ABSTRACT

The development of Artificial Intelligence (AI) is now very fast and can be found in various fields, one of which is in the field of games. Currently, there are many games that use Artificial Intelligence such as Adventure games, fun games, Simulation games, and many other games. One of the applications of Artificial Intelligence in games is to imitate the behavior or habits that are often done by animals.

Flocking Behavior is a group habit. In birds it is called Flocking, in fish it is called Shoaling, and in insects it is called Swarming. One application of Floking Behavior in the field of Artificial Intelligence is Swarming Intelligence. Swarming Intelligence is the ability of insects to form swarms with a specific purpose. Artificial Bee Colony is the application of Swarming Intelligence to bees.

Flocking Behavior has three main behaviors, namely cohesion, alignment, avoidance/separation. The implementation of the Flocking Behavior was carried out with two experiments, namely, experiments on the three behaviors of the Flocking Behavior and the application of several features that support the Flocking Behavior process. In the Flocking Behavior experiment, several tests were carried out such as, Flocking Behavior only used one behavior, Flocking Behavior only used two behaviors, and simultaneously applied all three Flocking Behaviors. The features applied to the Flocking Behavior process are iterating and finding neighbors, avoid obstacles, stay on screen, same flock filter. The three behaviors and features will be simulated using Unity 3D, so that it will show how the process of Flocking Behavior on bees is.

Keywords: Flocking behavior, Artificial Intelligence, cohesion, alignment, avoidance/separation.