Using Video as a Texture in Three JS

No comments

We have discussed the textures many times on our blog and covered many articles about them in Three.js, but we have always focused on an image texture instead of a video texture. You might want to use the video texture on a geometrical shape and simulate a kind of a 3D cinema or want to map a video inside of a skybox. This will give you infinite possibilities. In this tutorial, we will focus on how to map a video on a geometrical shape and then use this script to create more cool stuff along the way. We will definitely need to load the video in the index.html file created by the Vite plugin in the project directory.

Getting started from scratch:

We will get started with the main elements of a Three js scene, including the camera, the renderer, the scene, and the object. Before doing that, we use the Vite plugin to easily create all the folders and files you need to run the Three.js code. First off, create a folder in the directory of your projects by using the following commands: `mkdir VideoTextures` `cd VideoTextures` Then, inside of the your project folder, create the necessary files and folders by simply

running the Vite plugin command: `npm create vite@latest`   Then enter the name of the project. You can write the name of your project as the name. And also the package (the name is arbitrary, and you can choose anything you want). Then select vanilla as the framework and variant. After that, enter the following commands in the terminal. Notice that here VideoTextures is the project folder's name, and thus, we have changed the directory to VideoTextures. The name depends on the name you enter in the Vite plugin :   `cd VideoTextures` `npm install`   Afterward, you can enter the JavaScript code you want to write in the main.js file. So, we will enter the base or template code for running every project with an animating object, such as a sphere. Also, do not forget to install the Three.js package library every time you create a project: `npm install three`

The code :

Now, enter the following script in the main.js file:

```javascript
import * as THREE from 'three';
import { Mesh } from 'three';
import { VideoTexture } from 'three';
import {OrbitControls}
"/node_modules/three/examples/jsm /controls/OrbitControls.js";
import Stats from
"/node_modules/three/examples/jsm/libs/stats.module.js";

const scene = new THREE.Scene();
const camera = new THREE.PerspectiveCamera(75
, innerWidth /innerHeight , 0.1, 1000);
const renderer = new THREE.WebGLRenderer({
    antialias : true
});

renderer.setSize(innerWidth, innerHeight);
document.body.appendChild(renderer.domElement);
const video = document.getElementById( 'video' );
const videoTexture = new THREE.VideoTexture( video );

//creating a sphere
const geometry = new THREE.BoxGeometry(8,8,8);
const material = new THREE.MeshBasicMaterial({
    color:0x3268F8,
    map : new THREE.VideoTexture( video ),
    side : THREE.FrontSide,
    toneMapped : false,
});

const sphere = new THREE.Mesh(geometry, material);
scene.add(sphere);
camera.position.z = 15;

function animate(){
    requestAnimationFrame(animate);
```

```
    renderer.render(scene,camera);
    sphere.rotation.y += 0.003;
    //videoTexture.needsUpdate = true;
};

animate();
```

