TROOP MOVEMENT SIMULATION BASED ON POTENTIAL FIELD FOR DYNAMIC ENEMY

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ABSTRACT

In a classic battle game, the movements of a troop for fronting enemy is very important. A movement can be a movement toward a target, avoiding obstacles or collisions to other troops. A special treatment is needed in avoiding a moving obstacles, thus a research due the problem is conducted.

Potential Field Method has a principle such as the magnetic field to attract or reject the existing iron particles in the vicinity. Based on the characteristics of Potential Fields, this method can be used to simulate the movement of troops in a game. Behavior of iron particles are applied to resist the enemy and interesting behavior is applied to the target. The hope is to avoid enemy forces and to the target with both the behavior.

In this simulation, a moving troop is going toward the target while fronting moving enemies as well. The formation is square to present troops save condition and pointed formation to present dangerous condition. It is also test mahalanobis distance value between troops and obstacle.

By using Potential Field, a troop can move towards a target that had been determined and has the ability to avoid enemies. In avoiding the enemy, a troop tries to maintain the initial formation, but if it goes into enemies area that are represented influences, the formation of the troops will be turned into a pointed formation. In its movement towards the target, it is forces can achieve up to 100%. The Mahalanobis distance value of a troops is lower than influence value when it goes into enemy’s area.

Keyword : Potential Field, Target, Simulation, Euclidean Distance. Mahalanobis Distance.