

Computer Graphics and Computer Vision - Lab 1 Report

This report contains information about the changes made to the microgames provided for Lab 1.

FPS Microgame:

The game can be accessed via this link: <https://connect.unity.com/p/upload-fps-game>

1. The color of the health bar has been changed from red to green.
2. I've changed the strength of gravity from '20' to '2'. Thus now the player effectively floats for a while before coming back down again. This gives the ability to shoot enemies from the sky.
3. I've added a new room, a chapel. This room is positioned behind the last turret.
4. I've added 2 turrets in the added chamber. These are now the end boss, it is very hard to kill them both and win the game.
5. I've changed the color of the floor from a dull gray to a bright green and red.
6. I've changed the intensity of the directional light to 4. And the color to orange. This creates a brighter scene with more apparent shadows.
7. I've added some flower bushes in the room with the hoverbot.
8. I've changed the shape of the lava particles. Instead of them looking like tiny embers, I made them look like narrow sticks, as if they leave a trail. I did this just by changing the size of the particles.
9. The first hoverbot now has a health of 1000 instead of 100. Which makes it much harder to kill. In my opinion it was too easy to kill.
10. I also changed the speed of the hoverbot. It now approaches you twice as fast.

Karting Microgame:

The game can be accessed via this link: <https://connect.unity.com/p/cgcv-lab1-karting-mod>

1. The Kart Dynamics were changed via the Inspector window of the Unity Editor. The following 2 properties of the **Kart** object were modified: top speed and turn speed. The *top speed* property controls the maximum speed the kart can reach upon acceleration. It was changed from its default value to 30.
2. The *turn speed* property controls the speed of the kart when the player attempts to turn using the left or right arrow key. It was modified from its default value to 50.
3. The next changes were made to the **KartRacerMaterial** object. These changes modified the look and aesthetics of the kart in the game. First, the *kart colour* was modified to RGBA value: (153, 29, 209, 117).

4. Second, the surface properties were modified. The *metallic* property was modified to 0.5 and *smoothness* property was modified to 0.8.
5. Then, a few objects were added to the environment from the Prefab collection. A **TreeBox** object and a **BuildingThin** object were added to the environment. The **TreeBox** object was then scaled to nearly the size of the **BuildingThin** object.
6. Changes to the racing track were also made. Here, a spiral track was built using objects such as **ModularTrackRampCurveRight**, **ModularTrackRamp** and **ModularTrackSpiralRight**. The old track below is removed along with a few other objects interfering with the new track.
7. To inform the player about the new track, a **BillboardBasic** object is added just before the new track and a custom image is displayed on the billboard by importing it as a new Asset.
8. As the default game environment has a very bland look, the **TemplateEnvironment** object is modified to add some colour to the game.
9. Next, the **KartWheels** object was modified to add **LaserTrail** effect when the kart is in motion.
10. Finally, the **MainMenuCanvas** object is modified. This contains the text information about the game. The Game's name and credits screen is changed.

Platformer Microgame:

The game can be accessed via this link: <https://connect.unity.com/p/platformer-152>

1. Changed the Player Object Property : Max Speed from 3 to 5 to make the player move faster.
2. Changed Player color from Blue to Red.
3. Moved rewards object a bit lower so that they are easier to reach when jumped.
4. Added enemy in the game.
5. Changed the music for different action sets.
6. Changed enemy size to be bigger.
7. Added a house from Tiles in the background.
8. Changed the background of the game to sky blue to suit the sky using the Main Camera module.
9. Changed main camera projection from Orthographic to Perspective and the game zoomed in a bit to fit the players perspective.
10. Changed the gravity settings to 2 from 1 and the players jump was shorter.