

ABSTRACT

A* PATHFINDING ON GAME SPACE SPIDER 3D BASED ON DYNAMIC TARGET MOVEMENT

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Artificial intelligence (AI) nowadays has been generally used in pathfinding, especially in a game where AI used to create an intelligent NPC (Non-Playable Character). The intelligence NPC could search and find the path towards to a static or dynamic targets. Research within the last 5 years mostly used a static targets rather than dynamic. A static targets makes the game less attractive and easily predictable. The search algorithms are also not maximally used because it is only used as a help feature. This research aims to develop a game Space Spider 3D with dynamic pathfinding targets. The search algorithm using the A algorithm which is applied to the enemy NPC in game and maximally used during the game runs. The A* algorithm is one of the heuristic search algorithms that frequently used and has advantages in terms optimality, completeness, and time complexity compared to other algorithms which are generally only have one of those criteria. The research methodology used a waterfall method. The Space Spider 3D game developed by using some tools like Unity and MonoDevelop. Game system is modeled by using a visual-based modeling language that called UML. System testing uses a black box testing, white box testing, and also a statistical testing. This research successfully develop the Space Spider 3D game where there are a player as a target which can move dynamically and enemies NPC as an intelligent agent that using an artificial intelligence with the A* algorithm which can always find an optimal path and move toward a player during the game runs.*

Key Words : Pathfinding, Dynamic Target Move, A Algorithm, Game, Unity3D
Space Spider 3D*