We should also change the HTML as below:

```html
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8" /><link data-optimized="2" rel=
"stylesheet" href=
"https://blog.arashtad.com/wp-content/litespeed/css/3e1fa1286034bd86f9fad29cc
  />
        <link rel="icon" type="image/svg+xml" href="/vite.svg" />
        <meta name="viewport" content=
"width=device-width, initial-scale=1.0" />
        <title>Vite App</title>
    </head>
    <body>
        <video
            id = "video"
            playsinline
            webkit-playsinline
            loop
            autoplay
            width="1290"
            height="1040"
            src="./video/vid1.mp4"
            style="display: none"
        ></video>
        <div id="app"></div> <script type="module" src="/main.js"
></script> <script data-no-optimize="1">!function(t,e){"object"
==typeof exports&&"undefined"!=typeof module?module.exports=e():
"function"==typeof define&&define.amd?define(e):(t="undefined"
!=typeof globalThis?globalThis:t||self).LazyLoad=e()}(this,function
(){"use strict";function e(){return(e=Object.assign||function(t){for
(var e=1;e<arguments.length;e++){var n,a=arguments[e];for(n in a)
Object.prototype.hasOwnProperty.call(a,n)&&
(t[n]=a[n])}return t}).apply(this,arguments)}function
 i(t){return e({},it,t)}function o(t,e){var n,a="LazyLoad::Initialized
",i=new t(e);try{n=new CustomEvent(a,{detail:{instance:i}})
}catch(t){(n=document.createEvent("CustomEvent")).initCustomEvent(a
,!1,!1,{instance:i})}window.dispatchEvent(n)}function
 l(t,e){return t.getAttribute(gt+e)}function c(t){return l(t,bt)}
```

```
function s(t,e){return function(t,e,n){e=gt+e;null!==n?t.setAttribute(
e,n):t.removeAttribute(e)}(t,bt,e)}function r(t){return s(t,null),0}
function u(t){return null===c(t)}function d(t){return c(t)===vt}
function f(t,e,n,a){t&&(void 0===a?void 0===n?t(e):t(e,n):t(e,n,a))}
function _(t,e){nt?t.classList.add(e):t.className+=(t.className
?" ":"")+e}function v(t,e){nt?t.classList.remove(e):t.className=t.
className.replace(new RegExp("(^|\\s+)"+e+"(\\s+|$)")," ").replace(/
^\s+/,"").replace(/\s+$/,"")}function g(t){return t.llTempImage}
function b(t,e){!e||(e=e._observer)&&e.unobserve(t)}function p(t,e){t
&&(t.loadingCount+=e)}function h(t,e){t&&(t.toLoadCount=e)}function
 n(t){for(var e,n=[],a=0;e=t.children[a];a+=1)"SOURCE"===e.tagName&&
n.push(e);return n}function m(t,e){(t=t.parentNode)&&"PICTURE"===t.tag
Name&&n(t).forEach(e)}function a(t,e){n(t).forEach(e)}function E(t)
{return!!t[st]}function I(t){return t[st]}function
 y(t){return delete t[st]}function A(e,t){var n;E(e)||(n={},t.forEach(
function(t){n[t]=e.getAttribute(t)}),e[st]=n)}function k(a,t){var i;E(
a)&&(i=I(a),t.forEach(function(t){var e,n;e=a,(t=i[n=t])?e.set
Attribute(n,t):e.removeAttribute(n)}))}function L(t,e,n){_(t,e.
class_loading),s(t,ut),n&&(p(n,1),f(e.callback_loading,t,n))}function
 w(t,e,n){n&&t.setAttribute(e,n)}function x(t,e){w(t,ct,l(t,e.data
_sizes)),w(t,rt,l(t,e.data_srcset)),w(t,ot,l(t,e.data_src))}function
O(t,e,n){var a=l(t,e.data_bg_multi),i=l(t,e.data_bg_multi_hidpi);(a=at
&&i?i:a)&&(t.style.backgroundImage=a,n=n,_(t=t,(e=e).class_applied
