ABSTRAK

Perkembangan teknologi simulasi dalam bentuk game telah menjadi pendekatan inovatif dalam dunia pendidikan dan pelatihan, khususnya dalam konteks misi pencarian dan penyelamatan di medan perang. Penelitian ini bertujuan untuk merancang dan membangun sebuah game simulasi berbasis Unity yang merepresentasikan misi drone dalam mendeteksi personel militer terluka dengan pendekatan simulasi kalung RFID aktif. Game ini dikembangkan dengan menggunakan metode *Software Development Life Cycle* (SDLC) model *Waterfall*, melalui tahapan analisis, desain, implementasi, pengujian, dan deployment. Fitur utama game mencakup navigasi drone secara manual, sistem deteksi personel militer berbasis simulasi sinyal RFID, radar visual mini-map, kompas, dan panel instruksi. Game ini menyediakan media edukatif yang imersif untuk memahami konsep dasar teknologi drone dan RFID dalam strategi penyelamatan, serta dapat dijalankan pada platform Windows. Hasil pengujian menunjukkan bahwa seluruh fungsi berjalan sesuai kebutuhan dan mampu memberikan pengalaman belajar yang interaktif dan mendalam.

Kata Kunci: Game edukasi, simulasi drone, RFID aktif, Unity, SDLC *Waterfall*.

ABSTRACT

The advancement of simulation technology through gaming has become an innovative approach in education and training, especially in search and rescue missions on the battlefield. This research aims to design and develop a Unity-based simulation game that represents a drone mission to detect injured military personnel using a simulated active RFID necklace. The game was developed using the Software Development Life Cycle (SDLC) with the Waterfall model, encompassing stages of analysis, design, implementation, testing, and deployment. The main features include manual drone navigation, a simulated RFID-based personnel detection system, visual radar mini-map, compass, and instruction panel. This game provides an immersive educational medium to understand the basic concepts of drone and RFID technology in military rescue strategies and is deployable on the Windows platform. Testing results indicate that all functions operate as planned and offer an interactive and comprehensive learning experience.

***Keywords**: Educational game, drone simulation, active RFID, Unity, SDLC Waterfall.*