Three.js

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Uvod

- JavaScript biblioteka za WebGL - 3D
- Velik broj gotovih rutina za iscravanje 3D objekata
- Gotove rutine za postavljanje kamere, materijala za bojanje, osvjetljenja, pomagači..
- Gotove rutine za transformacije
- Mogućnost rada s matricama

Korištenje

- Učitavanje Three.js biblioteke

```
<script src="https://rawgithub.com/mrdoob/three.js/master/build/three.js"></script>
<script src="../build/three.js"></script>
```

- Postavljanje scene

```
var scene = new THREE.Scene();
var camera = new THREE.PerspectiveCamera( 75, window.innerWidth / window.innerHeight, 0.1, 1000 );
var renderer = new THREE.WebGLRenderer();
```

- Izrada 3D objekta, selektivno odbacicanje, dodavanje na scenu

```
var geometry = new THREE.CubeGeometry(1,1,1);
var material = new THREE.MeshBasicMaterial( { color: 0x00ff00 } );
var cube = new THREE.Mesh( geometry, material );
cube.material.side = THREE.DoubleSide;
scene.add( cube )
```

Korištenje

- Skaliranje, translacija, rotacija

```
cube.position.x += 5;

cube.rotation.x = Math.PI;

cube.scale.x = cube.scale.y = cube.scale.z = 2;
```

- Osvjetljenje

```
var light = new THREE.PointLight( 0xffaa00, 3);

light.position.set(5, 10, 10);

scene.add( light );
```

- Helperi

```
scene.add(new THREE.AxisHelper(20));
```

Korištenje

- Upravaljnje objektima mišem

```
<script src="/examples/js/controls/OrbitControls.js"></script>
 var contrlos = new THREE.OrbitControls(camera);
```

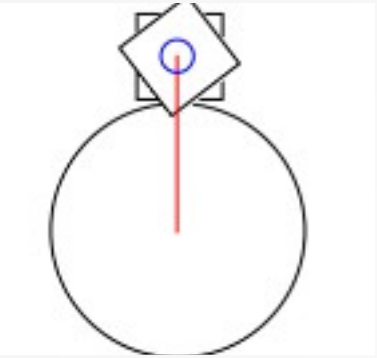
- Izrada scene i animacije

```
function animate() {
    /* pozivanje funkcije animate 60 puta u sekundi */
    requestAnimationFrame(animate);
    renderer.render(scene, camera);
  }
  animate();


cube.rotation.x += 0.1;
cube.rotation.y += 0.1;
```

