**PROJECT III**

**2D Portal Game**

**EECS 448**

Adam Khan

Matthew Eagle

Mitch Simmons

Natalia Leyba

Zach Harris

**List of Meetings**

Date: October 10th, 2018

Location: Eaton classroom

All present

Topics:

* Receiving new project
* Discuss possible project ideas
* Wrote down list of possible applications

Notes:

* Will take a vote on friday and continue discussing possible projects
* Will explore different ideas before next meeting

Date: October 12th, 2018

Location: Eaton classroom

Members: Adam Khan, Mitch Simmons, Matthew Eagle, Zach Harris

Topics:

* Voted on different ideas
* Selected top ideas
* Discussed possible language to be use and possible implementation

Notes:

* Will explore possibilities of 2D portal game and possible languages that might be effective to achieve our goals

Date: October 17th, 2018

Location: Eaton classroom

All present

Topics:

* Understanding possible implementation and discussing using Unity as a platform
* Talked about project distribution

Notes:

* Homework: Installing Unity, learning basic game implementations, functions and libraries
* Next Meeting: Will distribute equally the project tasks

Date: October 19th, 2018

Location: Eaton classroom

All present

Topics:

* Started shared project
* Decided possible classes
* Established main tasks for the project

Notes:

* Distribute work that same afternoon
* Will start developing the environment for the game
* Next Meeting: Will start coding functionalities

Date: October 19th, 2018

Location: Linux Lab

All present

Topics:

* Started coding
* Initial Character functionalities were added
* Work was divided
* Environment and features’ implementation were discussed

Notes:

* Basic functionalities must be started by next meeting
* Next Meeting: Saturday at 1:00 pm

Date: October 20th, 2018

Location: Linux Lab

Members: Natalia Leyba, Matthew Eagle, Mitch Simmons, Zach Harris

Topics:

* Finished up basic functionalities development
* Finished environment design for demo
* Started testing

**Division of the Project**

* **Adam:** 
  + Game manager implementation: Allows the game to start and to finish when reached exit
* **Zach:** 
  + Portal Bullets objects design and implementation: Portal bullets allow player to create the portal when bullets hit one of the valid materials and are shot from player’s gun
* **Matthew:** 
  + Portal implementation: Developed the classes that allowed player to be transported from portal to portal and that established the physics qualities of the portal
* **Mitch:** 
  + Environment design and development: Designed and development the components for the environment of the demo, giving specific properties to different elements in the scene
* **Natalia:** 
  + Character development and Character Movement implementation: Developed the classes that allowed the character to move as well as the interactions between the player and different objects.

**Challenges**

* Learning Unity: using Unity for the first time made for a steep learning curve that had to be overcome before any meaningful development on the game could begin. Eventually, we picked up on the basics of 2D platform development and were able to plod through the unknown to create a basic prototype for the game.
* Setting up a collaborative environment: Initially we tried using a single Unity project in a GitHub repository, but it proved to be rather slow with development when everyone was working at once. Eventually, we switched to Unity's own integrated Collaborate service, and everyone found it to be a much better development experience. We also experienced an outage in GitHub’s service when migrating our project back to the repository

**Possible Features to be Added**

* Turrets, cubes, and other features of the original Portal games
* More levels with nontrivial challenges to complete them
* First-person mode?

**Retrospective Analysis of the Project Development**

After completing a basic prototype for our 2D portal game, a number of hindrances to our development have made themselves notable. Firstly, I think it's fair to say we underestimated the ease of use of Unity, as well as the dedicated time required actively learning how to use the engine before we could make any progress on the project itself. Knowing this and having to do it again, we would have started the learning process earlier than we did, which would have made the last few days of the sprint less hectic. With less stress on getting a functional product done, more time could have been spent on adding a more complete initial demo, such as a more fleshed out level system, and possibly enemies to create a more complete game experience.

**Citations:**

Unity Technologies 2D Platformer:

* Character Prefab: We used their character as a based model for our avocado-like character
* Standard Library
* Manifest.json package
* Physics Materials
* Animations