),s(t,ft),n&&(e.unobserve_completed&&b(t,e),f(e.callback_applied
,t,n)))}function N(t,e){!e||0<e.loadingCount||0<e.toLoadCount||
f(t.callback_finish,e)}function C(t,e,n){t.addEventListener(e,n),t.ll
EvLisnrs[e]=n}function M(t){return!!t.llEvLisnrs}function z(t){if(M(t)
){var e,n,a=t.llEvLisnrs;for(e in a){var i=a[e];n=e,i=i,t.remove
EventListener(n,i)}delete t.llEvLisnrs}}function R(t,e,n)
{var a;delete t.llTempImage,p(n,-1),(a=n)&&--a.toLoadCount,v(t,e.class
_loading),e.unobserve_completed&&b(t,n)}function T(o,r,c){var l=g(o)||
o;M(l)||function(t,e,n){M(t)||(t.llEvLisnrs={});var a="VIDEO"===t.tag
Name?"loadeddata":"load";C(t,a,e),C(t,"error",n)}(l,function
(t){var e,n,a,i;n=r,a=c,i=d(e=o),R(e,n,a),_(e,n.class_loaded)
,s(e,dt),f(n.callback_loaded,e,a),i||N(n,a),z(l)},function
(t){var e,n,a,i;n=r,a=c,i=d(e=o),R(e,n,a),_(e,n.class_error),s(e,_t
),f(n.callback_error,e,a),i||N(n,a),z(l)})}function G(t,e,n)
{var a,i,o,r,c;t.llTempImage=document.createElement("IMG"),T(t,e,n),E(
c=t)||(c[st]={backgroundImage:c.style.backgroundImage
}),o=n,r=l(a=t,(i=e).data_bg),c=l(a,i.data_bg_hidpi),(r=at&&c?c:r)&&
(a.style.backgroundImage='url("'.concat(r,'")'),g(a).setAttribute(ot,r
),L(a,i,o)),O(t,e,n)}function D(t,e,n){var a;T(t,e,n),a=e,e=n,(t=It
[(n=t).tagName])&&(t(n,a),L(n,a,e))}function V(t,e,n)
{var a;a=t,(-1<yt.indexOf(a.tagName)?D:G)(t,e,n)}function F(t,e,n)
{var a;t.setAttribute("loading","lazy"),T(t,e,n),a=e,(e=It[(n=t).tag
Name])&&e(n,a),s(t,vt)}function j(t){t.removeAttribute(ot),t.remove
Attribute(rt),t.removeAttribute(ct)}function P(t){m(t,function(t){k(t,
Et)}),k(t,Et)}function S(t){var e;(e=At[t.tagName])?e(t):E(e=t)&&(t=I(
e),e.style.backgroundImage=t.backgroundImage)}function U(t,e){var n;S(
t),n=e,u(e=t)||d(e)||(v(e,n.class_entered),v(e,n.class_exited),v(e,n.
```

```
class_applied),v(e,n.class_loading),v(e,n.class_loaded),v(e,n.class
_error)),r(t),y(t)}function $(t,e,n,a){var i;n.cancel_on_exit&&(c(t)!
==ut||"IMG"===t.tagName&&(z(t),m(i=t,function(t){j(t)}),j(i),P(t)
,v(t,n.class_loading),p(a,-1),r(t),f(n.callback_cancel,t,e,a)))}
function q(t,e,n,a){var i,o,r=(o=t,0<=pt.indexOf(c(o)
));s(t,"entered"),_(t,n.class_entered),v(t,n.class_exited
),i=t,o=a,n.unobserve_entered&&b(i,o),f(n.callback_enter,t,e,a),r||V(t
,n,a)}function H(t){return t.use_native&&"loading"in HTMLImageElement
.prototype}function B(t,i,o){t.forEach(function(t){return(a=t).is
Intersecting||0<a.intersectionRatio
?q(t.target,t,i,o):(e=t.target,n=t,a=i,t=o,void(u(e)||(_(e,a.
class_exited),$(e,n,a,t),f(a.callback_exit,e,n,t))));var e,n,a})}
function J(e,n){var t;et&&!H(e)&&(n._observer=new
IntersectionObserver(function(t){B(t,e,n)},{root:(t=e).container==
=document?null:t.container,rootMargin:t.thresholds||
t.threshold+"px"}))}function K(t){return Array
.prototype.slice.call(t)}function Q(t){return t.container.query
SelectorAll(t.elements_selector)}function W(t){return c(t)===_t}
function X(t,e){return e=t||Q(e),K(e).filter(u)}function Y(e,t)
{var n;(n=Q(e),K(n).filter(W)).forEach(function(t){v(t,e.class_error
),r(t)}),t.update()}function t(t,e){var n,a,t=i(t);this._settings
=t,this.loadingCount=0,J(t,this),n=t,a=this,Z&&window.add