Korištenje

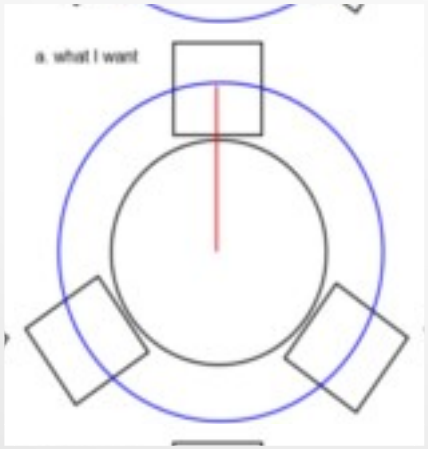
- Problem rotacije



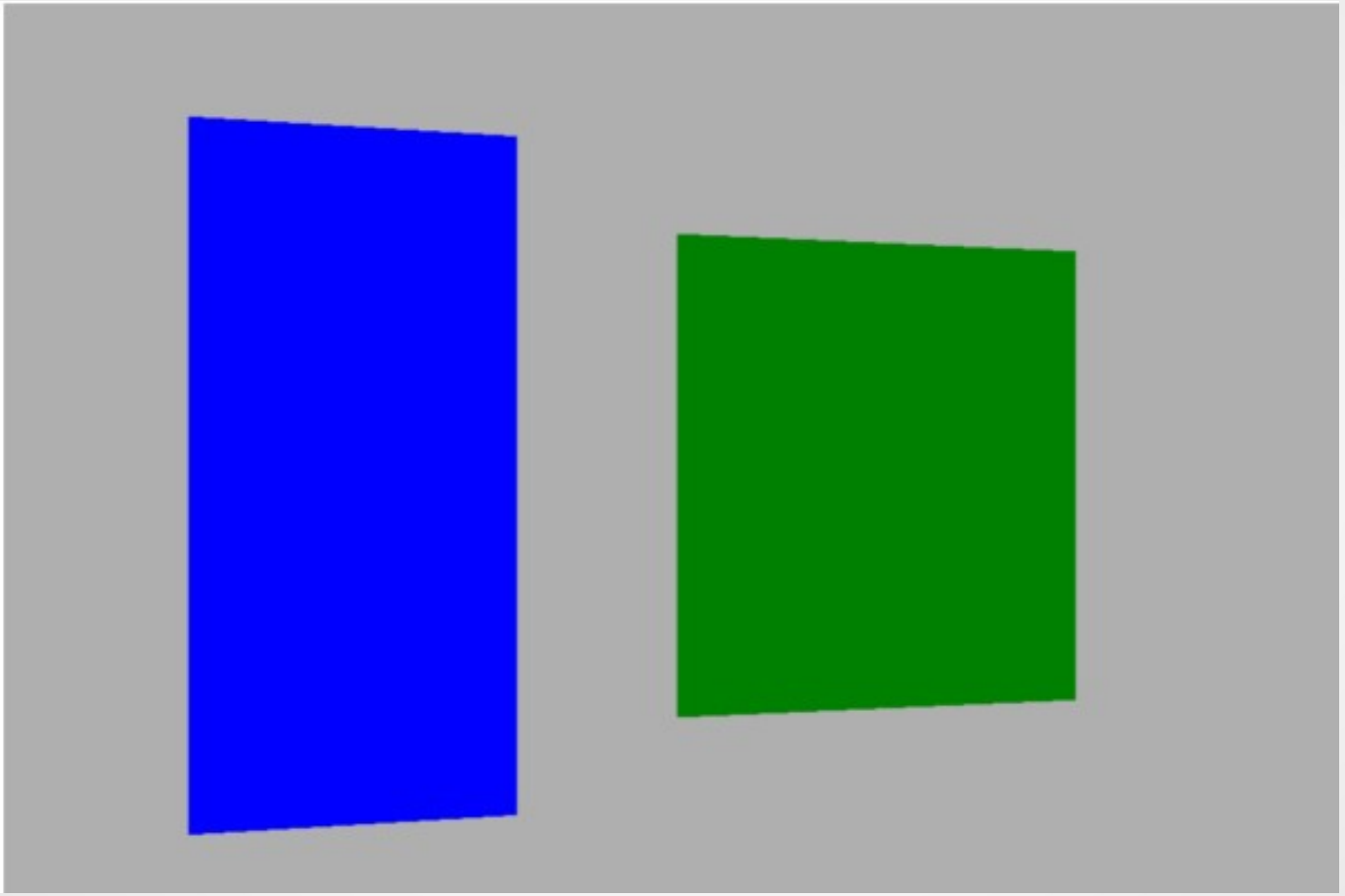
Rješenje

- var pivot = new THREE.Object3D();

  pivot.add(cube);



