Artificial Intelligence for Games

Unity Engine 2019.3.15f1

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Learning Games Tallinn
University

Introduction

This project implements AI with NavMeshAgents in Unity Engine.
This is made for the 'Artificial Intelligence for Games' course in Tallinn University.

Prerequisites

• Unity Engine Version 2019.3.15f1

Built With

• C#

• NavMeshAgents

Note: AI-related Behaviour is commented within the project as well.

AI Behaviour

Walking along a **waypoint path**, starting with the closest waypoint, or when set up moving randomly inside a sphere radius

Chasing the player if he is inside a specific distance and can be seen without beeing blocked by walls

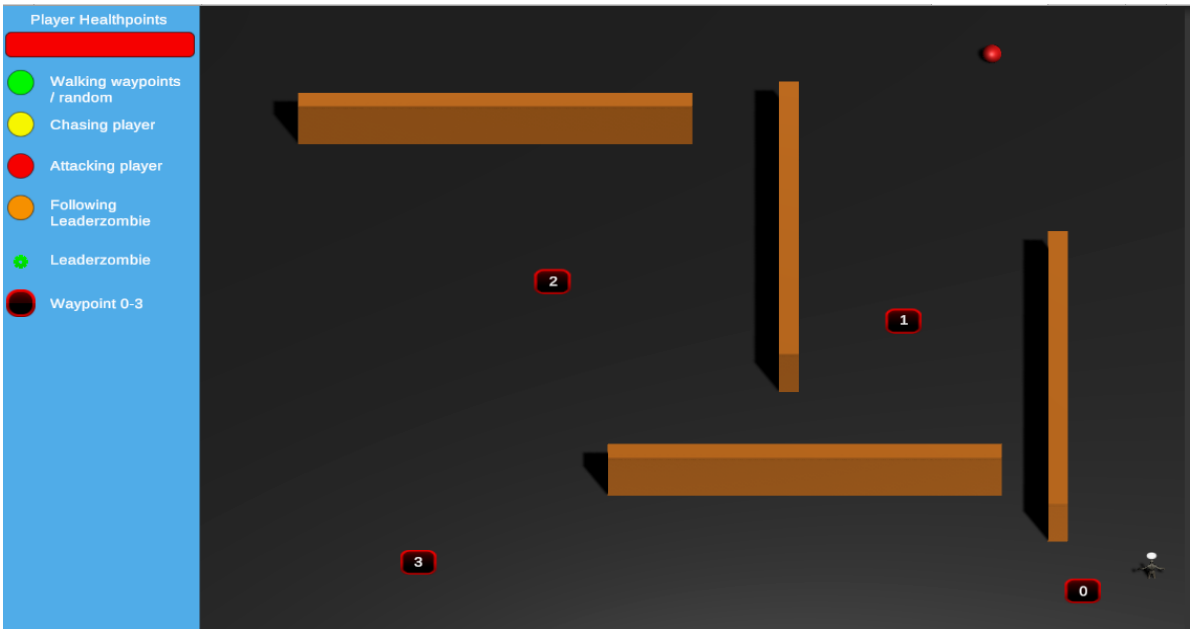
Attacking the player when he is in attackrange

Losing the player when he is too far away or hidden by walls

Follow the leaderzombie, when too far away having a speedboost to reach him faster

AI Behaviour

Waypoints



The NavMeshAgents spawn in specific spawn points.

After spawning it depends on what WanderType is active.

The random wandertype makes the AI move arround randomly inside of a sphere arround the AI object.

