AI SPACING DOCUMENTATION

KNIGHTS ASCENDANT | ARCHON FORGE

Contents

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Ai Spacing

Main Overview:

In this document I will define the basic spacing system that we will use to manage the different Ai and combat scenarios that will exist in the game. The main purpose of the spacing system is to create a tunable and tweakable set of ranges to help manage gameplay between multiple agents and multiple players.

Note: Although these ranges seem rigid we have to expect that the player and enemies are also moving around and not staying static. This means that these will feel more organic and often take shapes that are not perfectly circular…This is an intended and expected outcome.

Foundational Ranges Explanation:

No Go Zone: 0-2m

Description: The immediate range around the player. This is the range in which animation start breaking down and hits don't look like they will land. To reduce any unwanted bugs we will try and use this as the closest range/buffer zone that the enemies should never be in. If they are then they need to move outward away from the player.

*As an **example**, the expected Ai states in this range would be…*

1. Doing a special close attack (TBD) like a kick or shoulder bash
2. Rolling Out into "Danger Close" Range
3. Strafing out of range
4. Dashing backward out of Range

Note: This needs to be accompanied by a system that aligns attacks if the player finds themselves in this range and then attacks the Ai.

Danger Close: 2-4m

Description: This is the range at which enemies are ready to start attacking. Based on the Ai class the attack range may change, but we will use this as a baseline staging area. When Ai is moving from outside this range they will try and get into this range as quickly as possible.

*As an **example**, the expected Ai states in this range would be…*

5. Showing a tell then attacking the player
6. Strafing while brandishing the weaponing in a threatening way
7. Taunting the Player
8. Blocking attacks from Player
9. Dodging the Players attacks

Note: We will go deeper into how the enemies in this ranged are managed, how many players can exist in the range at any given time, and expected outcomes behavior wise

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Danger Mid 4-6m

Description: This is the range where the Ai will move to in the initial phase. From this point they should path to a spot where they can stage their attacks (In Danger Close Range).

As an example, the expected Ai states in this range would be…

1. Sprinting directly towards the Player
2. If Ranged enemy, firing weapons or using magic while strafing and moving, 3) If being fire upon by player, Blocking movement with shield or strafing movement in between sprints to get to "Danger Close"

Danger Far: 6m +

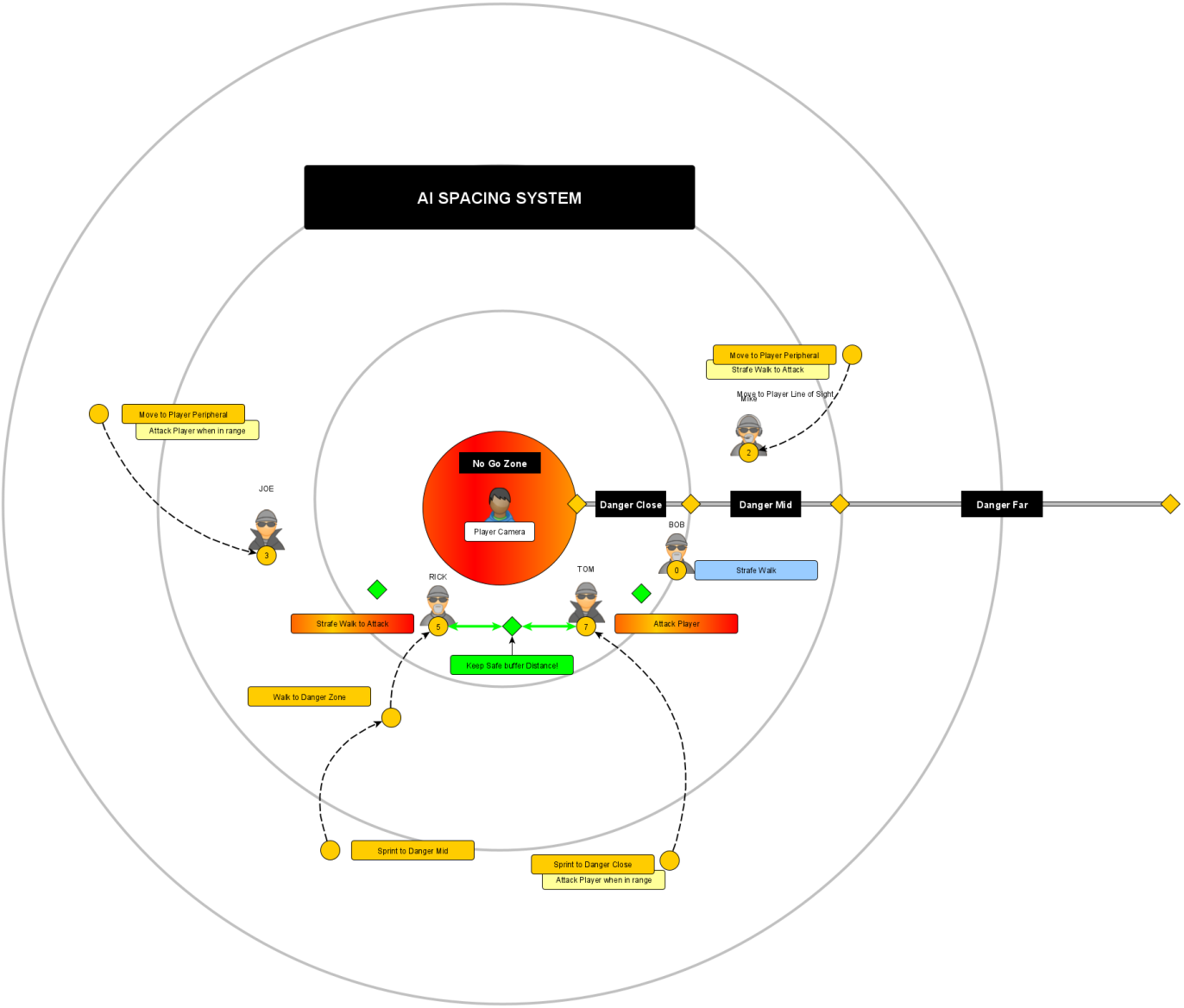
Description: This is the distance where Ai can be in a few different states before moving through the different ranges.

