به نام خدا

درس گرافیک کامپیوتری

پروژه نهایی

محققان:

سینا رحیمیان

مهدی تیلاب

زمستان ۹۸

دانشگاه علم و فرهنگ



مقدمه:

۱.افزودن محیط

۲.افزودن جسم متحرک

۳.افزودن سایه

۴.افزودن مه

۵.افزودن نور

۶. افزودن موانع

۷.افزودن درخت های کناری

۸.برخورد

۹.امتیاز

۱۰.افزودن صدا

۱۱.آهنگ برخورد

۱.

|  |
| --- |
| function addWorld(){ |
|  | var sides=40; |
|  | var tiers=40; |
|  | var sphereGeometry = new THREE.SphereGeometry( worldRadius, sides,tiers); |
|  | var sphereMaterial = new THREE.MeshStandardMaterial( { color: 0x15d9d9 ,shading:THREE.FlatShading} ) |
|  |  |
|  | var vertexIndex; |
|  | var vertexVector= new THREE.Vector3(); |
|  | var nextVertexVector= new THREE.Vector3(); |
|  | var firstVertexVector= new THREE.Vector3(); |
|  | var offset= new THREE.Vector3(); |
|  | var currentTier=1; |
|  | var lerpValue=0.5; |
|  | var heightValue; |
|  | var maxHeight=0.07; |
|  | for(var j=1;j<tiers-2;j++){ |
|  | currentTier=j; |
|  | for(var i=0;i<sides;i++){ |
|  | vertexIndex=(currentTier\*sides)+1; |
|  | vertexVector=sphereGeometry.vertices[i+vertexIndex].clone(); |
|  | if(j%2!==0){ |
|  | if(i==0){ |
|  | firstVertexVector=vertexVector.clone(); |
|  | } |
|  | nextVertexVector=sphereGeometry.vertices[i+vertexIndex+1].clone(); |
|  | if(i==sides-1){ |
|  | nextVertexVector=firstVertexVector; |
|  | } |
|  | lerpValue=(Math.random()\*(0.75-0.25))+0.25; |
|  | vertexVector.lerp(nextVertexVector,lerpValue); |
|  | } |
|  | heightValue=(Math.random()\*maxHeight)-(maxHeight/2); |
|  | offset=vertexVector.clone().normalize().multiplyScalar(heightValue); |
|  | sphereGeometry.vertices[i+vertexIndex]=(vertexVector.add(offset)); |
|  | } |
|  | } |
|  | rollingGroundSphere = new THREE.Mesh( sphereGeometry, sphereMaterial ); |
|  | rollingGroundSphere.receiveShadow = true; |
|  | rollingGroundSphere.castShadow=false; |
|  | rollingGroundSphere.rotation.z=-Math.PI/2; |
|  | scene.add( rollingGroundSphere ); |
|  | rollingGroundSphere.position.y=-24; |
|  | rollingGroundSphere.position.z=2; |
|  | addWorldTrees(); |
|  | } |

.2

|  |
| --- |
| function addHero(){ |
|  | //var sphereGeometry = new THREE.DodecahedronGeometry( heroRadius, 1); |
|  | var sphereGeometry = new THREE.BoxGeometry( 0.2, 0.2, 0.2 ); |
|  | var sphereMaterial = new THREE.MeshStandardMaterial( { color: 0xf44336 ,shading:THREE.FlatShading} ) |
|  | jumping=false; |
|  | heroSphere = new THREE.Mesh( sphereGeometry, sphereMaterial ); |
|  | heroSphere.receiveShadow = true; |
|  | heroSphere.castShadow=true; |
|  | scene.add( heroSphere ); |
|  | heroSphere.position.y=heroBaseY; |
|  | heroSphere.position.z=4.8; |
|  | currentLane=middleLane; |
|  | heroSphere.position.x=currentLane; |
|  | } |

3.

