

One Bullet Game Design Document

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Introduction

One Bullet is a game where the player is tasked with killing multiple targets in a room with only one bullet while avoiding killing any allies. The player will need to navigate the room and set up reflection points and distract the AI to get the perfect shot.

Genre

Stealth/Puzzle

Platform

Windows PC

Target Audience

Ages 18-30 already familiar with PC gaming.

Pillars

- AI Interaction
 - The player will need to interact with enemy AI to line up the shot. While the player is in the room setting up the shot they can be detected by the enemy. So, manipulating the AI and setting them up in certain locations is crucial to the game.
- Spatial reasoning
 - The player will need to manipulate the trajectory of the bullet to ensure it can kill all targets and miss any friendlies.
- Stealth
 - While exploring the level the player will need to avoid the detection of the enemies. The enemies will attack the player if detected so stealth is encouraged.
- Player Driven Solution
 - The game will actively support the player coming up with the solution to the room.

Story

The player takes the role of an agent responsible for assassinating targets in a large saferoom. The targets are high ranking members of a secret society bent on world domination. There is a catch to this goal. Certain members of the secret society have been marked as beneficial to your agency so they must be kept alive. You are given a prototype sniper rifle that is lethal at long ranges and can even reflect off certain surfaces. The catch? Only one bullet has been produced. Make the shot count.

Scope

The entire project should be completed within 3 weeks. I have included an estimate of how long each task should take and how many hours a day this will need to be worked on.

	A	B
1	Task Name	Total Estimate (Hours)
2	AI	5
3	Laser sight and sniper object	5
4	Sniper Vision	3
5	Reflective Surfaces/Distractions	5
6	UI	3
7	GameManager	2
8	Level Design	12
9	Playtesting	5
10	Bug Fixing	8
11	Reiteration	12
12	Total Hours	60
13	Hours Per Day	2

Gameplay Experience

Gameplay Objective

Kill all the enemies in the level while leaving any friendlies unharmed. The player will only have one sniper shot to do so. The player must leave the sniper and explore the map, moving reflective surfaces and distractions while avoiding detection by the enemies.

Game Loop

Enter Level -> Explore -> Formulate Plan -> Reposition Distractions and Reflective Surfaces -> Fire Shot

Player Mechanics

- First Person Camera
 - The game will have a first-person perspective with the player being able to reposition the camera with the mouse.
- Reposition Objects
 - If close to a Distraction or Reflective the surface the player will be able to press G to drag the object close to the player and reposition them.
- Sniper Vision
 - To guide the player as to what's an enemy, friend, and reflective surface in the level a sniper vision mode like detective vision in the Arkham games will be implemented. The player can activate and deactivate this filter at any time by pressing T on the keyboard. This will highlight any objects of interest in the map even allowing them to render through walls. The objects of interest will be highlighted in certain colours. Red will refer to any enemies the player must kill. Green will refer to non-hostiles that must stay alive. And yellow will refer to any reflective surfaces in the map. This feature will ensure that the player gets a good idea of how the map is laid out so they can formulate a plan of attack and execute on it.
- Health

- The player will have a limited amount of health around 10 or so. Each time the player is shot by the enemies this health value is decreased. When this value reaches 0 game over is triggered and the player will have to restart.

World Mechanics

- Reflective Surfaces
 - Reflective surfaces will reflect the bullet off and change its trajectory. It will additionally reflect the laser of the sniper to show the player the new trajectory and help them determine where the shot will land. Reflective surfaces can be repositioned by the player by pressing the G key and dragging it to the destination of choice. This is done to help the player come up with their own solution to get the bullet to hit all targets.
- Distractions
 - Distractions are placed around the level and can be moved and relocated in the same manner as reflective surfaces. Once activated a distraction will attract the closest AI to it and will lock them in the investigation state until a player is spotted. A distraction may only be activated if no AI is currently investigating it. A distraction can be activated multiple times as long as no AI is currently investigating it. Distractions can be repositioned by the player by pressing the G key and dragging it to the destination of choice. This is done to help the player lock enemies into certain locations so they can be sure they are there and work on lining up the shot
- Sniper
 - The sniper will be a stationary object placed outside the room. The player can look around and pivot it by interacting with it using F while in a certain radius around the sniper object. This is done to avoid the situation where the player can enter the level and fire on the targets easily without having to interact with any level elements. When the player exits the sniper, the sniper will hold its rotation at where the player is looking at and activate the laser. The sniper will have a laser which will allow the player to trace the path of the bullet through the level. This laser will bounce off reflective objects and help guide the player to line up the shot