As an example, the expected Ai states in this range would be…

1. Guarding an Area
2. Patrolling a specific route
3. Actively searching for enemies in an area.

Note: We will go deeper into states where the Ai has not detected the player yet in another document.

EXAMPLE OF RANGES WITH MULTIPLE AGENTS:



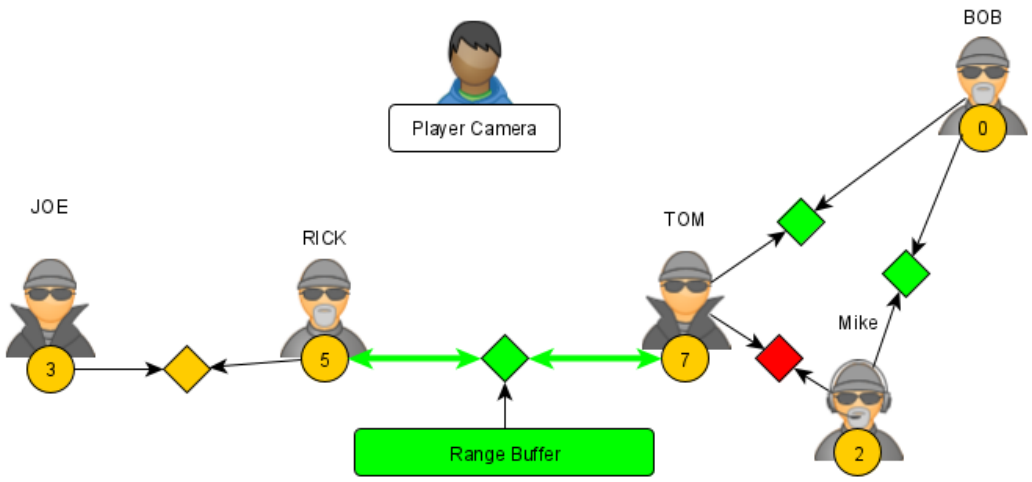
Agent Distance Buffer and Ranged Slots:

Description: Another important component of making the foundation ranges work is how we space the agents apart from each other and how many slots there are in a range. This is important because we need to maintain a healthy amount of targets for the player to fight while limiting the chaos of Ai getting too close to each other and colliding. This is the main way to get a “clean” target for the players as the move around and try to get a good position.

Agent to Agent Buffer Zone: 1.5m – 2m

This is a range that exists to keep a healthy spacing between agents. As show in the example below this is a range that should be used as a last resort to force an agent to move. The High value in the range is there to already start informing the agents to move, while the lower value is telling them to move NOW! Aesthetically, this needs to be done in a manner that attempts to hide the buffer so the Player does not notice. E.g. One Agent strafes opposite direction and does a taunt

Range Buffer Example: Color Denotes Optimal Range (Red is too close!)