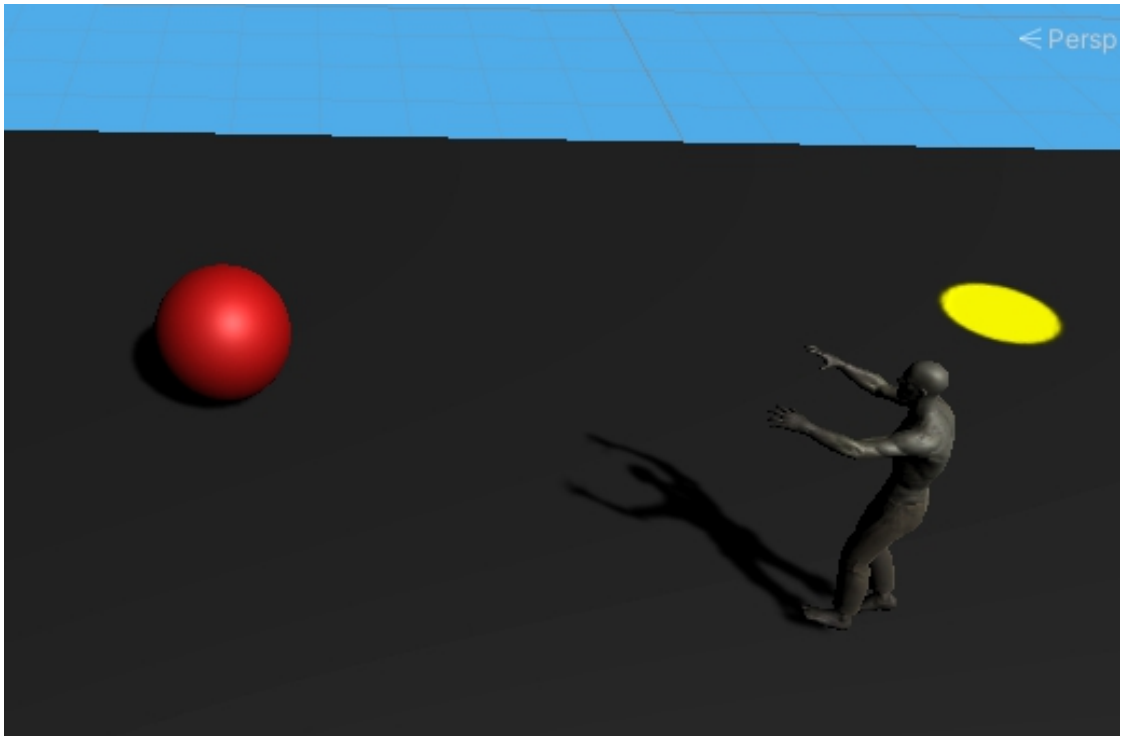
In our scene we used the waypoint wandertype, which holds 4 waypoints which will be passed in a specific order, starting at the closest waypoint to the AI Agent.

There are waypoint indices from 0 to 3 and are followed in order, when the last waypoint is reached, the first one will be the next again and it starts over again.

For more specific Logic checkout the Code Documentation.

AI Behaviour

Chasing



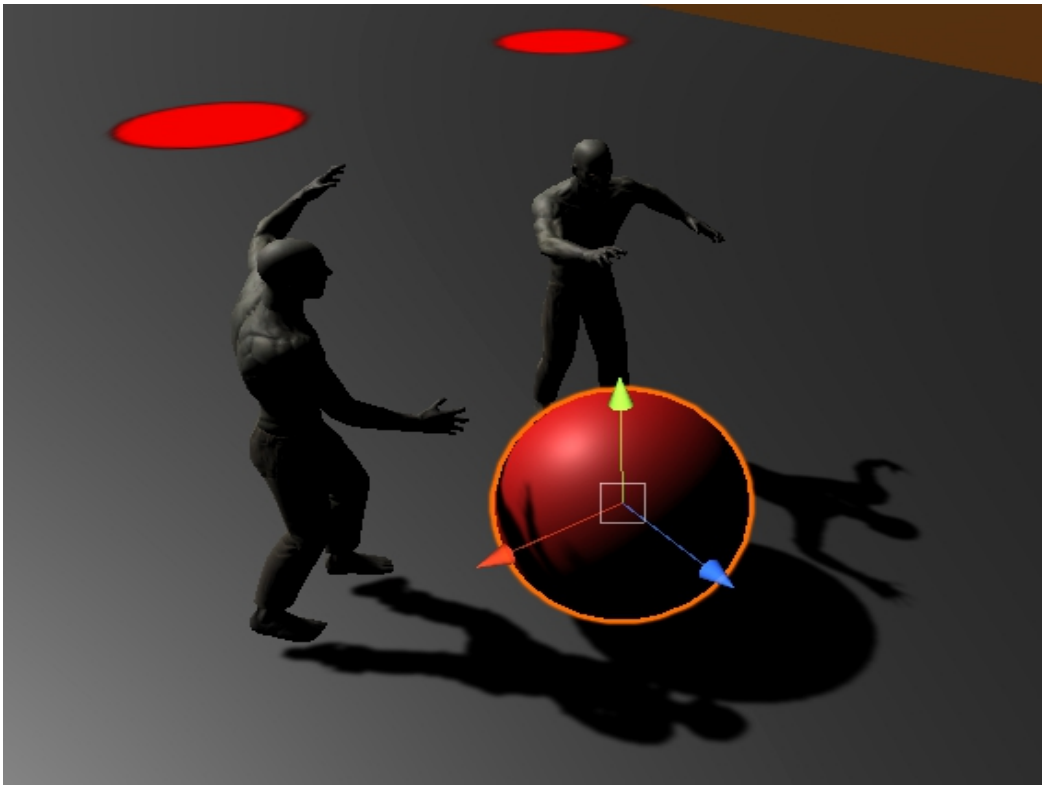
The AI will chase the player(the red ball) when he is inside a specific range and is not covered by walls.

