

ABSTRAK

APLIKASI INTERAKTIF BERBASIS *AUGMENTED REALITY* SEBAGAI MEDIA PEMBELAJARAN JARINGAN KOMPUTER DASAR SISWA TKJ DI SMK MUHAMMADIYAH 2 PALEMBANG

(ST. Amanda Almira 2026: xii + 91 Halaman + Daftar Pustaka + Lampiran)

Penelitian ini bertujuan untuk menghasilkan aplikasi interaktif berbasis *Augmented Reality* (AR) sebagai pendamping media pembelajaran Jaringan Komputer Dasar untuk siswa TKJ kelas X di SMK Muhammadiyah 2 Palembang. Aplikasi dikembangkan menggunakan *Unity Engine* dan *Vuforia SDK* dengan metode AR *markerless ground-based* serta model pengembangan ADDIE. Materi yang dimuat meliputi dasar jaringan komputer, topologi jaringan, perangkat keras jaringan, dan crimping kabel UTP. Hasil validasi ahli materi sebesar 90% dan ahli media sebesar 89% menunjukkan aplikasi sangat layak. Pengujian deteksi AR menghasilkan *success rate* terbaik pada permukaan lantai semen sebesar 80%, dengan kondisi optimal pada jarak 50–100 cm dan sudut kamera 45°–60°. Pengujian SUS memperoleh skor 84 kategori *Excellent Grade B*. Hasil *pretest* dan *posttest* menunjukkan peningkatan rata-rata nilai dari 62,5 menjadi 91,4 dengan *N-Gain* sebesar 0,78 kategori tinggi.

Kata kunci: *augmented reality*, *markerless ground-based*, media pembelajaran, jaringan komputer dasar.

ABSTRACT

INTERACTIVE APPLICATION BASED ON AUGMENTED REALITY AS A LEARNING MEDIA FOR BASIC COMPUTER NETWORKING FOR CLASS X TKJ STUDENTS AT SMK MUHAMMADIYAH 2 PALEMBANG

(ST. Amanda Almira 2026: xii + 91 Pages + References + Attachment)

This study aims to produce an interactive application based on Augmented Reality (AR) as a learning media for Basic Computer Networking for Class X TKJ students at SMK Muhammadiyah 2 Palembang. The application was developed using Unity Engine and Vuforia SDK with a markerless ground-based AR method and the ADDIE development model. The content covers basic computer networking, network topology, network hardware, and UTP cable crimping. Content expert validation yielded 90% and media expert validation yielded 89%, both categorized as very feasible. AR detection testing produced the best success rate on a cement floor surface at 80%, with optimal conditions at a distance of 50–100 cm and a camera angle of 45°–60°. SUS testing obtained a score of 84, categorized as Excellent Grade B. Pretest and posttest results showed an increase in average scores from 62.5 to 91.4, with an N-Gain of 0.78 categorized as high.

Keywords: *augmented reality, markerless ground-based, learning media, basic computer networking.*