Augmented Reality XmasTree Ver. 2.1

Document version 1.1 2012.Dec.06

No Christmas without a Christmas tree!

If you still haven't got a Christmas tree – no panic. Here is the last minute solution for your problem! Turn on your webcam, print out the marker pattern from the last page or make a photo with your mobile device and hold it to your webcam.

THAT'S ALL! Now Christmas is saved.

What is Augmented Reality?

Augmented Reality (AR) is an interactive real-time technology which combines real video with 3d-generated virtual contents.

This technique needs a marker based image pattern to recognize the perspective and position of the camera to calculate the 3d-simulation environment and match them together with the background video.

To see how it works you will find some nice examples here:
http://www.gigantico.net/augmented2/aug_video_index_00.html

About the AR-XmasTree Application:

The AR-XmasTree is a Flash-web application based on the FLAR-Toolkit API for the AR-detection and the Away3D-Engine for the 3d-simulation. It was written in AS3 with the Adobe Flash Builder 4.7 Framework.

The Flash-Application requires a minimum Flash player version of 11.4 to use the new features for camera video access and hardware accelerated support.

How to customize the AR-XmasTree:

You can individual configure the following properties with the included configuration file (*config.xml*):

- Start screen Image with the marker pattern and some instructions.
- Background Image on the beginning before the camera starts to play.
- Background music.
- Individual Image planes in the 3d-environement as many as you want.
- Model properties such as size, scaling and visibility for the snow and the 3d-Xmas-Tree

The config.xml file has the following xml structure:

```
<?xml version="1.0" encoding="UTF-8"?>
<config>
	<!-- source path url where all the contents are stored -->
	<sourcePath></sourcePath>
	<flar><!-- settings for the AR-marker detection -->
		<!-- the path to the marker pattern file -->
		<marker>marker/flarlogo.pat</marker>

		<!-- the url to your marker print document -->
		<printUrl>marker/flar_marker.pdf</printUrl>

		<!-- use this value to affect the relative size of your image planes. -->
		<markerWidth>300</markerWidth>

		<!-- this will optimize the marker detection if you have low camera light
		or bad quality situations but also decrease the performance a bit.
		set it to 'false' if you have a good video and light quality to get
		better performance -->
		<optimizeDetection>false</optimizeDetection>
	</flar>
	<!-- background sound.
	starts playing at the first detection of the marker pattern. -->
	<sound>sounds/Let_It_Snow.mp3</sound>

	<!-- background image before the camera is attached and starts to play. -->
	<backgroundImage>media/background.jpg</backgroundImage>

	<!-- start-screen image to show the necessary marker and some instructions.
	It will disappear automatically after the first marker detection. -->
	<startScreen>media/start_screen.png</startScreen>

	<scene3d>
		<sceneScale>1</sceneScale>   <!-- global scaling for whole 3d-scene -->
		<showModel>true</showModel>  <!-- 3d-tree model visible? -->
		<modelScale>3</modelScale>   <!-- scaling of the 3d-tree model -->
		<showSnow>true</showSnow>    <!-- use animated snow particles? -->
		<snowScale>3</snowScale>     <!-- scaling for the complete snow-area -->
		<snowParticles>500</snowParticles><!-- number of random snow particles-->
	</scene3d>
	<!-- use a set of various images on 3d-planes in the 3d-environment -->
	<images>
		<image> <!-- first image and all there settings -->
			<file>media/message_1.png</file>
			<doubleSided>false</doubleSided><!-- should the image plane seen
			from both sides? -->
			<scale>1</scale> <!-- scaling for the image plane -->
			<position>0, 0, -350</position> <!-- 3d-position for x, y, z -->
			<rotation>0, 0, 0</rotation> <!-- 3d-rotation for x, y, z-axis -->
			<rotationSpeed>0, 0, 0</rotationSpeed> <!-- optional rotation speed
			for x, y, and z-axis -->
		</image>
		<image> <!-- second image and its settings -->
			<file>media/message_2.png</file>
			<doubleSided>true</doubleSided>
			<scale>0.5</scale>
			<position>0, 600, 0</position>
			<rotation>90, 0, 0</rotation>
			<rotationSpeed>0, 0.5, 0</rotationSpeed>
		</image>
		<!-- set additional images here -->
	</images>
</config>
```

What is included in the application package?

The following file structure gives you an overview of all files included in the AR-XmasTree package and what they are for:

bin-release	Complete online runtime version. This is the output folder when you compile the application. Use this folder to put it on your own web-resource.
libs	Use this folder to store the API (swc) file you need for developing. (See 'For Developers only')
html-template	This is only necessary for debugging and publishing in Adobe Flash Builder 4.7
resources	In this folder are stored all assets, embedding files for the 3d-scene and also the complete 3d-model of the Xmas-tree with textures in 3DStudioMax format.
docs	Documents folder with the marker-print document and also THIS description.
src	Her you will find the complete source code for the AR-XmasTree application, the media files, marker and sound files. The sound file of the preview is NOT included in the package. You can use your own sound file you want in mp3 format. (See 'How to customize…' for the implementation)

For Developers only:

The AR-XmasTree application is developed as ActionScript for Web-Project with the Adobe Flash Builder 4.7 Framework. The runtime library is based on AIR SDK 4.3 (Flex 4.6.0 build 23201). The minimum required Flash Player Version is 11.4.0.

When you plan to use the source code for modifications and your own developments then you must import the API which is used for the AR-XmasTree application from this download link:

http://www.cid.co.at/apps/flar_xmastree_2.1/api/flar_away3d_api.zip

This API has already included the FLAR-Toolkit and the Away3D-Engine and also some modifications, optimized for the AR-XmasTree application.

How to install the AR-XmasTree application for development:

1.) Import the existing project of the AR-XmasTree application package to your Adobe Flash Builder 4.7 framework.
2.) Download the API package from this link:
http://www.cid.co.at/apps/flar_xmastree_2.1/api/flar_away3d_api.zip
3.) Copy only the file FLAR.Away3D.swf file from the bin folder to the empty libs folder in the project. This folder must use as library-path swc-folder in the project settings.
4.) Now you can modify, debug and compile your new project.

For local use consider that you need local access to your applications folder. You can set them in the browser context menu or with the online settings manager here:
http://www.macromedia.com/support/documentation/en/flashplayer/help/settings_manager04.html

More Information about the included API's you can find here:

- FLAR-Toolkit: http://www.libspark.org/wiki/saqoosha/FLARToolKit/en
- Awar3D-Engine: http://away3d.com/

Have fun!

For additional Information see the online FAQ's from the application project site on ActiveDen.

If you have any questions please do not hesitate to contact me.

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