ABSTRAK

VISUALISASI 3 DIMENSI RUMAH ADAT INDONESIA BERBASIS *AUGMENTED REALITY* DENGAN PENGUJIAN PERFORMA

(Afnisya Arlina, 2026: 129 Halaman)

Pembelajaran materi rumah adat Indonesia di sekolah dasar masih banyak menggunakan media konvensional berupa buku dan gambar dua dimensi, sehingga siswa kurang memperoleh pengalaman visual yang nyata dalam memahami bentuk dan ciri khas rumah adat. Penelitian ini bertujuan merancang dan mengimplementasikan aplikasi *Augmented Reality* "Ayo Jelajah Rumah Adat" berbasis Android sebagai media pembelajaran interaktif, serta menganalisis performa aplikasi, deteksi marker, dan efektivitasnya terhadap pemahaman siswa. Penelitian menggunakan metode *Research and Development* (R&D) dengan model pengembangan *Waterfall*. Aplikasi dikembangkan menggunakan Unity 6, Vuforia Engine, dan metode *marker-based tracking* untuk menampilkan delapan model 3D rumah adat Indonesia, yaitu Kajang Lako, Parahu Kumureb, Joglo, Rumah Panjang, Honai, Tongkonan, Tambi, dan Bolon. Pengujian performa dilakukan menggunakan Unity Profiler dan Unity Statistics dengan parameter CPU *Usage*, *Memory Usage, Frame Rate,* dan Rendering. Hasil pengujian menunjukkan rata-rata CPU *Usage* sebesar 8,55 ms, *Memory Usage* sebesar 2,88 GB, dan *Frame Rate* sebesar 117,69 FPS. Pengujian deteksi marker menunjukkan marker berhasil terdeteksi pada jarak 20–140 cm, oklusi hingga 50%, serta kondisi cahaya redup 35 lux, normal 180 lux, dan terang 480 lux. Pengujian efektivitas dilakukan kepada 66 siswa kelas V SD Negeri 21 Palembang menggunakan *pretest* dan *posttest*. Rata-rata nilai meningkat dari 46,03 menjadi 79,36 dengan N-Gain 0,6043 kategori sedang. Hasil penelitian menunjukkan aplikasi cukup efektif digunakan sebagai media pembelajaran interaktif rumah adat Indonesia..

Kata kunci: *Augmented Reality*, rumah adat Indonesia, *marker-based tracking*, Unity, N-Gain

ABSTRAK

VISUALISASI 3 DIMENSI RUMAH ADAT INDONESIA BERBASIS *AUGMENTED REALITY* DENGAN PENGUJIAN PERFORMA

(Afnisya Arlina, 2026: 129 Halaman)

Learning Indonesian traditional house material in elementary school still commonly relies on conventional media such as textbooks and two-dimensional images, which limits students' visual experience in understanding the forms and characteristics of traditional houses. This study aims to design and implement the Android-based Augmented Reality application "Ayo Jelajah Rumah Adat" as an interactive learning medium and to analyze its application performance, marker detection, and effectiveness in improving students' understanding. This study used Research and Development (R&D) with the Waterfall development model. The application was developed using Unity 6, Vuforia Engine, and marker-based tracking to display eight 3D models of Indonesian traditional houses, namely Kajang Lako, Parahu Kumureb, Joglo, Panjang, Honai, Tongkonan, Tambi, and Bolon. Performance testing was conducted using Unity Profiler and Unity Statistics with CPU Usage, Memory Usage, Frame Rate, and Rendering as the observed parameters. The results showed an average CPU Usage of 8.55 ms, Memory Usage of 2.88 GB, and Frame Rate of 117.69 FPS. The marker detection test showed that markers were successfully detected at distances of 20–140 cm, with occlusion up to 50%, and under dim lighting of 35 lux, normal lighting of 180 lux, and bright lighting of 480 lux. The effectiveness test involved 66 fifth-grade students of SD Negeri 21 Palembang using pretest and posttest. The average score increased from 46.03 to 79.36 with an N-Gain score of 0.6043 in the medium category. The results indicate that the application is fairly effective as an interactive learning medium for Indonesian traditional houses.

Keywords: Augmented Reality, Indonesian traditional houses, marker-based tracking, Unity, N-Gain