kuesioner skala *Likert* (1–5) berdasarkan kerangka 5E *Usability* (*Effectiveness, Efficiency, Engaging, Error Tolerance, dan Ease of Learning*).

Produk proyek akhir ini berupa aplikasi *Virtual Reality* Wisata Interaktif 3D Candi Wisnu yang dijalankan pada perangkat PC dengan navigasi *first-person*. Aplikasi menampilkan model 3D lingkungan candi yang interaktif dan dilengkapi fitur *pop-up* informasi otomatis pada relief dan arca, sehingga pengguna dapat menikmati Candi Wisnu secara tidak langsung sekaligus memahami nilai budayanya. Hasil pengujian usability menunjukkan skor rata-rata 91,7%, yang termasuk kategori sangat layak, menandakan bahwa aplikasi mudah digunakan, efektif, dan memberikan pengalaman eksplorasi yang menyenangkan. Secara keseluruhan, aplikasi ini efektif sebagai media edukatif dan pelestarian budaya digital, mampu menghadirkan pengalaman imersif yang nyaman dan interaktif bagi semua pengguna, serta mendukung pembelajaran budaya secara menyenangkan.

Kata kunci: Candi Wisnu, Candi Prambanan, *Game Engine, Unity, Virtual Reality, First Person*, Wisata Digital, 3D Model

ABSTRACT

Prambanan Temple is the largest Hindu temple complex in Indonesia, recognized by UNESCO as a World Cultural Heritage site since 1991. As one of the three main temples alongside Shiva Temple and Brahma Temple, Vishnu Temple holds significant historical, architectural, and symbolic value, including reliefs depicting the story of Krishna carved along its gallery. This cultural importance has attracted a high number of visitors, which poses risks of physical deterioration and demands conservation efforts. Restricted access and the preservation policies implemented at the temple make it difficult for visitors to closely observe the reliefs in detail, thus requiring alternative media that can both provide cultural experiences and support preservation. This study aims to develop a 3D interactive Virtual Reality (VR) tourism application of Vishnu Temple as an alternative medium to introduce cultural heritage in an immersive way without compromising its physical sustainability.

The VR application was developed using the Unity game engine and Level of Detail (LoD) 4 3D data of Vishnu Temple produced by the TSPD SV UGM research team. The development process consisted of three main stages: constructing the virtual environment, designing the player movement system, and implementing the interaction system. The interaction system incorporates not only pop-up information but also first-person navigation, enabling users to freely explore the temple and access contextual information when approaching interactive objects. The displayed information includes textual descriptions of statues, reliefs, and general knowledge about Vishnu Temple. After the application was successfully deployed on PC devices, usability testing was conducted with 37 respondents of diverse ages and backgrounds, including general visitors and Prambanan Temple management staff. The evaluation employed a Likert scale (1–5) questionnaire based on the 5E Usability framework, which consists of Effectiveness, Efficiency, Engaging, Error Tolerance, and Ease of Learning.

The research output is an Interactive 3D Virtual Reality application of Candi Wisnu, designed for PC with first-person navigation. The application presents an interactive 3D model of the temple environment and features automatic pop-up information on reliefs and statues, allowing users to virtually experience Candi Wisnu while gaining an understanding of its cultural values. Usability testing revealed an average score of 91.7%, categorized as highly feasible, indicating that the application is user-friendly, effective, and provides an engaging exploration experience. Overall, the application proves to be an effective tool for educational purposes and digital cultural preservation, offering an immersive, comfortable, and interactive experience for all users while supporting enjoyable cultural learning.

Keywords: *Vishnu Temple, Prambanan Temple, Game Engine, Unity, Virtual Reality, First Person, Digital Tourism, 3D Mode*