Shadow in Code…

4.

scene.fog = new THREE.FogExp2( 0xf0fff0, 0.14 );

5.

|  |
| --- |
| function addLight(){ |
|  | var hemisphereLight = new THREE.HemisphereLight(0xfffafa,0x000000, .9) |
|  | scene.add(hemisphereLight); |
|  | sun = new THREE.DirectionalLight( 0xcdc1c5, 0.9); |
|  | sun.position.set( 12,6,-7 ); |
|  | sun.castShadow = true; |
|  | scene.add(sun); |
|  | //Set up shadow properties for the sun light |
|  | sun.shadow.mapSize.width = 256; |
|  | sun.shadow.mapSize.height = 256; |
|  | sun.shadow.camera.near = 0.5; |
|  | sun.shadow.camera.far = 50 ; |
|  | } |

6.

|  |
| --- |
| function addTree(inPath, row, isLeft){ |
|  | var newTree; |
|  | if(inPath){ |
|  | if(treesPool.length==0)return; |
|  | newTree=treesPool.pop(); |
|  | newTree.visible=true; |
|  | //console.log("add tree"); |
|  | treesInPath.push(newTree); |
|  | sphericalHelper.set( worldRadius-0.3, pathAngleValues[row], -rollingGroundSphere.rotation.x+4 ); |
|  | }else{ |
|  | newTree=createTree(); |
|  | var forestAreaAngle=0;//[1.52,1.57,1.62]; |
|  | if(isLeft){ |
|  | forestAreaAngle=1.68+Math.random()\*0.1; |
|  | }else{ |
|  | forestAreaAngle=1.46-Math.random()\*0.1; |
|  | } |
|  | sphericalHelper.set( worldRadius-0.3, forestAreaAngle, row ); |
|  | } |
|  | newTree.position.setFromSpherical( sphericalHelper ); |
|  | var rollingGroundVector=rollingGroundSphere.position.clone().normalize(); |
|  | var treeVector=newTree.position.clone().normalize(); |
|  | newTree.quaternion.setFromUnitVectors(treeVector,rollingGroundVector); |
|  | newTree.rotation.x+=(Math.random()\*(2\*Math.PI/10))+-Math.PI/10; |
|  |  |
|  | rollingGroundSphere.add(newTree); |
|  | } |

7.

|  |
| --- |
| function addWorldTrees(){ |
|  | var numTrees=36; |
|  | var gap=6.28/36; |
|  | for(var i=0;i<numTrees;i++){ |
|  | addTree(false,i\*gap, true); |
|  | addTree(false,i\*gap, false); |
|  | } |
|  | } |

8.

|  |
| --- |
| function addExplosion(){ |
|  | particleGeometry = new THREE.Geometry(); |
|  | for (var i = 0; i < particleCount; i ++ ) { |
|  | var vertex = new THREE.Vector3(); |
|  | particleGeometry.vertices.push( vertex ); |
|  | } |
|  | var pMaterial = new THREE.ParticleBasicMaterial({ |
|  | color: 0xfffafa, |
|  | size: 0.2 |
|  | }); |
|  | particles = new THREE.Points( particleGeometry, pMaterial ); |
|  | scene.add( particles ); |
|  | particles.visible=false; |
|  | } |

9.

|  |
| --- |
| scoreText = document.createElement('div'); |
|  | scoreText.style.position = 'absolute'; |
|  | //text2.style.zIndex = 1; // if you still don't see the label, try uncommenting this |
|  | scoreText.style.width = 100; |
|  | scoreText.style.height = 100; |
|  | //scoreText.style.backgroundColor = "blue"; |
|  | scoreText.innerHTML = "0"; |
|  | scoreText.style.top = 50 + 'px'; |
|  | scoreText.style.left = 10 + 'px'; |
|  | document.body.appendChild(scoreText); |

10.

function addSound() {

var listener = new THREE.AudioListener();

camera.add( listener );

// create a global audio source

var sound = new THREE.Audio( listener );

var audioLoader = new THREE.AudioLoader();

//Load a sound and set it as the Audio object's buffer

audioLoader.load( 'world-cup.mp3', function( buffer ) {

sound.setBuffer( buffer );

sound.setLoop(true);

sound.setVolume(0.5);

sound.play();

});

}

11.

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