ABSTRACT

Everyone's interest in playing a game is certainly different. Technological advances have brought the game to a new era that is more developed. Various innovations are carried out in order to attract the interest of each player to love the games played by them. This study aims to design and build 3D FPS games that run on the Android platform by implementing Artificial Intelligence (AI) in the form of pathfinding in Non-Player Character (NPC) which serves as a movement in pursuing the main characters in the game. Pathfinding that is implemented is a comparison of the performance of distance and travel time between A* (A Star) Algorithm and Navigation Mesh, and based on the tests carried out it can be concluded that the use of Navigation Mesh is superior in terms of performance distance and travel time compared to the A Star algorithm. This research succeeded in making the game "Robots Invasion" with the Game Development Life Cycle (GDLC) Method. Based on the tests that have been carried out, the alpha test results are functionally appropriate and from the beta test the results of the User Accceptence Test (UAT) functionalities obtained a value of 88.55% expressed by the interpretation of "Good" which means this game is feasible and can be developed.

Keywords: AI, A*, Gyroscope, Navmesh, Pathfinding.

ABSTRAK

Ketertarikan setiap orang dalam memainkan sebuah *game* tentu berbeda-beda. Kemajuan teknologi telah membawa *game* kepada era baru yang lebih berkembang. Ragam inovasi dilakukan demi menarik minat setiap pemain untuk mencintai *game* yang dimainkan oleh mereka. Penelitian ini bertujuan untuk merancang dan membangun *game FPS* 3D yang dijalankan pada *platform* Android dengan melakukan implementasi *Artificial Intellegence (AI)* berupa *pathfinding* pada *Non-Player Character (NPC)* yang berfungsi sebagai pergerakan dalam melakukan pengejaran terhadap karakter utama dalam *game*. *Pathfinding* yang diimplementasikan merupakan perbandingan performa jarak dan waktu tempuh antara Algoritma *A* (A Star)* dengan *Navigation Mesh,* dan berdasarkan pengujian yang dilakukan menghasilkan kesimpulan bahwa penggunaan *Navigation Mesh* lebih unggul dalam segi performa jarak dan waktu tempuh dibanding dengan Algoritma *A Star.* Penelitian ini berhasil membuat *game* *"Robots Invasion"* dengan Metode *Game Development Life Cycle* (GDLC). Berdasarkan pengujian yang telah dilakukan, hasil pengujian *alpha* sudah sesuai secara fungsional dan dari pengujian beta hasil uji fungsionalitas *User Acceptence Test* (UAT) didapat nilai sebesar 88,55% dinyatakan dengan interpretasi "Baik" yang berarti *game* ini layak digunakan dan dapat dikembangkan.

Kata kunci: *AI, A*, Gyroscope, Navmesh, Pathfinding.*