Praktični dio



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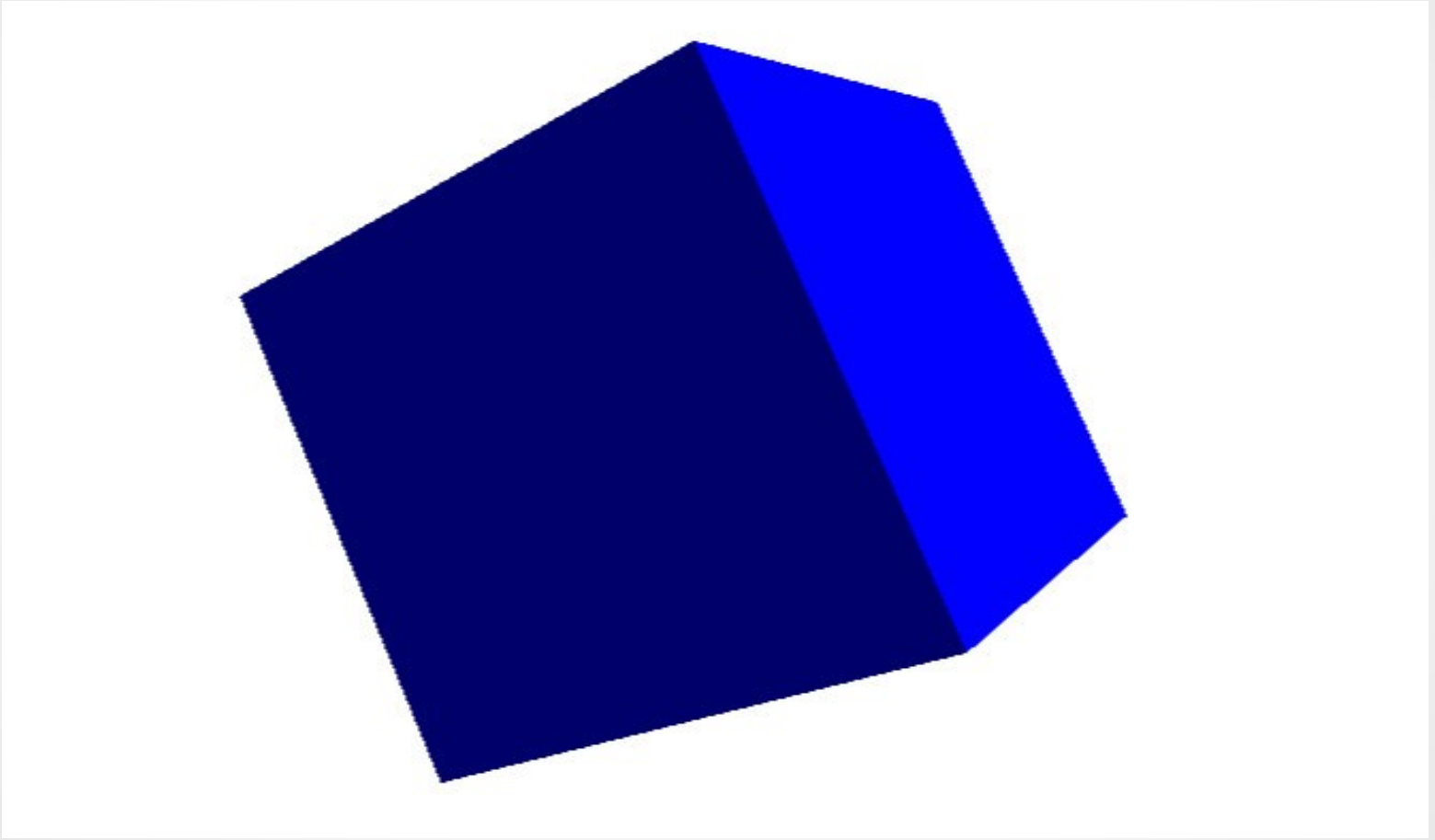