EventListener("online",function(){Y(n,a)}),this.update(e)}var Z
="undefined"!=typeof window,tt=Z&&!("onscroll"in window)||
"undefined"!=typeof navigator&&/(gle|ing|ro)bot|crawl|spider/
i.test(navigator.userAgent),et=Z&&"IntersectionObserver"in window,nt=Z
&&"classList"in document.createElement("p"),at=Z&&1<window.device
PixelRatio,it={elements_selector:".lazy",container:tt||Z
?document:null,threshold:300,thresholds:null,data_src:"src",data
_srcset:"srcset",data_sizes:"sizes",data_bg:"bg",data_bg_hidpi
:"bg-hidpi",data_bg_multi:"bg-multi",data_bg_multi_hidpi
:"bg-multi-hidpi",data_poster:"poster",class_applied:"applied",class
_loading:"litespeed-loading",class_loaded:"litespeed-loaded",class
_error:"error",class_entered:"entered",class_exited:"exited",unobserve
_completed:!0,unobserve_entered:!1,cancel_on_exit:!0,callback_enter
:null,callback_exit:null,callback_applied:null,callback_loading
:null,callback_loaded:null,callback_error:null,callback_finish
:null,callback_cancel:null,use_native
:!1},ot="src",rt="srcset",ct="sizes",lt="poster",st="llOriginalAttrs
",ut="loading",dt="loaded",ft="applied",_t
="error",vt="native",gt="data-",bt="ll-status",pt=[ut,dt,ft,_t
],ht=[ot],mt=[ot,lt],Et=[ot,rt,ct],It={IMG:function(t,e){m(t,function
(t){A(t,Et),x(t,e)}),A(t,Et),x(t,e)},IFRAME:function(t,e){A(t,ht)
,w(t,ot,l(t,e.data_src))},VIDEO:function(t,e){a(t,function(t){A(t,ht)
,w(t,ot,l(t,e.data_src))}),A(t,mt),w(t,lt,l(t,e.data_poster
)),w(t,ot,l(t,e.data_src)),t.load()}},yt=["IMG","IFRAME","VIDEO"],At={
IMG:P,IFRAME:function(t){k(t,ht)},VIDEO:function(t){a(t,function
(t){k(t,ht)}),k(t,mt),t.load()}},kt=["IMG","IFRAME","VIDEO
"];return t.prototype={update:function(t){var e,n,a,i=this._settings
,o=X(t,i);{if(h(this,o.length),!tt&&et)return H(i)?(e=i,n=this,o.for
```

```
Each(function(t){-1!==kt.indexOf(t.tagName)&&F(t,e,n)
}),void h(n,0)):(t=this._observer,i=o,t.disconnect(),a=t,void i.for
Each(function(t){a.observe(t)}));this.loadAll(o)}},destroy:function
(){this._observer&&this._observer.disconnect(),Q(this._settings).for
Each(function(t){y(t)}),delete this._observer,delete this._settings
,delete this.loadingCount,delete this.toLoadCount},loadAll:function
(t){var e=this,n=this._settings;X(t,n).forEach(function(t){b(t,e),V(t,
n,e)})},restoreAll:function(){var e=this._settings;Q(e).forEach(
function(t){U(t,e)})}},t.load=function(t,e){e=i(e);V(t,e)},t.reset
Status=function(t){r(t)},Z&&function(t,e){if(e)if(e.length)for
(var n,a=0;n=e[a];a+=1)o(t,n);else o(t,e)}(t,window.lazyLoadOptions
),t});!function(e,t){"use strict";function a(){t.body.classList
.add("litespeed_lazyloaded")}function n(){console.log("[LiteSpeed]
Start Lazy Load Images"),d=new LazyLoad({elements_selector:
"[data-lazyloaded]",callback_finish:a}),o=function(){d.update()},e.
MutationObserver&&new MutationObserver(o).observe(t.documentElement
,{childList:!0,subtree:!0,attributes:!0})}var d,o;e.addEventListener
?e.addEventListener("load",n,!1):e.attachEvent("onload",n)
}(window,document);</script><script data-optimized="1" src="https://
blog.arashtad.com/wp-content/litespeed/js/
1e3dd747a0985a97c8c7085e6bc8a49d.js?ver=56396" defer></script></body>
</html>
```