There is no limit on how many zombies can chase the player, but there is a limit on how many can attack the player.

For more specific Logic checkout the Code Documentation.

AI Behaviour

Attacking

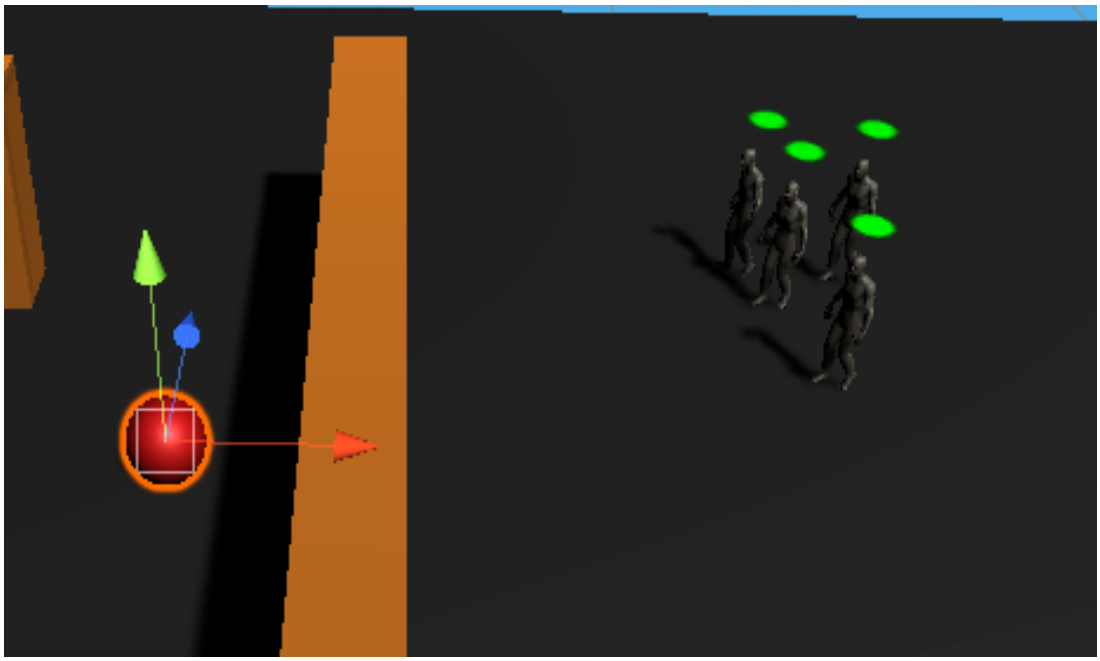


The Agents will attack the player if he is in attackrange.
They hit the player and make him loose healthpoints.
If the player has 0 healthpoints left, the player object will be set inactive instead of beeing destroyed.
There is a maximum of 4 zombies which can attack the player at the same time.

For more specific Logic checkout the Code Documentation.