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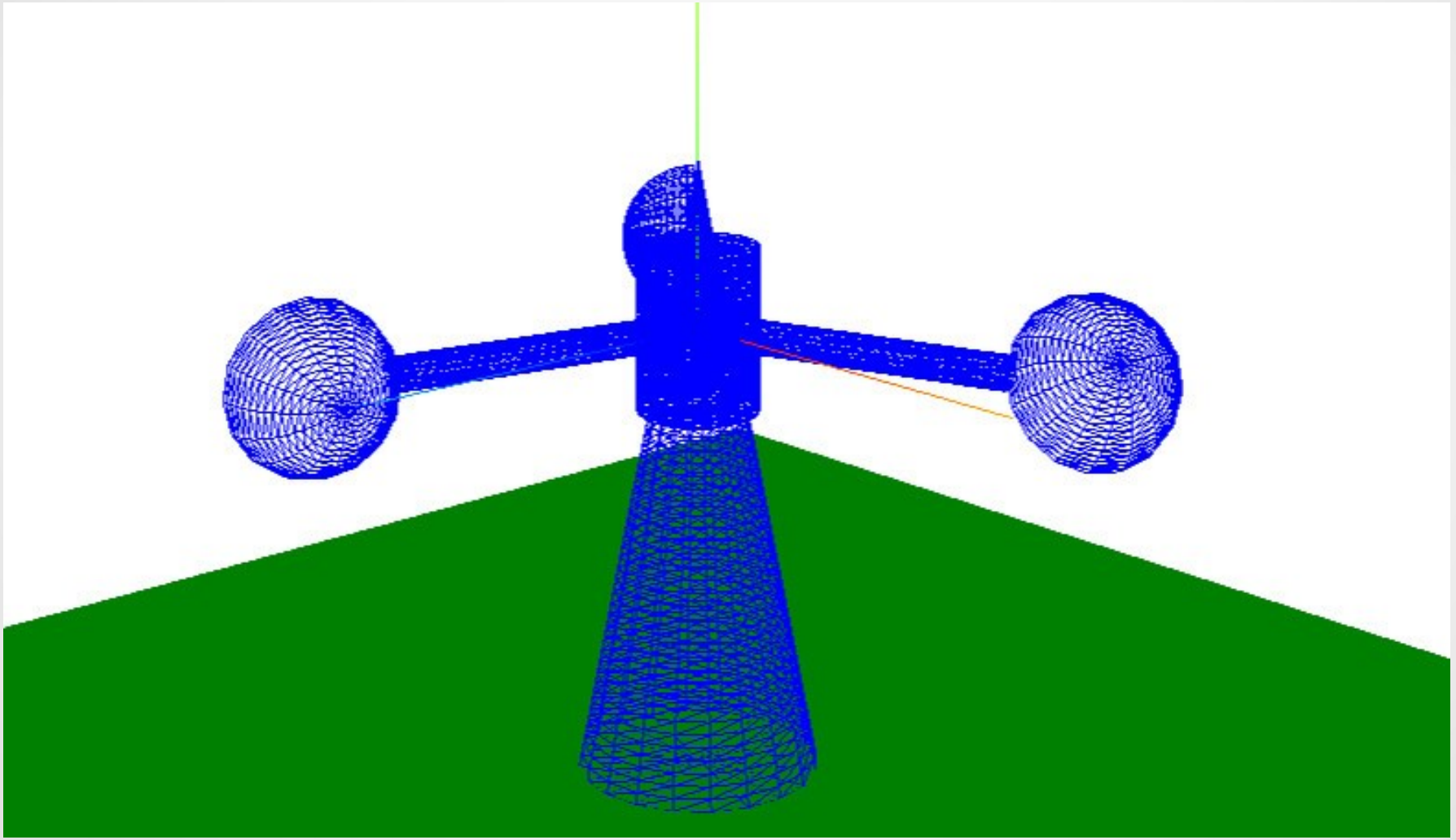