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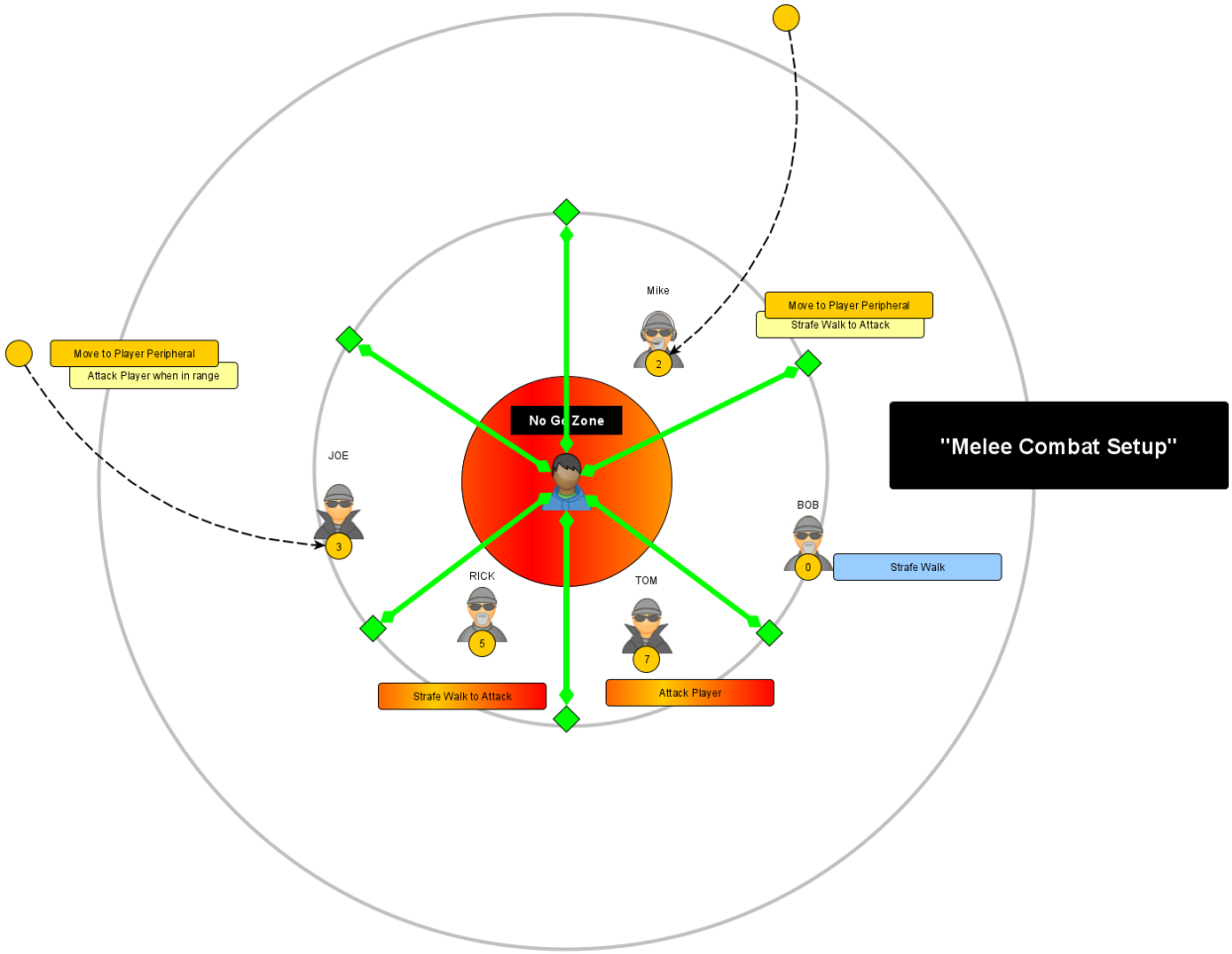
Danger Close Slots: 5

These are the number of designated slots that agents can fill to surround an attack the player. This is determined by being able to create different “setups” that can work for basic fights vs. boss fights. Setup parameters would be determined by defining the number of slots and where around the player can we slice up the radius.

Note: Having different setups assumes that the designers will be able to define different setups and be able to transition between them.

Danger Close Slots Example: Green denotes the points and how they can be used to effectively create movement targets for the agents



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Tweakable Parameters Index:

No Go Zone	Radius around the Player	2m
Danger Close	Radius around the Player with Min/Max Value	2m-4m
Danger Mid	Radius around the Player with Min/Max Value	4m-6m
Danger Far	Radius around the Player with Min/Max Value	6m +
Agent to Agent Buffer	Minimum distance range between agents before they are forced to move to maintain spacing	1.5m - 2m
Ranged Slot Number	Number of attacking enemy Slots in the “Danger Close” range	TBD
Ranged Slot Points	Points around the “Danger Close” range that define slots that enemies can use as a movement target	TBD
Ranged Slot Setup	Based on the type of encounter we want to be able to define the slot setup…E.g. Boss fight would have a separate setup than a simple grind area.	TBD

Note: These values need to and will be tweaked in game once the system is in place. Expect them to change and be iterated upon