AI Behaviour

Losing the Player

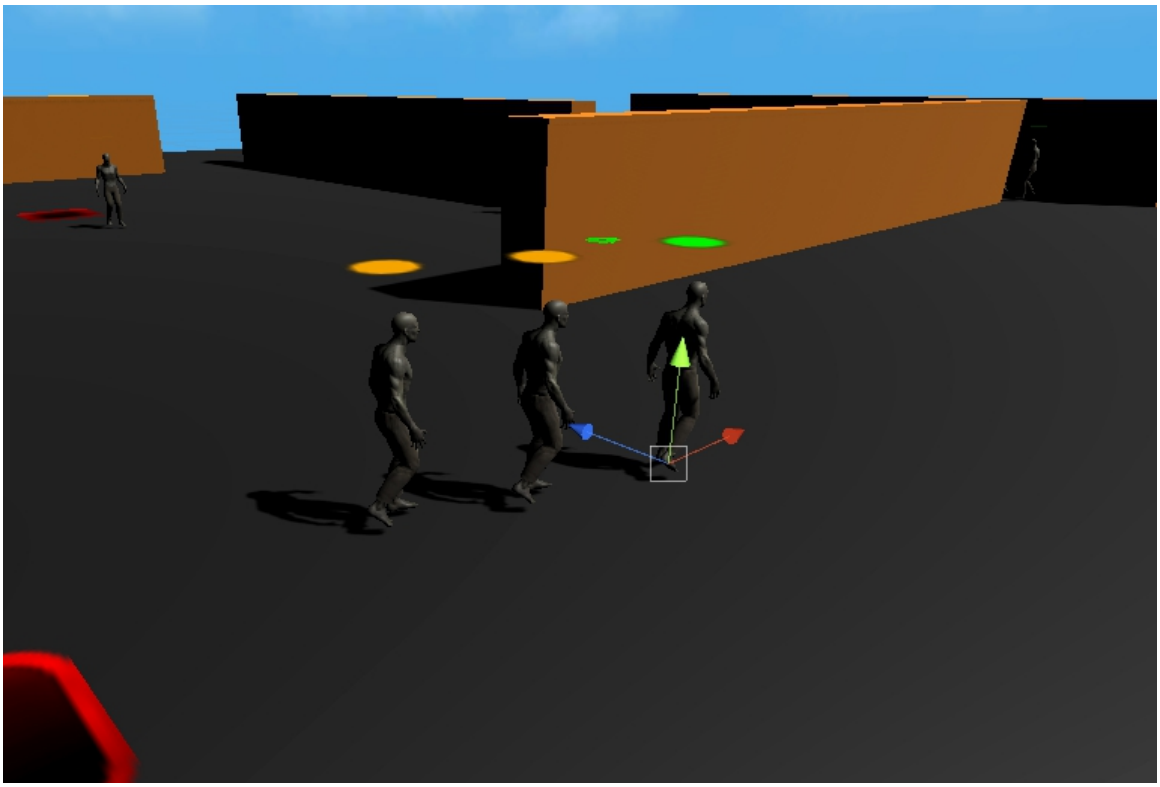


The Agents can loose the player and stop chasing him when he is out of sight by hiding behind a wall, or by just moving far enough away from the agents.
They will switch to the idle state and continue moving along their paths again.

For more specific Logic checkout the Code Documentation.

AI Behaviour

Following the zombie leader



The agents will follow the leader zombie if they can see him and if he is in range.

If they are far away, they will have a speed boost and move with twice the speed until they reach a specific distance to the leader and then slow down again and move with the same speed as the leader.

When the following zombies see a player, they will stop following the leader.

If they loose the player, they start to follow the leader again if he is still close.

For more specific Logic checkout the Code Documentation.

Access to Project

The project is uploaded on GitHub.

The GitHub repository of the project can be accessed through

https://github.com/DanielGumnikow/AI_Unity

Team Members

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Acknowledgments

Zombie AI video playlist by SRCoder

(https://www.youtube.com/channel/UCYaNsGvyvIupxpecr4rZY9A)

Zombie AI video playlist by Adrian C. Chase

(https://www.youtube.com/channel/UCqy5niYmcLgr4zBuc_ZAyIw)