Items Is Items Project Plan

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Revisions Page

Version	Author	Description	Date
0.0	Job Betcher	Creation	9/30/2018
0.1	Jordan Betcher	Add Continuous Integration Tool, Features, Roles	10/1/2018
0.2	Jordan Betcher	Literature Review	10/3/2018
1	Annick Stefanin	Zelda, Plan Management	10/3/2018
2	Job Betcher	"Rescoping"	10/16/2018
2.1	Annick Stepanin	More Literature review	10/17/2018
2.2	Jordan Betcher	Review from Feedback	11/28/2018
3.0	Jordan Betcher Job Betcher Annick Stefanin	Polished	12/4/2018
3.1	Jordan Betcher Job Betcher	Added Interaction Manager GUI, End of Sprint #1 update	1/24/2019
4	Jordan Betcher Job Betcher Annick Stefanin	End Quarter #2 update	3/15/2019

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Introduction

Project Overview

- Purpose
 - To create a game based on item interactions. Such as something as silly as placing cheese on a door to attract a mouse to eat the door, to mixing your own poisonous cake to get rid of a monster nest.
 - "Back in the day. When Jordan was younger, there was a student playing runescape. And Jordan was like "Hey, all those items must do amazing things." So he played RuneScape and those items didn't do amazing things. So he is here now, making a game that has items which do amazing things." Jordan Betcher 2018
- Scope
 - A 2D game with a controllable character, items to pick-up and use, and problems to be creatively solved. Puzzles will be created from the terrain, NPCs, monsters, and the items on-hand. The game will be playable in Android.
- Assumptions and constraints
 - Cut off date is the end of spring quarter 2019
 - Interface and playability for android devices

Literature Review

Items Systems:

RuneScape [1][2][3]

RuneScape is one of the main games that our project is envisioned from. In the game progression is measure by levels... and you get levels via grinding for levels. There are quests, but the items usage in them is stale. This is why we're creating our game, because in Runescape items are limited to a single application, making it a boring game of finding the key (as a side note, the story surrounding the quests are generally pretty good).

The Legend of Zelda [7]

Item use is somewhat inspired by Legend of Zelda games, where specific, unique items are obtainable through long quests. This will give a higher value to the items in the player's eyes.

Open Worlds:

The Legend of Zelda [8]

The overworld in the Legend of Zelda is a large open world that connects the various dungeons together. Other than travel, the overworld can also contain various puzzles and NPC's which the character can interact with.

Puzzles:

The Legend of Zelda[9]

Zelda is known for its puzzle aspect, in both it's open world and dungeon spaces. Each puzzle is handcrafted and can be approached several different ways. The game will contain handcrafted puzzles with at least two different methods of solving it, to challenge the player and guarantee that it is solvable.

Quests:

Skyrim [10]

Skyrim has randomly generated quests using via parameterized templates based upon the player and their actions. NPCs can give quests based upon the player's experience, or friendliness level, or another statistic a story manager keeps track of.

Game Engine:

Unity3D Engine

Unity is a new game engine. It is easier to use, find tutorials for, and uses a more user friendly programming language. Our combined experience with this game engine far exceeds all our other game engines, and using this allows us more time to focus on gameplay and content. It is multi-platform and although it has 3D in its name it is better at making 2D games. And can be used for free.

GameMaker

Specialized at making 2D games quickly, but gives up flexibility of coding your own classes. Also costs \$40;

RPG Maker

A Script based RPG maker that Multiplatform, Also costs \$20.

Unreal Engine

Unreal is a longstanding game engine that's been around for 20 years. It's proven its effectiveness, and has one of the best graphics 3D game engines out there. Although it's sophisticated interface might be need a little bit of time to get used to, the free until you sell let's new users experiment with it.

Conclusion

Unity is the game engine that we have chosen from the slew of game engines out there. Unity doesn't even compare to Unreal in displaying 3D graphics, but we aren't focusing on graphics.

Ease of use is the most important and therefore in the end we choose to use Unity. Also it's free.

Platform:

With Unity we are able to easily port between different platforms. We will use the computer as a platform because it is easy to get feedback since you can run it in the Unity Editor. The other platforms we are looking at are any of the tablet devices because our game takes advantage of the touch and swipe while the screen is big enough to have see the map.