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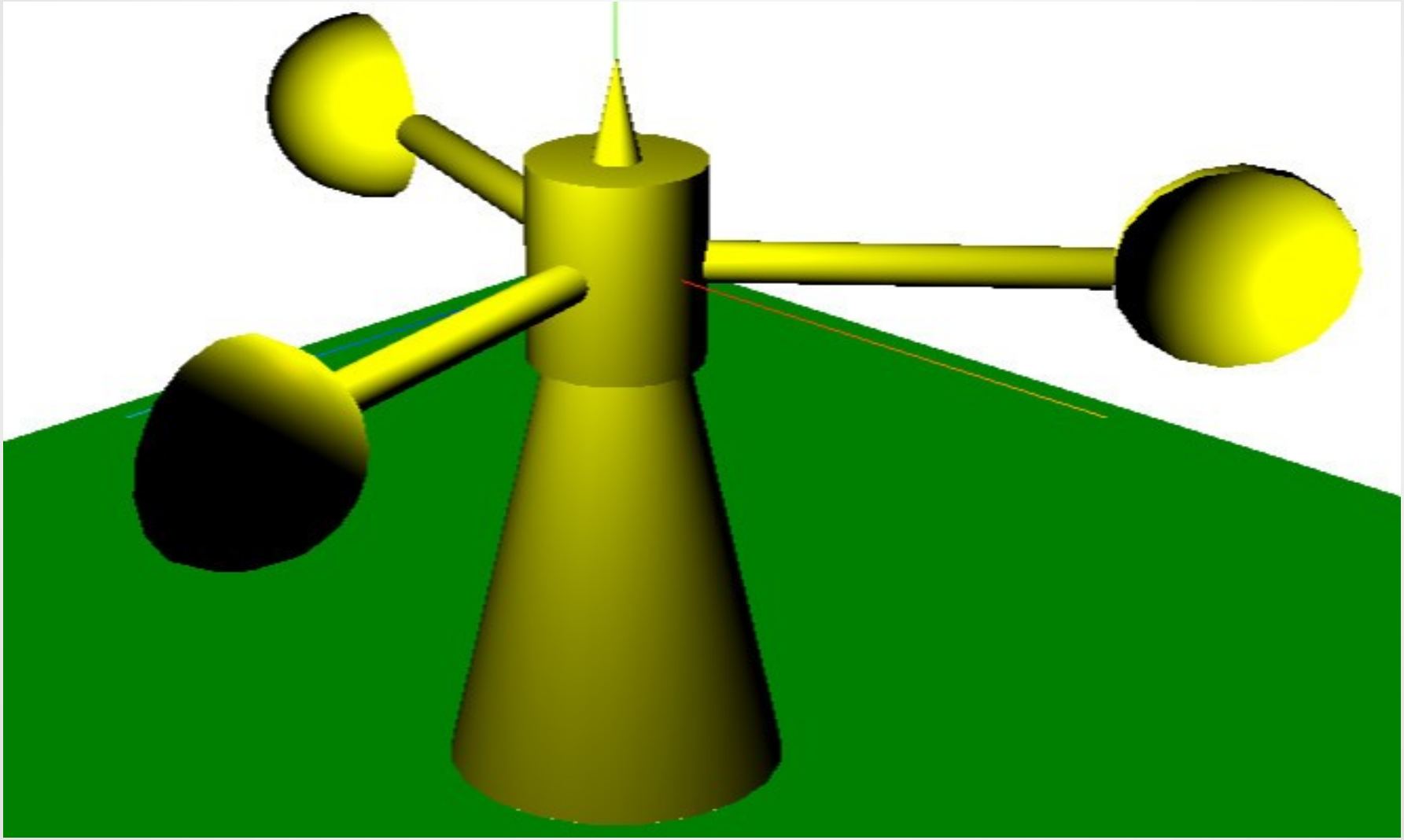

Literatura

- http://threejs.org
- http://stackoverflow.com/questions/15214582/how-do-i-rotate-some-moons-around-a-planet-with-three-js
- http://jsfiddle.net/hbt9c/61/
- http://jsfiddle.net/Q4uqE/5/
- http://www.johannes-raida.de/tutorials/three.js/tutorial07/tutorial07.htm
- http://www.html5canvastutorials.com/three/html5-canvas-webgl-texture-with-three-js/
- http://japhr.blogspot.com/2012/07/lights-and-materials-in-threejs.html

Pitanja?