COMP2007 - Game Development

Week 3 - Code Exercises

Create an NPC AI

Use the provided code to make a security camera or AI moving on a path that can:

- Detect the player within a radius of 3 units
- Detect the player within an angle of 30 degrees

Look through the code examples and create your own “AI detector” component

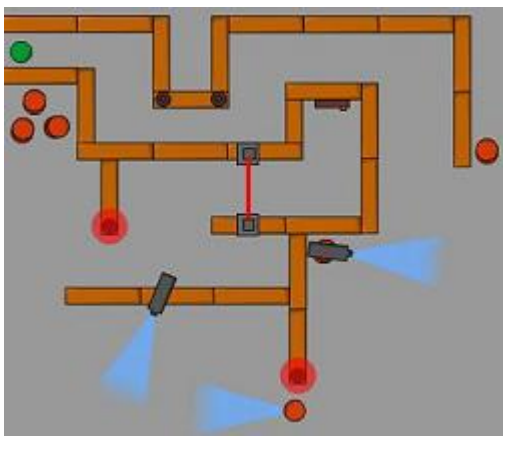
Tips:

Use Vector3.Distance to distance in units between two positions or use a heading and magnitude from the “Vector Direction” code example
Use Vector3.Dot to detect the facing angle of the AI, the “Vector3 Dot” code example provides a conversion to degrees for the facing angle
Feel free to use the movement script provided in the “Ball Movement” class or create your own!

About the NPC/AI

Create a security camera, a static object that perhaps rotates every so often or a moving character.
You could have an AI on a movement path, or wandering at random.

Note the security cameras in the image below with blue “cones” of vision, think about this when coding your solution



The AI must REACT somehow to spotting the player

- A security light
- A sound
- Chase the player!

Level

- Create a small level with at least one AI the player has to “sneak” past.
- Make sure the player can move through the level
- Use unitys built in cubes etc - or create some art if you wish!

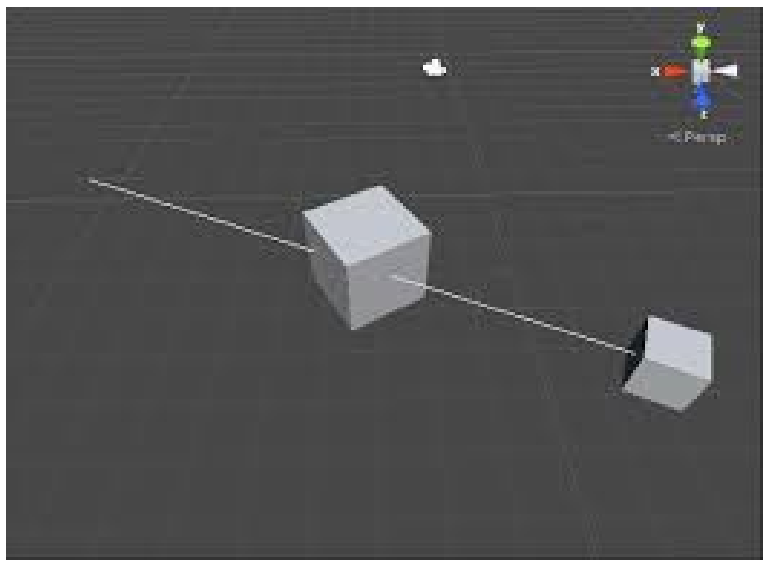
Final thoughts

You may have found your AI will detect the player through walls!
If your level has a small building or obstacles, they will be ignored by your detection code!
How do we solve this? Raycasting!

Raycasting

A raycast is an invisible “ray” or “laser” that can shoot through the scene and detect anything it intersects with.
This is useful for detecting any obstacles between our AI and our player!
Raycasts detect colliders (box colliders etc) not meshes or other geometry
We will be covering this in future sessions, but if you wish to dig in, here is a link to the scripting reference
https://docs.unity3d.com/ScriptReference/Physics.Raycast.html

A debug raycast in unity (the white line intersecting the cubes)



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UNIVERSITY OF PLYMOUTH