

## ABSTRACT

AI(Artificial Intelligence) on NPC can make gameplay more interesting from PC(Player Character) and NPC interaction. NPC's behavior which difficult to guess and seems smart can amuse player and make them want to explore more of NPC's behavior. We need decision making algorithm to make such behavior. There are many algorithm that we can use to implement decision making, such as: decision trees, state machine, and. Algorithm that widely use in decision making is State Machine or FSM(Finite State Machine).<sup>[4]</sup> GOAP(Goal-Oriented Action Planning) in the other hand gives character the right to create its own sequence of action to fulfill active. This right can ease the desain because there's no need to define state transition, and make GOAP relatively more dynamic than hard-coded behavior.<sup>[1]</sup>

In this final project we design a prototype of a game battle scene which use AI system to make it more dynamic and interesting to be played. Algorithm that we use in the game is A\* for pathfinding, GOAP and FSM for decision making.

GOAP and FSM can be implemented as designed. Character's behavior using GOAP is more dynamic than FSM as seen by user and from data collected by sampling. From sample data that we have, GOAP will do 14.28% flee and 85.71% attack, while FSM will do 100% attack.

Key word: *Game, Artificial Intelligence, Pathfinding, Decision Making, A\*, Goal-Oriented Action Planning*