Conclusion:

We will use computers first because of the feedback and then we'll port to tablets.

Game Design:

Tutorial by Design - Humans are an inherently lazy species especially when playing games. So Tutorial by Design takes the stance of not having a text based tutorial where the player has no control. But instead design the beginning levels to require the knowledge one more mechanic. The first mario level is the usual example.

Negative Space - Negative Space is where you have nothing to emphasize by contrast. In the creation of the main menu we use negative space to increase the chance that the player pushes the only button there, the play button.

Project Organization Roles and Responsibilities

- Jordan Betcher
 - ➤ Documentation Assistant
 - ≻ Programmer
 - ≻ Designer
- ✤ Job Betcher
 - ➤ Programmer
 - > Program Architect
 - ➤ Documentation
 - ≻ Designer
- Annick Stefanin
 - ➤ Documentation Editor
 - ➤ Programmer
 - ➤ Designer

Tools and Techniques

- Game Creation Tools
 - ≻ Unity
 - Unity is a flexible game engine that includes collision detection, camera, and exporting executables to different platforms such as Windows, Mac, or Linux. We will be using it to create the game, its levels and objects, and executables.
 - ➤ Unity's Built-In Editor
 - Used to create and setup game objects outside of runtime.
 - ➤ Visual Studio
 - Visual Studio is a powerful IDE that is integrated with Unity. Providing the ability to program scripts in C# as well as debugging features. We will be using it to create C# scripts for Unity.
- Testing and Debugging Tools
 - ➤ Unity Test Runner
 - Unity Test Runner is a script tester built specifically as a plugin for unity. We will be using it to create tests for our code.
- Art Creation Tools
 - ≻ Paint
 - Paint is a commonly used art to create quick and dirty art. We will mainly use it for pixel art and programmer art.
 - ≻ Krita
 - Krita is a powerful art tool that allows layering, transparency, and transformations. We will be using this tool for our high quality 2D art.

- Team Collaboration Tools
 - ≻ ZenHub
 - ZenHub is a GitHub integrated scheduling plugin. We will be using it to create milestones and assign tasks.
 - ≻ GitHub
 - GitHub is a team collaboration tool that allows different users to merge their version of the code together. This makes it possible for multiple people to work on the same project at once. GitHub also keeps a log of changes allows you to roll back to a previous version of the code. We will be using it so our team can work on the code together.
 - ➤ GitHub Desktop
 - GitHub Desktop is a GitHub application that provides and easier interface than the console.
 - ➤ Google Drive
 - Google Drive is a cloud file collaboration platform. We will be using it to collaborate on the documentation as well as review assignments.
 - ➤ Discord
 - Discord is a popular communication application allowing both text and voice chat. We will be using it for meetings to discuss new ideas, things we've learned, and bugs.
 - ≻ Twine
 - A storyboarding tool used to help visualize the flow of a game level.
 - ► Draw.io
 - A diagramming tool used for component diagrams, class diagrams, and more.

Project Management Plan

Tasks

- Main Menu
 - New World
 - Save World
 - Load World
- InGame Menu
 - Restart Game
 - Main Menu
 - Quit
- Player
 - Movement
 - Inventory
 - A trailing inventory where the items follow behind the player
 - Adding items
 - Removing Items
- Items
 - Item Combinations
 - Images
- NPCs
 - Dialog Manager
 - Basic AI (States)
 - Area Detection
- Art and Sound
 - o UI
 - Items
 - Characters
 - NPC
 - Terrain
- World Environment
- Story
 - Visual
 - Written
- Quests
 - Quest givers
 - Completion events

