

COSC363: Computer Graphics Assignment 1 – A Robot's World



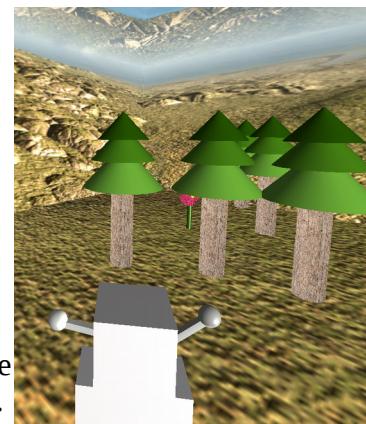
Scene Description

In this scene the robot, goes to look at his pot plant, and is sad when he remembers it is empty (shown via droopy antennas and blue eyes). The robot then looks around for a flower, and gets excited when he finds one (returning to his normal eye colour). He runs to the flower, only to be stopped by trees which must be removed (via mouse click). He can then take the flower, using his levitation powers and plants it in the pot plant which makes him dance along to the flower.

Important Aspects



The image on the left shows the point which the robot is searching and then finds the flower. It is a key aspect in the scene and has a number of camera rotations so the viewer is also finding the flower along side the robot.



The image on the right shows the point at which the scene becomes interactive and the robot will not move until the trees are gone.

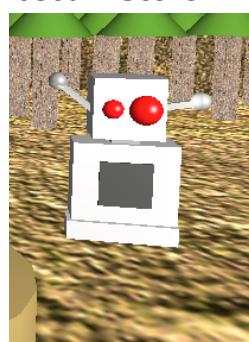
Extra Features

1. Planer Shadow – As seen in two pictures above the stand for the pot plant has a planer shadow, this is one of the most important objects in the scene as a lot of animations involve around it.
2. Spotlight – The robot has two lights coming out of his antennas, this was to show that the robot has some physic abilities.
3. Collision Detection – The robot will not move while there is trees in it's path to the flower. This is done using collision flags.
4. Skybox – The scene is enclosed in a mountain-like terrain.

Generated Models

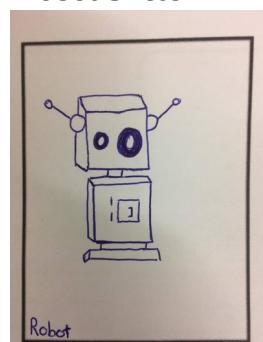
All models in the scene were generated using my own code.

Robot in Scene



vs

Robot Sketch



Special Challenges:

I faced a lot of difficulty to get the camera to follow the robot to the trees, while staying close to the robot without jumping. I solved this by having cam_angle separate to the actual camera angle , creating a different way to build and update the camera also fixed many buffering issues that I was having, even after making a double buffer. I also had difficultly to move the robot in a smooth way which I solved with a timer that contains all the robots movements and when and where to do them. The skybox images were difficult to line up and involved quite a bit of time setting up the images to look consistent, and at one point I did have to change skybox packs.

Controls

Arrow keys:

Up – Camera up
Down – Camera down
Left – Camera left
Right – Camera Right

Left Mouse Click:

Click left mouse in when robot stops moving in front of trees to clear trees until the are gone and the robot starts moving again. (See important aspects picture 2.)

Resources/References

Skybox - <http://www.custommapmakers.org/skyboxes.php>

“This skybox has been created by 'The Mighty Pete'. He can be reached at the following WEB site: <http://www.petesoasis.com>

The author grants you the right to freely use this sky box in your projects and distribute it under the GNU General Public License version 2.”

PotPlant Texture: <http://moptopshop.tumblr.com/>

All Other Textures: <http://www.textures.com/>

Collision Detection: <http://www.coders-hub.com/2013/06/opengl-code-for-collision-detection.html#.WOdJAUf-thF>

JPEG To TGA Converter: <http://image.online-convert.com/convert-to-tga>