Project Brief

Project Title: Coca Cola Live Site Pavilion - 2010 Vancouver Olympics

Introduction:

The following is a brief project description for the Coca Cola Live Site Pavilion project at the Vancouver Olympics.

Purpose:

Coca Cola and marketing partner Ignition wanted to create an iconic corporate pavilion at the 2010 Winter Olympic Games that would draw people into the exhibit. Once inside the purpose was to demonstrate Coca Cola's commitment to help the environment and do its part as a responsible corporation.

The project was an extreme success with the Coca Cola Pavilion reaching maximum capacity from opening day to closing day and being named as a corporate pavilion medal winner by the Globe and Mail and listed as the best overall pavilion on many blogs.

Project Description:

RLDS in partnership with DANGERS Inc. was selected to design and provide all audio, lighting and projection systems for the pavilion. As part of this work RLDS. designed all audio and lighting systems, a 270^{o} immersive projection system, a surround sound capable HD video chamber, an interactive recycling game, the first-ever interactive 16 ft tall bottle and produced all imagery.

Interactive Bottle:

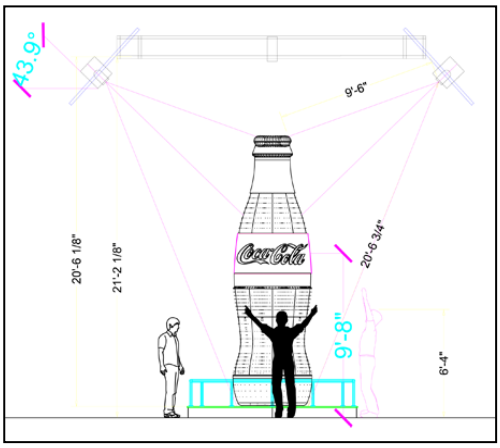
The two story tall bottle was the centrepiece of the 8,600 sq. ft. pavilion and delighted visitors, often becoming the centre of celebrations for Canadian medal wins. The bottle was fully interactive allowing guests to manipulate bubbles, athlete icons, maple leaves and generate liquid waves on the bottle.

A number of different looks were used and rotated throughout the event including:

- a version of the limited edition 2010 Olympics bottle with interactive Olympic rings, skiers and snowboarders.
- an all red bottle with interactive white maple leafs
- the traditional Cola Cola contour bottle with interactive bubbles and liquid effect
- Gold, Silver and Bronze medal announcement bottles with interactive red maple leaves and an animated medal label synced to the dome projection system.

Challenges:

To our knowledge this is the first 360º projected interactive element ever created and as such created a number of challenges. These are listed below.



1 – Projection Angle

The bottle diameter and material ruled out any possibility of rear projection. Rear projection is the preferred method for interactive projection systems. Since we were forced to look at front projection the first challenge was eliminating shadows caused by participants standing in front of the bottle. We decided to mount our projectors as high and angled down as much as possible placing the projection beams between the participants and the bottle. We used AutoCad and 3D modelling to determine our exact projector and truss positions and then expanded this to coordinate projector positions for the dome projection (see Dome Projection section below).

2 – Projector Angle

With a calculated projector angle beyond 40º in portrait mode we then needed to test our projectors since this angle is not recommended (and in fact specifically discouraged) by most projector manufacturers. We ran our projectors in this position for an extended period during our R & D phase and monitored the projector temperature and performance. We found no issues when running the projectors in this position and determined we could comfortably run the projectors in these positions for the entire run of our show.

(Note: Although our projectors performed with no issues during our event this applies ONLY to our project and this information should not be used to justify any similar installations.)

3 – Keystone Correction and Shape Compensation

The extreme projection angle and the complex shape of the bottle which was an exact replica of the traditional Coca Cola contour bottle further complicated the system. Since the interactive systems need to immediately react to movements we could not afford adding any delay into the signal whatsoever. We used the Image Anyplace processor (IA-100BEX) for this which provided full geometry correction with near zero latency. Once the geometry correction was completed we produced our initial bottle look as a 3D panoramic graphic which circled the bottle in one degree increments. We used these images to determine the exact camera position in our 3D model that would line up exactly with the bottle contours.

4 -Reactive Video System

Once we determined that we could cover the bottle from top to bottom we needed to select an interactive system that could accommodate four camera inputs and output four portrait images that could crossover interactive elements from projector to projector while meeting our budget limitations. We contracted M1Interactive to provide a customized system based on their Respondr reactive video system.

Dome Projection:

The dome projection system covered 270^{o} of the ceiling of the dome. A blackout liner was used to allow projection during the day. The projection covered over 8000 sq. ft. of projection surface using 12 large format projectors with a total power of 240, 000 lumens. The system was driven by an array of media servers including one driving the label portion of the interactive bottle. Both systems were used for synchronized medal announcements followed by replays and, in certain cases, live playback of the medal winning performances.

Challenges:

1 - Set Design

The set design for the pavilion included many elements that could potentially cause lens obstructions for the projectors. The projectors were placed outside of the set elements above the service corridors at an elevation of 10 feet (top of projector just below 12 feet). A custom platform made using swivel clamps and piping was used to create a platform that spanned our lighting truss and anchored to the tents upright trussing. All set elements were then limited to a 12 foot and the projection material coordinated with the tent manufacturer to start at the 12 foot mark.

2 - Interactive Bottle

A more difficult challenge was the 16 foot interactive bottle which was placed squarely in the center of the main space creating a significant obstruction. The bottle was the center point of the pavilion therefore its position was fixed. Our solution was to move our projectors towards the extreme ends of the tent and angle them inwards to shoot around and behind the bottle. By leveraging the power of our media servers we were not only able to compensate for the exaggerated keystone effect but we were also able to remove many of our rigging shadows caused by customizing each edge blending region. In some cases we reduced our edge blend down to as little as a few pixels to eliminate a shadow on one projector in favour of another with an unobstructed throw.