The Living Dead

Third-Year Semester Project in Information Technology

Development of an 3D computer game

Today’s agenda

- Introduce the project and its objectives
- Project’s motivation and inspiration
- Game’s key concepts, such as AI, economy
- Key concepts, continued
- Tech stack and assets
- Places for improvement

What is “The Living Dead”?

1

A first-person computer game developed on a Unity game engine.

2

A computer-game that is made by a single person, instead of a large production company.

No sound engineers, animators, programmers and other professions.

3

First of all, a classical zombie game where player has a single goal: survive as long as she/he can.

Why, a zombie game?

“Left 4 Dead 2” - Valve

“The Walking Dead ” - Telltale Games

“Resident Evil” - CAPCOM

Motivation

- Video games are a huge industry.

> “As of July 2018, video games generated US$134.9 billion annually in global sales” - Wikipedia

- People play video games.

> “Between May and December 2020, U.S. teens aged 15 to 19 years spent an average 112.8 daily minutes” - STATISTA

- Creating a video game by yourself is a good way to learn.

- How can a software developer write code and also integrate graphical assets?

Gameplay

Key concepts: economy

Economy

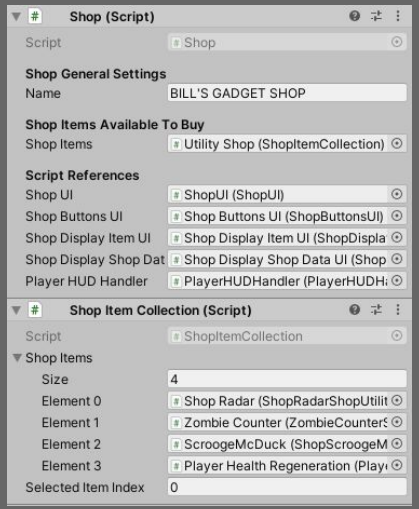
Killing a zombie gives you 200 virtual currency.

You can spend this currency in the game shops.

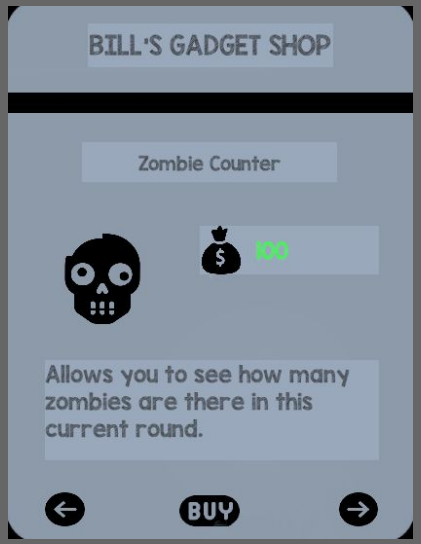
You can check how much currency you have by pressing “TAB”.

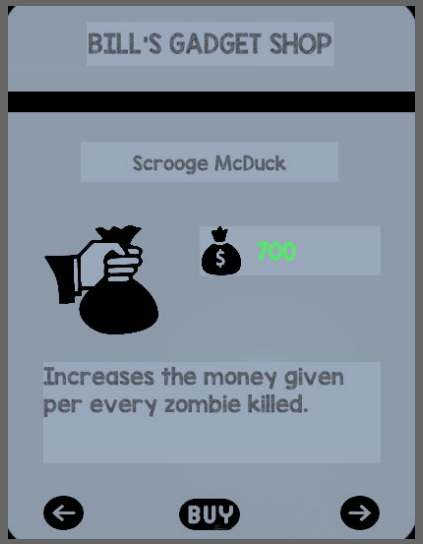
Economy, continued

- Every shop has it’s own game area, items, UI and scripts.
- Scripts have sanity checks to check if person has a specific item, can afford it and etc. There are additional “if” checks.
- Some if the items in shops are stackable, some are unique and can only be purchased once.



