

BlackBoard

In the Game Scene there is a Blackboard that is essentially a dictionary of string key and object value pairs. There is an instance to the Blackboard, and other scripts can reference the blackboard if need be. The key-value pairs can be added, removed, and checked if a key exists in the blackboard by other systems, including the sensory systems of the AI agents, the Squad Manager System (SMS), and the Squad Behavior System (SBS).

The blackboard allows for decentralized squads that report information to some central command data bank that all can access, thus agents do not require references to each other in real-time or need to follow some chain of command.

BlackBoard & FieldReport:

The Field Report class is derived from BlackBoard. Inside the BlackBoard class were added extra methods that the FieldReport overrides, this is done so that other systems can take any BlackBoard derived class with a reference to its instance. But it would be difficult to call specific related classes, hence why the extra methods are defined virtually in the BlackBoard class. These extra methods are as follows:

- void ReportPlayerPosition(Vector3 target)
- void ReportEstimatedLocation(Vector3 target)
- Vector3 GetPlayerPosition()

Inside the Field Report, there are Vector3 instances called the lastPlayerLocation and the lastEstimatedLocation. lastPlayerLocation holds the latest reported sighting of the player by some agent in the GameScene. Meanwhile the lastEstimatedLocation holds the “estimated” player location based on hearing sensory of agents which turns on only once if they suddenly lost vision of the player. Note that the hearing sensory is not affected by any obstructions compared to vision.

Squad Manager

Squad Behavior System

Behaviors

Orders