AI

AI will have two types. Enemies and non-hostiles. The AI will have states that they are allowed to enter. A brief description of the states are as follows:

- Patrol
 - AI will move according to their patrol path and will wait upon reaching their destination before choosing a new one.
- Attack
 - The AI will chase and shoot the player.
- Distracted
 - The AI will move towards the distraction and lock in place unless player is spotted.
- Alert
 - For non-hostile AI. Will alert all the hostile AI to the player's location

Enemy AI

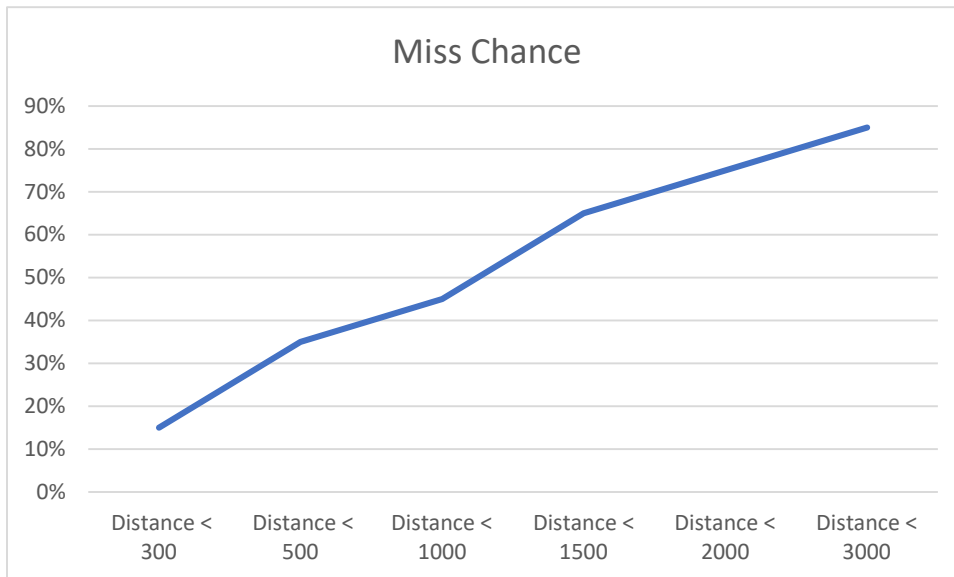
The primary purpose of the Enemy AI is to give the player a challenge while they are trying to set up the level and encourage the player to stealth through the level and avoid detection. They will also provide a threat and if enough damage is received from the enemies' bullets than the player will lose.

Patrol

Enemies will patrol around a select few locations specified around the map. When they arrive at this destination if they detect the player, they will enter the attack state. If they lose the player, they will return to patrolling the map. In this state the AI will have a move speed of around 100 so the player will get a warning about them ahead of time, the AI will also be able to see 1500 units ahead of them and will lose sight at 2000 units or if vision becomes blocked.

Attack

The enemies will shoot and then chase the player before firing another shot. This shot has a chance to miss based on the distance of the player to the AI. The miss chance is demonstrated by this graph.