Notice that in the above .html script we only add the video tag in the body:

```
<video
     id = "video"
     playsinline
     webkit-playsinline
     loop
     autoplay
     width="1290"
     height="1040"
     src="./video/vid1.mp4"
     style="display: none"
></video>
```

Do not forget to copy the video inside a folder called video and set the name of the video as vid1. Now if we save the code, and enter the following command in the terminal: `npm run dev`   The above script will give the following result:

Screenshot 2022 07 21 01 06 58 Using Video as a Texture in Three JS

And as you can see we have a video on each sides of the cube.

Conclusion

In this tutorial, we worked on a cool project: placing a video texture onto a cube. This project can open the door to so many possibilities. To make this happen, we first created a folder and pasted a video in it. Afterward, we added the video HTML tag in the index.html file and the Three.js code in the main.js file. This approach helped us develop some 3D cinema. In future tutorials, we will teach you how you can create an actual 3D cinema with 360 views.

Download this Article in PDF format

3d websites Image or type unknown

Arashtad Custom Services

In Arashtad, we have gathered a professional team of developers who are working in fields such as 3D websites, 3D games, metaverses, and other types of WebGL and 3D applications as well as blockchain developemnet.

Visit Our Services
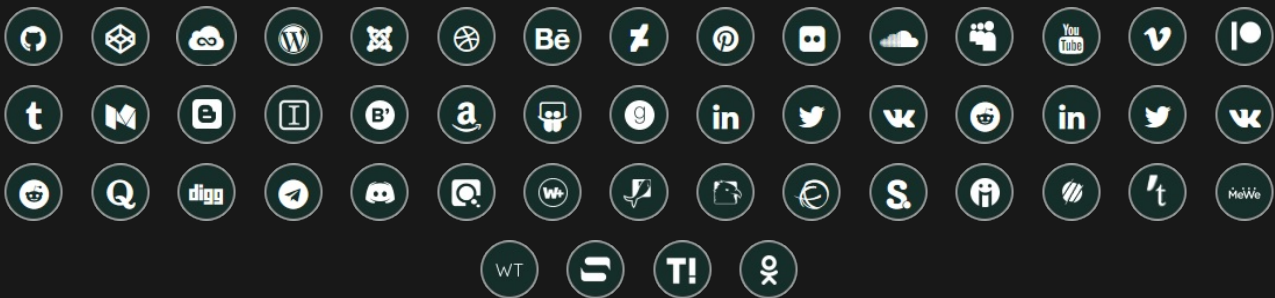Arashtad Services
Drop us a message and tell us about your ideas.
Fill in the Form
Blockchain Development

Join Arashtad Community

© 2023 - Arashtad.com. All Rights Reserved.

Follow Arashtad on Social Media

We provide variety of content, products, services, tools, tutorials, etc. Each social profile according to its features and purpose can cover only one or few parts of our updates. We can not upload our videos on SoundCloud or provide our eBooks on Youtube. So, for not missing any high quality original content that we provide on various social networks, make sure you follow us on as many social networks as you're active in. You can find out Arashtad's profiles on different social media services.

Get Even Closer!

Did you know that only one universal Arashtad account makes you able to log into all Arashtad network at once? Creating an Arashtad account is free. Why not to try it? Also, we have regular updates on our newsletter and feed entries. Use all these benefitial free features to get more involved with the community and enjoy the many products, services, tools, tutorials, etc. that we provide frequently.

SIGN UP   **NEWSLETTER**   **RSS FEED**