Milestones

Tasks to be Completed	Description	Due Date					
Documentation	"Complete" the Project Plan, RSD, SDD, STD	12/3/2018					
Milestone #1: Player Character, Inventory, and Items	For the first quarter we will make a player, an inventory, and an item that can change the color of the player.	12/5/2018					
Sprint #1: Item Interactions	Item Descriptors, Interaction Manger, GUI for each combination making	1/23/2019					
Sprint #2: NPCs, Quests	NPCs, NPC's State machines, NPCs Quests	2/6/2019					
Sprint #3: Test Quests/Content	Add a small quest to test the integration of the features added in the previous sprints, map making	2/20/2019					
Sprint #4: Level #1 Demo	Create a Level #1 for a demo	3/6/2019					
Milestone #2: Item Interactions, NPCs, Quests, android port, and Maps	For the second quarter we will add the ability for a player to interact in the world.	3/29/2019					
Milestone #3: More Content, Polish	Add more interactions and things to do ad polish everything to perfection.	6/28/2019					
Finish	Finish and publish game.	6/28/2019					

Timeline

The focus of this game is in its item uses. The completed project will have a start screen that has access to creating a new game and loading a saved game. The player will then enter the game world where they control a character and can store and use items in an inventory.

By the end of fall quarter we intend to finish the minimum viable product. This includes a character, an inventory, and items that you can put into the inventory. In winter Quarter we will implement item combinations, NPC's AI and interactions, and port it to Android. Then in Spring quarter, we will cleanup the interface, add menus, add more items, and polish everything.

Items Is Items					Legend:																																		
A Group of People					On Track Low Risk Med Risk High Risk Unassigned																																		
Project Start Date: 1/1/2019																																							
Scrolling Increment:		9		Jar												February													5 0										
						10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4												1 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27											20123456										
Milestone Descripti	i Category	tegory Assigned To Progress Start				т																																	тw
Winter Quarter																																							
Task 1	On Track	Sprint 1: Items	60%	1/9/2019	14						ļ																												
Task 2	On Track	Sprint 2: NPC/Quests	50%	1/23/2019	14																																		
Task 3	On Track	Sprint 3: Test Quests/Content	33%	2/6/2019	14																																		
Task 4	On Track	Sprint 4: Demo Level 1		2/20/2019	14																																		
Milestone 1	Low Risk	Item Creator		1/19/2019	1																																		
Milestone 2	Low Risk	Item Manger		1/22/2019	1																																		
Milestone 3	Low Risk	NPC		2/1/2019	1																																		
Milestone 4	Low Risk	Quests		2/5/2019	1																																		
Milestone 5	Low Risk	Content		2/19/2019	1																																		
Milestone 6	Low Risk	Level 1		3/5/2019	1																																		
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Additional Material

Definitions, Acronyms and Abbreviations

- MVP Minimum Viable Product is made up of the minimum main system that make the core experience without any additional content
- NPC Non Player Character
- RPG Role Playing Game, a game that is mainly a story
- Grinding The monotonous acting of doing the same thing over and over again.
- RUDP Reliable UDP
- UDP User Datagram Protocol a way of sending data through the network or internet into another device

References

- [1] <u>https://www.runescape.com/</u>
- [2] <u>https://www.youtube.com/watch?v=7RNK0YBdwko</u>
- [3] https://en.wikipedia.org/wiki/RuneScape
- [4] <u>https://blog.liveedu.tv/unity-vs-unreal/</u>
- [5] https://www.pluralsight.com/blog/film-games/unreal-engine-4-vs-unity-game-engine-best
- [6] https://en.wikipedia.org/wiki/Unreal_Engine
- [7] https://zelda.gamepedia.com/Gameplay_Elements_of_The_Legend_of_Zelda_Series#Items
- [8] https://zelda.gamepedia.com/Overworld
- [9] <u>https://zelda.gamepedia.com/Puzzle</u>
- [10] <u>https://www.gameinformer.com/games/the_elder_scrolls_v_skyrim/b/xbox360/archive/2</u> 011/01/17/the-technology-behind-elder-scrolls-v-skyrim.aspx?PostPageIndex=2
- [11] <u>https://docs.unity3d.com/Manual/UnityMultiplayerIntegratingOverview.html</u>
- [12] <u>https://docs.unity3d.com/Manual/UNetUsingTransport.html</u>
- [13] <u>https://softwareengineering.stackexchange.com/questions/342254/tcp-or-udp-for-a-multiplayer-game</u>
- [14] <u>https://forum.unity.com/threads/should-we-use-udp-or-tcp.257217/</u>

Appendices