

## INTISARI

Peminat *Video game* pada era ini tidaklah sedikit, bahkan mampu bersaing dengan film dan musik dan semakin banyak orang yang bermain *video game*, termasuk di Indonesia, maka semakin banyak pula *video game* yang diperlukan dan semakin banyak juga *developer* atau pengembang yang diperlukan. Dikarenakan meningkatnya pemain *video game* di Indonesia juga, maka ada baiknya apabila *video game* yang dikembangkan memiliki unsur dan budaya Indonesia sehingga budaya Indonesia dapat diperkenalkan melalui sebuah *video game*. Maka dari itu, dikembangkanlah *video game* "Ganyang Setan Alas: The Game" dengan *genre first-person shooter* yang selain menjadi sarana hiburan, tetapi juga menjadi salah satu sarana untuk memperkenalkan budaya Indonesia kepada dunia. Pembuatan aset 3D pada gim dilakukan menggunakan aplikasi Blender dan Unreal Engine 5 dengan aset yang dibuat yaitu aset karakter zombie 3D dan *environment mining site*. Pengembangan aset karakter zombie 3D harus melalui beberapa tahapan yang diantaranya adalah *sculpting*, *retopology*, *texturing*, *rigging*, dan *animating*, sedangkan pengembangan *environment mining site* diperlukan referensi terlebih dahulu, baru dilanjutkan dengan mendesain dan membuat *environment* sesuai dengan referensi yang telah didapat. Optimisasi pada karakter zombie 3D dilakukan pada tahapan *retopology* yang dilakukan untuk mengurangi jumlah poligon pada aset 3D. Untuk pengujian performa dapat dilakukan di dalam Unreal Engine 5 dengan parameter *FPS*, *Draw Calls*, *GPU Time*, dan *Video RAM*. Berdasarkan hasil pengujian yang telah dilakukan pada karakter zombie, didapatkan hasil *FPS* 119, *Draw Calls* 8.95ms, *GPU Time* 8.55ms, dan *Video RAM Used* sebanyak 6.41GB. Sedangkan pada *environment mining site*, didapatkan hasil *FPS* 60, *Draw Calls* 5.16ms, *GPU Time* 12.65ms, dan *Video RAM Used* sebanyak 8.83 GB. Selain itu, warna yang muncul pada setiap parameter berwarna hijau yang menunjukkan performa sudah baik. Maka dari itu, dapat disimpulkan bahwa aset 3D yang telah dibuat sudah optimal dan sudah siap untuk digunakan.

Kata kunci: *video game*, *game development*, *game artist*, *pemodelan karakter*, *environment*, *optimisasi*, *performa*, *Blender*, *Unreal Engine 5*

## **ABSTRACT**

*Video games enthusiasts in this era is not few, even able to compete with films and music and the more people play video games, including in Indonesia, the more video games are needed and the more developers are needed. Due to the increase of numbers of video game players in Indonesia, it's good to make a video game that have elements and cultures from Indonesia so Indonesian cultures can be introduced through video game. Therefore, the video game with first-person shooter genre created called "Ganyang Setan Alas: The Game" which is not only a means of entertainment, but also a means to introduce Indonesian culture to the world. The creation 3D assets can be done using Blender and Unreal Engine 5 with the assets that needed to be created are 3D zombie character and mining site environment. The development of 3D zombie character assets must go through several stages, including sculpting, retopology, texturing, rigging, and animating, while developing the mining site environment, a reference is needed first, then continued by designing and creating the environment itself according to the references. Optimizations on 3D zombie characters were performed at the retopology stage, which was performed to reduce the number of polygons on 3D assets. Performance testing can be done in Unreal Engine 5 with FPS, Draw Calls, GPU Time, and Video RAM as parameters. Based on the test results that have been carried out on the zombie character, the results obtained are 119 FPS, 8.95ms Draw Calls, 8.55ms GPU Time, and Video RAM Used as much as 6.41 GB. While on the mining site environment, the results obtained are 60 FPS, 5.16ms Draw Calls, 12.65ms GPU Time, and Video RAM Used as much as 8.83 GB. In addition, the color that appears on each parameter is green which indicates good performance. Therefore, it can be concluded that the 3D assets that have been created are optimal and ready to use.*

*Key words: video game, game development, game artist, character modeling, environment, optimization, performance, Blender, Unreal Engine 5*