Economy, continued





Key concepts: player controls

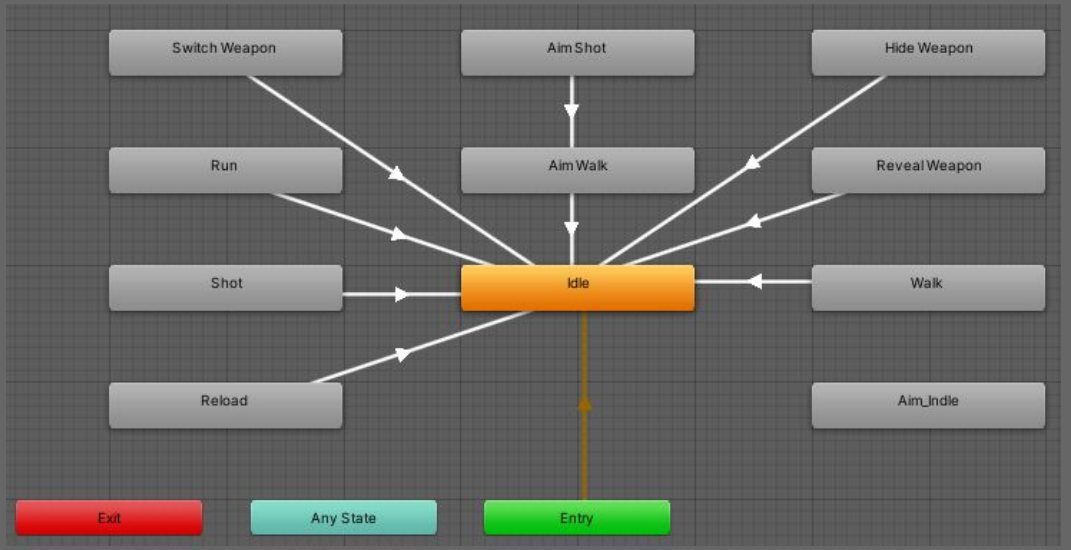
Player controls

- For the player movement, I’m using player control asset from the Unity’s Standard Assets package.
- The package gives the ability to run, walk, jump, look around in X, Y, Z axis.
- In addition, I gave the player the ability:
  - Mouse 1: shoot the weapon,
  - Mouse 2: ADS (zoom-in weapon);
  - Keyboard 1 and 2: switch weapons;
  - Key ‘F’: turn on/off flashlight;
  - ‘Escape’: Pause menu
  - ‘TAB’: Extended HUD

Key concepts: shooting and animations

Shooting and animations

- A lot of work was put into synchronizing shooting and animations.
- A player at any moment can interrupt an animation, meaning that the script should track this behaviour.



- For example, if the player runs, “Run” animation will be played in a loop, but the second user stops running, it will switch to “Idle”.

