

HTML5-based E-book Viewer with 3D

Hyeong-Ryeol Kim, Dae-Seung Kim, Young-Ju An, So-Young No, Qi-Xing Han, JongMyung Choi
 Department of Computer Engineering, Mokpo National University
 E-mail : karitcema202@gmail.com

1. Introduction

The growth of the paper book's market is stagnant, or the market showing that downward trend appeared due to the increase in prevalence with Tablet PC e-book market has shown a growing trend. E-books are classified as systematic aspects and content aspect in this paper, we are dealing with is primarily a content aspect. The Markets distribute 10 million e-book contents currently to the users, we haven't meet the demand a variety of content because of concentration with the areas of genre fiction content. In this paper, we will introduce you to the Viewer about HTML5-based e-book viewer. To developing educational books or materials, we aimed at e-book format to meet the more diverse content[1].

HTML5-based e-book Viewer is able to display the same Web page, is capable of playing music, videos, etc without any additional installation by itself even if using another Web browser or operating system. Another advantage is that it provide to user semantic features as representation of Web document, multimedia capabilities of video/audio, offline capabilities and storage features, 2D/3D graphics features and device control features, a wide variety of styles and effects capabilities of the Web application. In addition, it is able to support from various Tablet PC or mobile besides e-book-only device. Based on these features, HTML5-based e-book is supported videos in a book, a variety of user interfaces, 3D viewer, quizzes and etc[2]. This paper is as follows. the study is similar to the related research will introduce in the chapter 2, it will describe the contents of the designs in the chapter 3 and is consists of a conclusion in the chapter 4.

2. Related Research

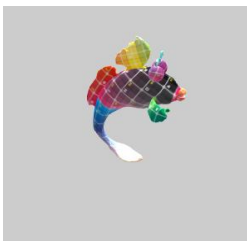
In order to fulfill its role as an electronic book, the following conditions must be satisfied. Manufacturing techniques which may be data of the original, Deployment technology that can read e-books, protection technology to protect the transmission copyright and e-book copyright author is required. The study on the production technology of them, a PDF, and ePub but, PDF, can be as simple image, to see that there is no major difference between the existing paper book. It is enacted ePub3 recently, it supports JavaScript and multimedia elements, but there is a defect in the part of the various support user interaction[3][4]. Technique introduced in this paper is a method in which the e-book HTML5 technology-based and can be implemented by using a common API for Web. The HTML5, 3D viewer that are supported by WebGL in support of video and audio in the basic tags makes it possible to develop, such as user interaction a variety of using JavaScript, content rich and dynamic. In addition, multi-platform support possibilities, I have the advantages such as ease of work.

3. HTML5-based E-book Viewer

3.1. HTML5-based E-book Application

HTML5-based e-book viewer can materialize HTML5 and CSS make use of JavaScript. Flip animation of bookshelves can be implemented without the use of flash animation effects in the past to implement the e-book is also used for the development of much more had the advantage of being easier to use and lighter than a conventional flash and action scrip. HTML5-based e-book viewer that is able to avoid having to duplicate the application needs to be developed to support a large number of smart phone operating system. Using the HTML5 video tag videos and e-book viewer, you can take advantage of, 3D Modeling and 3D models can be controlled, JavaScript code can be applied using a variety of user interactions can also e-book viewer[7].

3.2. 3D Viewer



E-book of the 3D Viewer has great advantages include out the traditional paper books. The 3D viewer allows users to manipulate and direct 3D modeling 3D aspect can be seen from the advantages.

It make through HTML5 and WebGL Java script. Provided by the web browser WebGL is 3D graphics Java script API-based graphics librarv. It can be used through programming language that is compatible web browser to be able to use interactive 3D graphics is provided. WebGL is a context of the canvas HTML element that provides a three-dimensional computer graphics API without the use of plug-ins. The following figure is an e-book in the 3D viewer.

```

function init() {
  renderer = new THREE.WebGLRenderer();
  renderer.setSize(innerWidth, innerHeight);
  document.body.appendChild(renderer.domElement);
  scene = new THREE.Scene();
  var aspect = innerWidth / innerHeight;
  camera = new THREE.PerspectiveCamera(50, aspect, 1, 10000);
  camera.position.z = 1000;
}

function createMesh() {
  var geometry = new THREE.SphereGeometry(100);
  var material = new THREE.MeshBasicMaterial({
    color: 0x1d6e99,
    wireframe: true
  });
  mesh = new THREE.Mesh(geometry, material);
  scene.add(mesh);
}

function draw() {
  requestAnimationFrame(draw);
  mesh.rotation.x += .01;
  mesh.rotation.y += .02;
  renderer.render(scene, camera);
}

```

Renderer in Table 1 is that the object is to draw the final result. There are a WebGL Renderer, Canvas Renderer and SVG Renderer. Scene of the basic elements that make up the screen is consists of multiple models and lighting. Besides adding to the contrast of three-dimensional objects and light, the direction and intensity of Light that reflects the Shadow, the surface of the object to be treated as an image file Texture, three-dimensional models created in other apps using the Model, Three.js plug-in framework there are tQuery.

4. Conclusions

The growth of the paper book's market is stagnant, or the market showing that downward trend appeared due to the increase in prevalence with Tablet PC e-book market has shown a growing trend. The e-books containing multimedia and 3D viewer has the advantage that the new user experience even if it could not give traditional paper book. So far, e-book technology is only a start. We need to provide the technology to support more variety contents. In addition, HTML5 of based e-book Viewer had introduced take advantage multimedia elements, user interaction, and the 3D viewer and etc. HTML5-based e-book is expected to result in a large usability due to the ease of implementation and multi-platform support after the e-book market.

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