# Physical Controller Project

## Overview

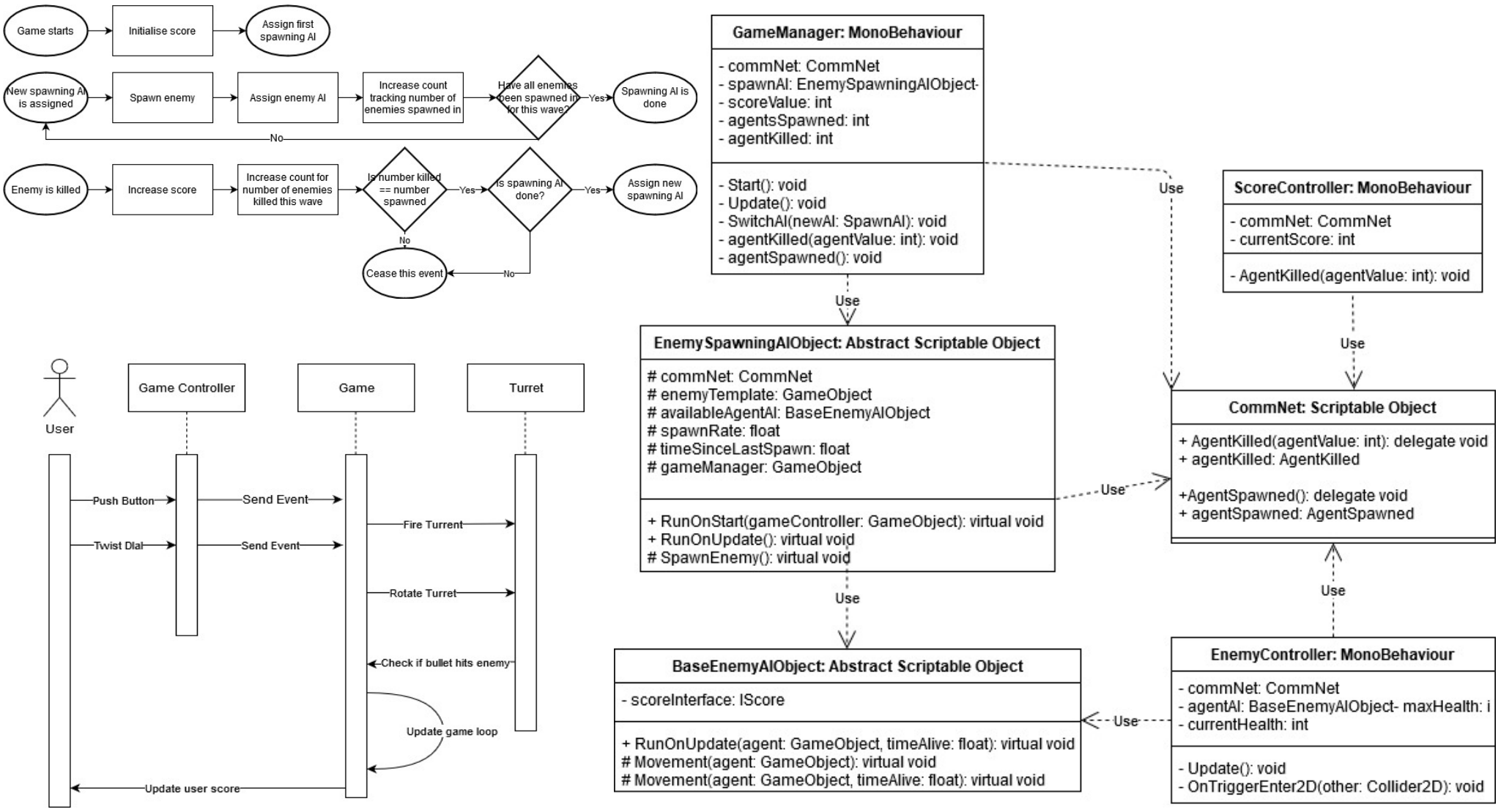
Humanity has been forced into underground bunkers. Automated production facilities ensure an endless bombardment of shells. You are a defence operator, tasked with controlling a defensive turret above the bunker. A majority of the systems are automated and requiring only limited guidance, with the system breaking the complex hail of debris and 3D trajectories into a more manageable 2D display.

## The Game

The game is inspired by the classic arcade game missile defender. It is a 2D game in which you control the rotation of a turret which is able to fire up at incoming projectiles. The spawning of enemies is controlled by one of several AI modules, with the active module changing as the game progresses.

The spawned enemies can take a variety of different AI modules and one is assigned at spawn by the spawn AI. These AI modules are ‘hot-swappable’, so I may experiment with the enemies AI changing mid wave.

I also plan to implement special ‘Boss’ enemies, as well as enemies with unique abilities.




## The Controller

The controller is a repurposed Sony ST-SE500 FM-AM tuner. I chose this controller as it has the needed inputs, and makes sense in-universe as recycled and repurposed equipment. I also originally intend to use the vacuum fluorescent display, however due to how the display PCB is set up this is unfortunately unrealistic.

The arduino will be stored within the case, with the cable connecting it to the PC running out of the cable port that was for the mains power supply. I plan to repurpose one of the push-to-make buttons and the dial. The dials’ state changes every time it is turned, which should be relatively easy to track with the arduino.