

Assignment Instructions

This is a **GROUP** assignment with an **INDIVIDUAL** component. Only one member of your team should turn in your files.

Due

June 18, 2014 at 11:55 PM

Late Policy

See milestone one for the late policy ($2^{(n+1)}$ late policy).

Description

For this assignment, you will make a character controller that addresses some of your design ideas and demonstrate its game feel qualities in individual themed gardens. Together as a team you will implement a unique gameplay/character control idea from your group brainstorming sessions and game pitches. And individually you will develop different themed gardens / levels that demonstrate the appropriately tuned gameplay / character control.

The character controller must be complete in the sense that it allows the player to move about and interact within the game environment. The principals of “Game Feel” as discussed in class should be exercised.

This character controller must also leverage physics simulation allowing simulated physics interaction with the game environment.

Your submission should satisfy the following requirements.

Your application allows the player to move a character that interacts with the Unity physics engine. Choose either option below.

Option 1:

Your character is completely controlled by physics-simulated forces. This means that the object is moved via the application of forces (not by applying position and rotation transformations to the transform component of the Game Object).

Option 2:

Your character is controlled by a script, which operates on the Game Object's transform directly but also interacts with the physics objects in the scene. The physical movements of your character will be calculated independent of the physics scene. However as the character's position changes, physics objects will be forced out of the way as if your character has mass.

Either of the options above is worth **(25 pts)**

In either case, your character should collide and interact appropriately with physics objects in the world (e.g. falls, bounces off things, knocks over smaller objects etc.). The method of movement should be determined by your particular game. For example, if your game is based on a frog you might have a character that can easily jump around the scene but walks very slowly. Or if your game is based around a vehicle, for this assignment you might implement a simple “hover craft” that is held aloft by a sinusoidal force and then moved forward by applying a force behind it. It is also not necessary to have a fully polished character model for your game (e.g. a completely animated frog) but instead appropriate sized and textured stand-in geometry you use should exhibit the appropriate behavior is acceptable (e.g. a small

rectangular box with frog texture that bounces around like a frog).

Your team will exercise the principals of “Game Feel” in your character controller. You will define a target physical description of your character that you are attempting to capture in the character controller. Similarly you will define an emotional state that you aim to convey to the game player through interaction with the character (e.g. You might make a character controller meant to capture the lightweight and speedy physical characteristics of a housefly while conveying a nervous and frenetic emotional feel to the player.) **(25 points)**

To demonstrate the game feel of your controller you will work **individually** within your team to develop different themed game feel “gardens” (or levels) and have the game feel of your character appropriately respond to them. Each garden should be switched to by a keypress 1 to n (where n is the number of team members). On each garden there should be a HUD display of the name over the person and the theme / biome you are going for. **(10 pts)**

(e.g. For team Shaft we have decided on a game feel of twitchy fast character who is up to no good. We express that by character moves quickly and vibrates but has a dark particle cloud following him. Together as a team we develop the character controller and interaction with the physical material properties. One team member makes an icy level with low friction and many obstacles, which will require more precision to move and back and forth travel that the dark cloud can eventually obscure. Another team member makes a desert level with sand which will slow the character down and he will have to jump more but not hang out too long or be obscured by the cloud.)

Additionally, each level must have environmental behaviors:

- The level should have at least five actors (geometry nodes) in it that have dynamic physical properties controlled by the physics engine. These can be rigid bodies, soft bodies, etc. **(10 pts)**
- The level should have at least two joints used somewhere in it. **(10 pts)**
- The level must have variable height terrain (ramps, stairs, platforms, etc. count) that your character can move up and down on. **(10 pts)**
- The level must have two material sounds that play while the character is interacting with the surface (e.g. sliding sound while going across ice, grit sound while going across sand, bang sound when colliding with a metal wall at high speed, etc). **(10 pts)**

Submission:

Submit your assignment in two ways.

First, as discussed in class and done in previous assignments, you should put your working demo on the web, embedded in a web page with all the directions and guidance necessary to try it out and verify the features above. Please also document the “game feel” characteristics that you are targeting with your character controller and the interaction in the gardens. This is especially important so the grader can assess this aspect of the assignment.

Second, you should submit a ZIP file of your Unity project directory via t-square. Please clean the project directory to remove unused assets, intermediate and final build files, etc., to minimize the file size and make it easier for the TA to understand.

The submissions should follow these guidelines:

- a) Your team name should appear on the HUD of your game when it is running.
- b) ZIP file name: <teamname>_m2.zip
- c) Readme file should be in the top level directory: < teamname >_m2_readme.txt and should contain the following
 - i. Full name, email, and prism account name for each member of the team
 - ii. Detail which requirements you have completed, which are incomplete, and which are buggy (be specific)
 - iii. Detail any and all resources that were acquired outside of class and what it is being used for(e.g. Asset Bundles downloaded from the Asset Store for double sided cutout shaders, or this file was found on the internet has link <http://example.com/test> and does the orbit camera tracking).
 - iv. Detail any special install instructions the grader will need to be aware of for building and running your code
 - v. Detail exact steps grader should take to demonstrate that your game meets assignment requirements (e.g. "First, walk towards the pile of blocks using WASD and mouse and bump into them to knock them down. This should demonstrate actor movement via physically simulated forces and interactivity with environment...") Please also include game feel description.
 - vi. Which scene file is the main file that should be opened first in Unity
 - vii. URL of the web page where you posted your assignment
- d) Complete Unity project (each script file you created should include team name and members' names in comments at top of file, and any file you acquired outside should also be attributed with the appropriate source information)

Submission total: (up to 20 points deducted by grader if submission doesn't meet submission format requirements)

Be sure to save a copy of the Unity project in the state that you submitted, in case we have any problems with grading (such as forgetting to submit a file we need).