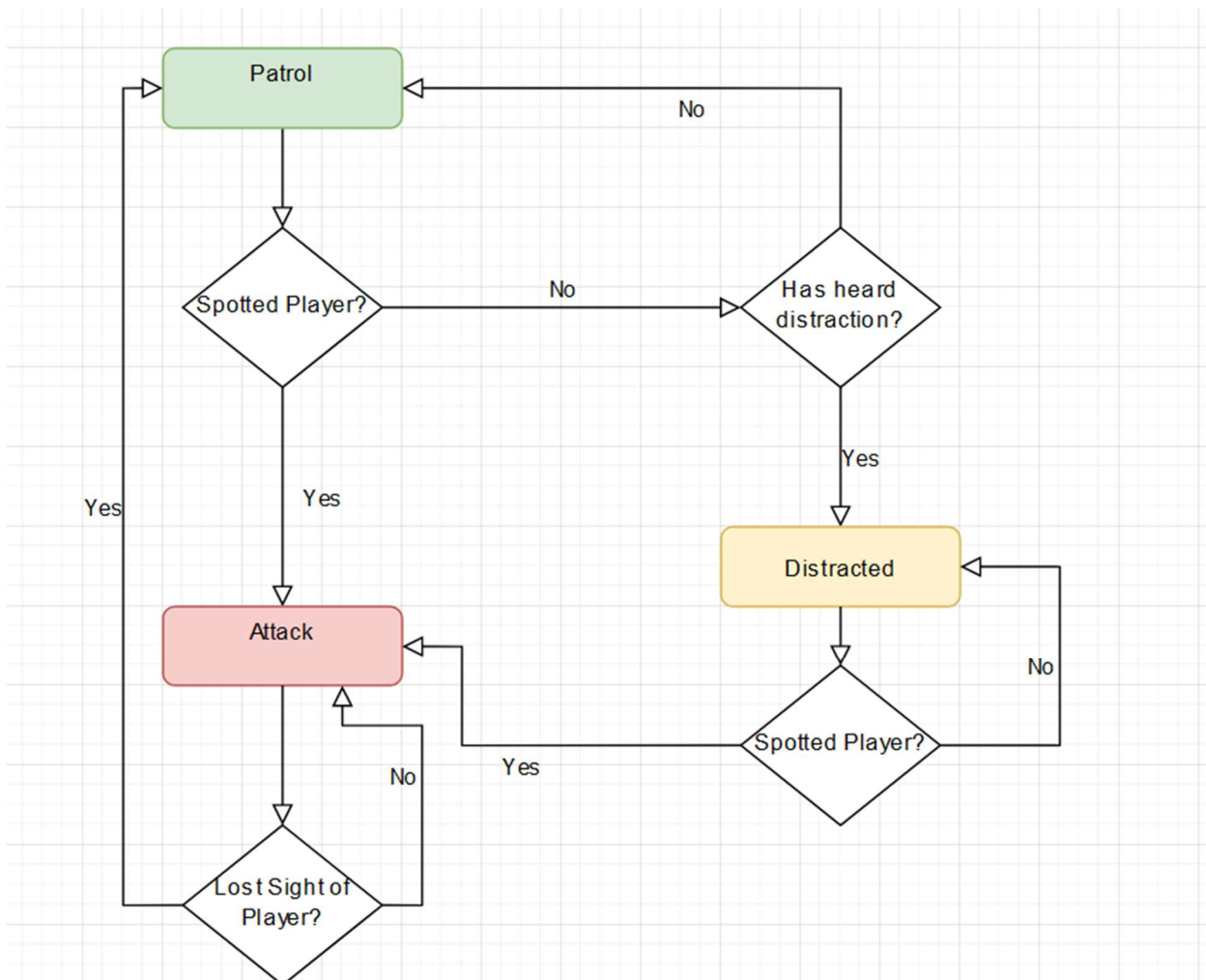
After the shot has been taken the AI will wait for 1.5 seconds before continuing to chase the player

Distraction

If the player initiates a distraction the AI will move to the distraction and will investigate it until the player is spotted. This is done to lock the AI in place so the player can line up the shot.

Diagram

The flow chart for enemies will look like the following:



Non-Hostile NPCs

The primary purpose of non-hostiles will be to provide the players a navigation challenge and add an additional element of challenge in setting up the room. Since the player cannot hit the non friendlies with the sniper shot, they will need to be mindful of them when setting up the room. Non-hostiles will broadly follow the same structure only with the Attack state being replaced by the Alert state. In this state the AI will alert all enemy AI to your location and put them in the attack state. Once line of sight is broken with the player, they will return to their normal patrol state.

UI

The player will have a heads-up display always showing important information. This HUD will have the players health, an indicator of how many enemies there are and how many enemies are currently in the bullet's trajectory. These elements will be in a bar on top of the screen. There will additionally be a small text popup telling the player when they can interact with objects located in the bottom of the screen.

World Design

The game will take place in a lighthearted James Bond-esque setting. With the level itself taking place in a modern warehouse that's been converted into a base for the secret society.

Control Scheme

The game will only support keyboard and mouse controls as many FPS players tend to prefer mouse and keyboard.