AUTONOMOUS NPC BEHAVIOUR
ON REAL TIME STRATEGY GAME
BASED ON ANT COLONY SYSTEM

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ABSTRACT

In a fighting game especially Real Time Strategy (RTS), in addition, assignment is one of the important actions to get maximum attacking strategy and also one of the group intelligence which is possessed by NPC (Non Player Character). An optimum assignment mission can influence to min-energy at the end of the battle, also can influences the total average of mileage. The larger min-energy, the greater of the total NPC which is survive can be used for the next battle.

In this research, the assignment problem can be solved by using optimization of algorithms in Ant Colony System which is one of optimization method in shortest path finding. The purpose of this optimization is creating assignment lists for each NPC, by considering several parameter of suggestions, in this case is related to distance and health for each NPC.

After doing trial, the action which is processed non algorithms optimizing, is producing the lowest min-energy 29.11% and the total mileage 451.68 and the average computation time of assignment mission is 0.23 seconds. While using HSA optimization (Harmony Search Algorithm), can produces 64.18% of min-energy and the average of computation time is 0.6 seconds. The best results achieved from the ACS optimization is producing the highest min-energy 73.22%, with the shortest distance 382.608 and the average computation time 1.07 seconds of assignment.

Key words : Ant Colony System (ACS), Assignment, Distance, Health, Non Player Character (NPC).
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