Key concepts: UI

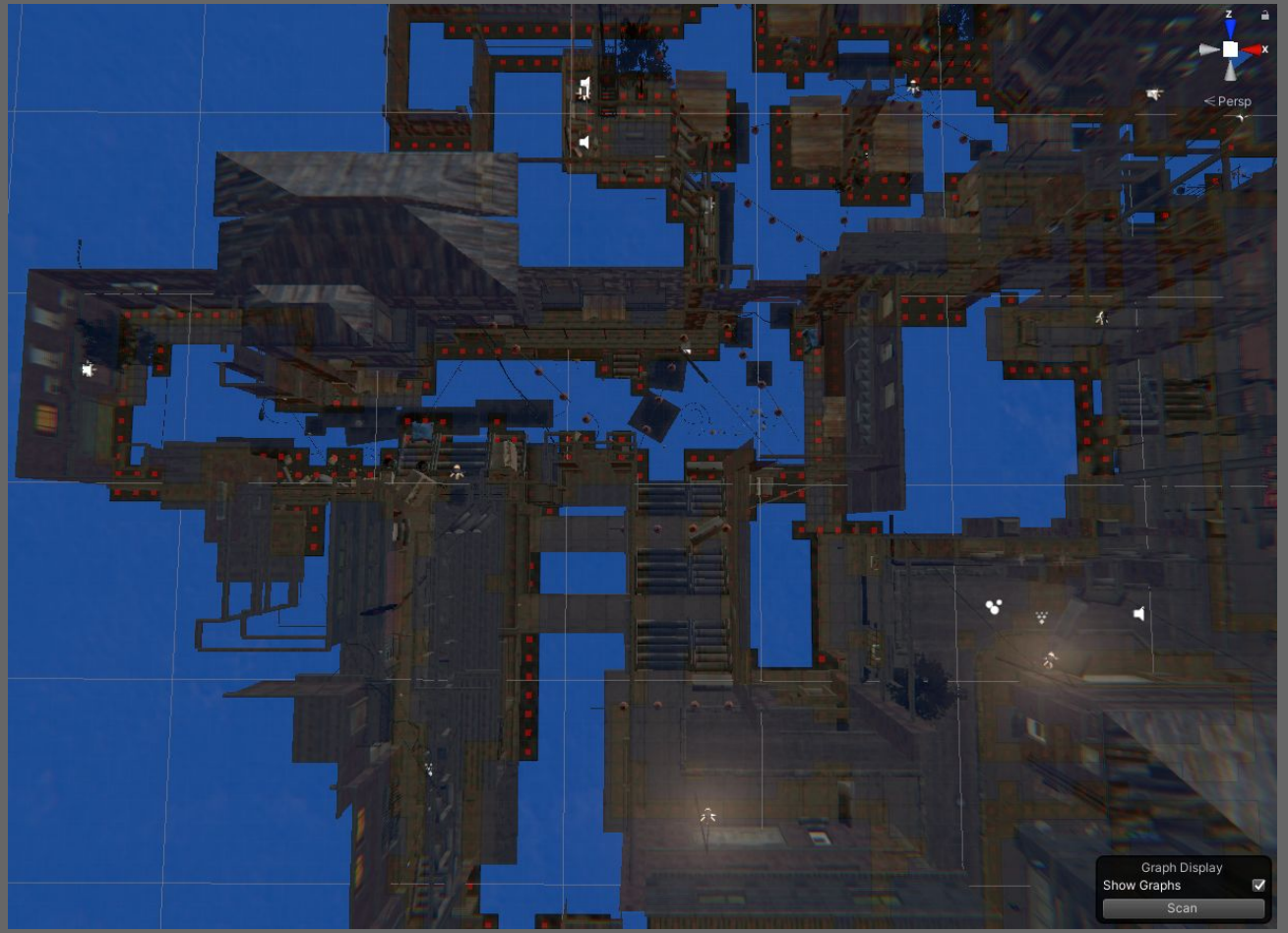
UI


100
30 / 5


BILL'S GADGET SHOP
Shop Radar
0
Displays a distance to the nearest shop.Yay, you already have it!

UI

Key concepts: AI



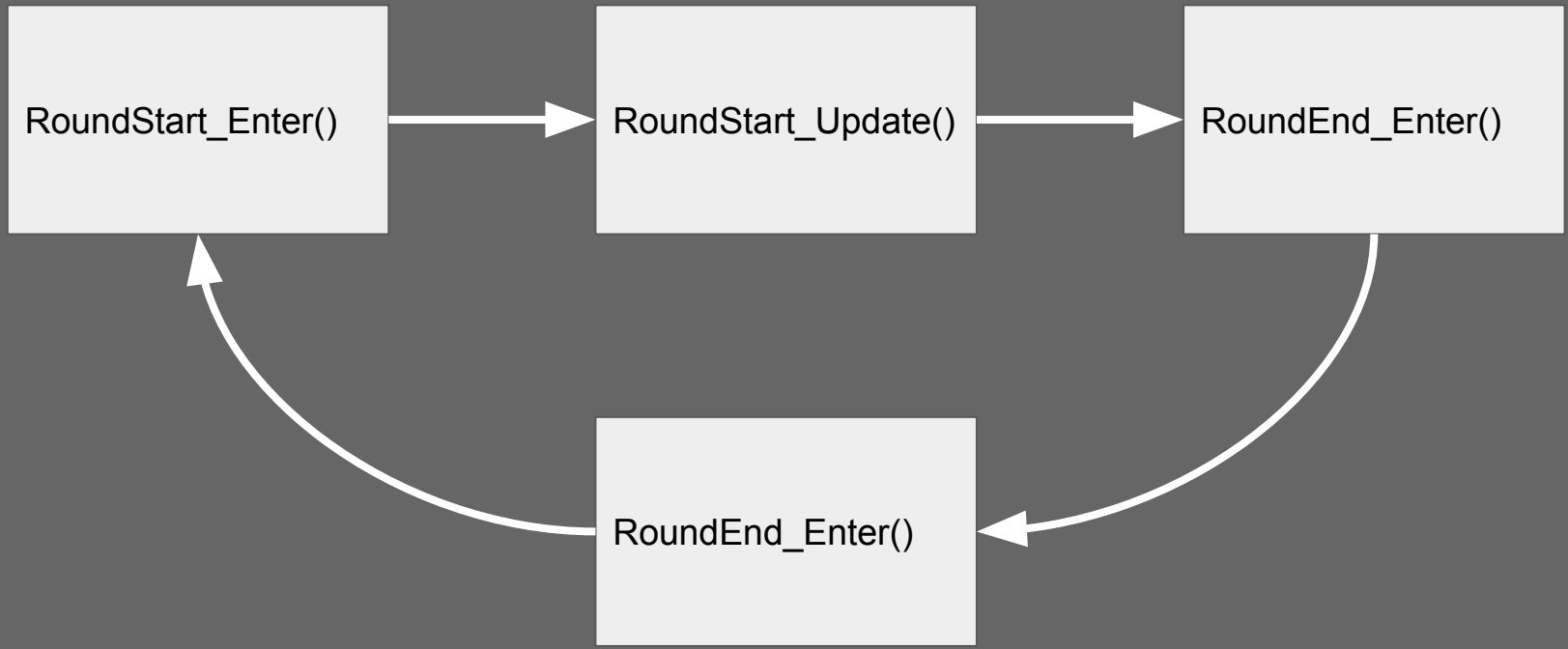
unwalkable

walkable

How does AI work?

Key concepts: round system

Round system, different states



Tech stack

Tech stack & Assets

- Scripting - C#
- Game Engine - Unity
- AI: A* pathfinding algorithm
- 3rd party state machine asset (MonsterLove.StateMachine)
- All graphical assets, such as sounds, animations, 3D models are from 3rd party sources.

Places for improvement

1

There could be more mechanics when it comes to player interaction. Player can only shoot zombies, buy things or run from the zombies.

2

Future challenges: multiplayer mode, procedural map generation

3

Different types of zombies, more weapons

Thank you for your time.